Authorial Stance in Academic English:

Native and Non-native

Academic Speaker Writers' Use of Stance Devices (Modal Verbs)

In Research Articles

Hüseyin Kafes

(Doktora Tezi)

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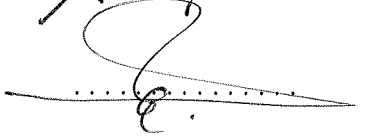
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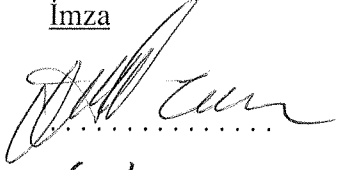
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To Başak, my daughter

JÜRİ VE ENSTİTÜ ONAYI

Hüseyin KAFES'in "Authorial Stance in Academic English: Native and Non-native Academic Speaker Writers' Use of Stance Devices (Modal Verbs) In Research Articles" başlıklı tezi 29.07.2009 tarihinde, aşağıda belirtilen jüri üyeleri tarafından Anadolu Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca Yabancı Diller Eğitimi Anabilim Dalı İngilizce Öğretmenliği Programında, Doktora tezi olarak değerlendirilerek kabul edilmiştir.

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Akademik İngilizcede Yazar Duruşu:

Amerikalı, Türk ve İspanyol Akademisyenlerin Makalelerindeki Kiplik

Hüseyin Kafes

İngiliz Dili Eğitimi Anabilim Dalı

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Danışman: Doç. Dr. Ümit Deniz Turan

Akademik yazının tamamen objektif, yazar etkisi içermeyen, doğrudan gelişerek kaçınılmaz gerçeğe götüren bir olgu olması anlayışının değişmesine paralel olarak, "dil bilimciler, akademik yazında yazarların kişisel duygu, düşünce ve değerlendirmelerini ifade etmede kullandıkları dilsel mekanizmalarla giderek daha fazla ilgilenmeye başlamışlardır" (Biber, 2004: 107; 2006: 97). Bu ilgi farklı başlıklar altında yapılan çok sayıda çalışmayla sonuçlanmıştır: "Tutum ve kip" (Halliday, 1994), "değerlendirme" (Hunston,1994; Hunston and Thompson 2000), "yeğinlik" (Labov, 1984), "duygulanım" (1989), "gerçeklik kipi" (Chafe, 1986, "yumuşatma" (Homes, 1988; Hyland, 1996, 1998) ve "duruş", (Beach and Anson, 1992), (Biber and Finegan, 1988, 1989), (Bieber et al. 1999; Biber 2004), (Conrad & Biber, 2000). Duruş, ister konuşmacı, ister yazar duruşu olsun, başka bazı unsurların yanı sıra, herhangi bir konunun "gerçeklik kipi" (evidentiality), "düz kiplik" (epistemic modality), ve "yükümlülük kipi" (deontic modality) ile ifade edilmesini içerir (Biber et al 1999: 966, 972).

Bu karşılaştırmalı çalışma, makalelerde yazar duruşunun sergilenmesini incelemek amacıyla yapılmıştır. Çalışmanın amacı Türk, İspanyol ve Amerikan akademisyenlerin uluslarası hakemli bir dergide yayımlanan makalelerinde duruşlarını nasıl sergilediklerini araştırmaktır. Çalışmanın verisini Türk, İspanyol ve Amerikan akademisyenlerin yazdığı toplam 45 makalede kullanılan kip eylemleri oluşturmaktadır. Bu makaleler 1993 ve 2007 yılları arasında *Social Behavior and Personality* adlı dergide yayımlanmıştır. Bu makalelerin "Özet", "Giriş", "Yöntem", "Sonuçlar ve Değerlendirme" bölümlerinde kullanılan kip eylemleri veri olarak kullanılmıştır. Başka bir yazardan doğrudan yapılan alıntılarda kullanılan kip eylemler çalışmada kullanılmamıştır. Veri olarak kullanılan eylemler Wordsmith Tools adlı bilgisayar programı ve araştırmacı tarafından belirlenmiştir. Bu

eylemlerin makalelerdeki işlevleri araştırmacı ve ana dili İngilizce olan Amerikalı bir akademisyen tarafından birbirinden bağımsız olarak belirlenmiş ve belirlenen işlevler arasındaki tutarlılığın oranını tespit etmek için Spearman testi uygulanmıştır. Son aşama olarak Türk, İspanyol ve Amerikan akademisyenlerin duruşlarını ifade etmek için kullandıkları kip eylemlerin arasındaki nitel ve nicel anlamlı farkların belirlenmesi için Varbrul programından yararlanılmıştır.

Verilerin nitel ve nicel incelemeleri sonucunda gruplar arasında önemli benzerlik ve farklılıkların olduğu gözlenmiştir.

Bulgular kiplik kullanımında yazarın bağlı bulunduğu hem küresel hem de yerel söylem toplum geleneklerinin, yazarın kültür birikiminin, eğitim ve kişiliğinin önemli rol oynadığı göstermiştir.

Bu çalışmada elde edilen sonuçlar göz önüne alınarak akademik yazında duruş sergilenmesi, akademik yazma dersleri ve İngilizcede kip eylemlerin öğretimine yönelik yansımalar üzerinde durulmuş ve önerilerde bulunulmuştur.

Abstract

Authorial Stance in Academic English:
Native and Non-native Speaker
Academic Writers' Use of Stance Devices (Modal Verbs)
In Research Articles

Academic writing has recently been conceptualized as not necessarily a purely objective, faceless, dry, convention-bound monolithic entity, involving a distant, convoluted, and impersonal prose, devoid of writer involvement, unfolding in a direct manner leading to an inescapable truth, as once used to be seen. In tandem with this relatively new conceptualization, "linguists have become increasingly interested in the linguistic mechanisms used by speakers and writers to convey their personal evaluation and assessments" (Biber, 2004: 107; 2006:97).This interest has found its reflection in a number of studies, labeled differently: "attitude" and "modality" (Halliday, 1994), "evaluation" (Hunston,1994; Hunston and Thompson 2000), "intensity" (Labov, 1984), "affect" (Ochs,1989), "evidentiality" (Chafe, 1986; Chafe and Nichols, 1986), "hedging" (Homes, 1988; Hyland, 1996, 1998), and "stance" (Barton, 1993), Beach and Anson, 1992), (Biber and Finegan, 1988, 1989), (Bieber et al. 1999; Biber 2004), (Conrad & Biber, 2000).

Stance, be it the writer stance or the speaker stance, involves, amongst other things: "the communication of assessments and value judgments concerning the described situation by appeal to evidence (evidentiality), assessment of the degree of likelihood concerning the described situation (epistemic modality), and arguments regarding the necessity or desirability of the situation obtaining (deontic modality) Biber et al. (1999: 966, 972).

This study was conducted to analyze authorial stance in research articles. Specifically, it was designed to investigate how non-native English speaker academic writers (Turks) and (Spaniards) and native English speaker academic writers (American) express their stance in their research articles published in a refereed international journal by focusing on only eight modal verbs; "can", "could", "may", "might", "will", "would", "should", or "must". The data for this study originated from 45 research articles written by non-native and native speaker academic writers. The research articles were published in the American *Social Behavior and Personality* between 1993 and 2007. All of the modal verbs in the different rhetorical sections "Abstract", "Introduction", "Methodology", "Results", and "Conclusion" of the research articles were identified by Wordsmith Tools, a computer program, and

manually by the researcher. The modal verbs used in direct quotation were excluded from the study. Then, the functions of the modal verbs were independently determined by the researcher himself and a native speaker, and the Spearman Coefficient test was run to ascertain inter-rater reliability. As the final step, Varbrul, a multivariate analysis program, was used for statistical analysis.

The analyses of the data indicated the existence of both similarities and also differences. The findings demonstrated that both native and non-native writers are well aware of the functions of the rhetorical sections of the research article. It was observed that the distribution of the modal verbs across the different sections of the research articles bears some similarities as well as some differences, slight though they are. The results demonstrated that writer stance in the research article is partly governed by the global discourse community of the research article and its conventions as well as the local discourse community of the writer and its conventions.

A couple of implications were drawn from the study and some suggestions were made regarding research article writing, academic and advanced writing courses, and teaching modal verbs, by considering all these from a totally different perspective.

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I owe a debt of gratitude to some people whose help has been crucial to my success in completing this dissertation.

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Özgeçmiş

Hüseyin Kafes

İngiliz Dili Eğitimi Anabilim Dalı
Doktora

Eğitim

Yüksek Lisans	1999	Anadolu Üniversitesi, Sosyal Bilimler Enstitüsü, Eskişehir
Lisans	1989	Selçuk Üniversitesi, Fen-Edebiyat Fakültesi İngiliz Dili ve Edebiyatı, Konya
Lise	1985	Edirne

İş

1999-	Okutman	Anadolu Üniversitesi, Yabancı Diller Yüksek Okulu, Eskişehir
1994-1999	Okutman	Kocatepe Üniversitesi, Afyonkarahisar
1990-1994	Öğretmen	Atatürk İlköğretim Okulu, Bitlis

Kişisel Bilgiler

Doğum yeri ve yılı	Karaman, 03 Mart 1965
Cinsiyet	Bay
Yabancı Dil	İngilizce, Almanca

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Chapter One
Introduction

1.1 Introduction

Many studies done so far in the field of linguistics, applied linguistics, second and/or foreign language writing, and the approaches to teaching writing have all aimed to comprehend the complexities involved in EFL writing. In this way, all this research has endeavored to help the foreign/second language learner to deal with the many various difficulties s/he faces in her/his endeavor to meet his/her basic human need: to communicate either orally and/or verbally.

In addition to the extensive literature on EFL/ESL, various case studies have been conducted to explore the intricacies which shape non-native speakers' writing productive skills. Besides the innumerable studies conducted in applied linguistics on the practical dimension regarding the teaching of writing, some linguists have shown a special interest in the way in which intertextuality and interdiscursivity are achieved across genres and registers. Biber (2004) substantiates this claim by noting that linguists have become increasingly interested in the linguistic mechanisms writers and speakers employ to express their personal feelings and assessments.

Generic competence, an essential component of communicative competence, generally poses difficulties and challenges for non-native English speaking academic writers in their attempts to express their stance in their research articles. Given the dilemmas and challenges faced in expressing non-native English speaking academic writers' stance in academic writing, this study will explore native and non-native speakers' use of stance devices through modal verb usage across published research articles.

1.2 Background to the study

With the emergence of the long and hotly disputed "globalization" concept, from a current perspective, the status of English as "a lingua-franca" has been reinforced with no sign of looking back. In today's "Information Age", an astounding volume of scientific journals are published everyday. By one old estimate, about 7000 scientific journal articles are published daily (Naisbett, 1982). Considering the current demand for information exchange, heavily linked with the "Information Age", this number has most probably increased. This everyday need and demand for information makes access to, exchange, and management of information crucial at all levels, incorporating individual, institutional, national, and international ones. This in itself reflects on individuals and institutions as

well. Such a crucially important direction which leads to cross-cultural communication could be facilitated by the use of a common language (Tardy, 2004). Indeed, English not only has dominated international communication and information but also has left its mark on the publication industry. According to van Leeuwen, Moed, Tussen,, Visser, & van Raan, (2001), English made its presence felt in over 95 % of publications in the *Science Citation Index in 1995*. In addition to this dominant role of English in publication, the same dominance of articles published in English speaking countries is surprising. For example, Swales and Feak (2000) cite Gibbs (1995) according to whom, 30. 817 % of the articles mentioned in *Science Citation Index* in 1994 were published in the United States alone. In the first ten countries mentioned in *Science Citation Index*, there were four English speaking countries, such as the United States with a 30.817 %, UK with a 7.924 %, Canada with a 4.302 %, and Australia with a 2.028 %, where publications were made the most. These figures alone show the dominance of English in article publication. This in turn demonstrates how important it is for academic writers to publish in English and to be able to address the relevant discourse community.

This has brought with itself a number of conventions to be conformed by practically everyone in society, notably academics, as Bhatia (1997:313) states:

> Since English has undoubtedly acquired the status of a world language, it is more than necessary that linguists of all persuasion, whether interested in the issue of language acquisition, description, use or reform need to adjust their vision, paradigms, frameworks or methodologies in order to be able to account for this global variation in the use of English in the intra and international contexts.

Given the well-documented reality that English has already become the lingua franca in approximately every area of life-the international language of technology, education, science, and especially research-having the skill to communicate in English has indeed become a must. Simply put, those who long to gain access to and benefit from the information in their fields, to conduct research, follow developments, contribute to their fields, participate fully at conferences, and to merge in their relevant discourse communities have to acquire such skills. Indeed, those lacking a certain level of expertise in this essential skill might not be able to make their voice heard in the desired discourse community. Belcher (2007) states that most non-native English speaking scholars face daunting problems due to the status of English whether seen as "the lingua franca", which is defined as "the predominance of English as the language of published academic

discourse" by Hyland (1998:246) or "Tyrannosaurus rex"-a powerful carnivore gobbling up other denizens of the academic linguistic gazing ground as described by Swales (1997:374). In her study analyzing the features of accepted and rejected papers submitted to 'English for Specific Purposes' journal between 1998 and 2001 by non-native article writers, Belcher (2007) has shown that language use is the most frequently commented section with a 93 % among the evaluated text features such as 'topic', 'audience', 'purpose/problem statement/research questions', 'literature review', 'methods/research design', 'results/presentation and analysis', 'discussion/significance', and 'pedagogical implications'. While reviews with a negative feedback make up a vast bulk (90 %), the rest received positive feedback. The second textual feature which received the second highest feedback is the 'methods/research design' sections of the submitted articles. Again, in this instance negative feedback constitutes 66 %. Given this fact, it is easy to anticipate the issues which might impede researchers, especially non-native speakers who lack thorough knowledge of English, in seeking acceptance in an English-only research world.

In line with the requirement(s) of the globalization of English, those interested in English language teaching and learning have witnessed and still are witnessing a great deal of human effort and labor positioned into various studies to empower human beings to deal with the challenges of this fact. This endeavor has found its reflection in the form of studies and approaches to teaching language. As is widely known, a number of studies in the field of second and foreign language teaching/learning have been carried out. A couple of approaches to teaching languages have been developed to equip language learners with adequate skills and strategies to cope effectively with the communication barrier in what is accepted as a global village heavily linked to the "Information Age".

1.3. Genre and the research article

As the research article, as a genre in and of itself, has its own particular discourse community and a set of generic conventions, some information about genre in general will be given to make the interrelated relationship between genre and the research article clear.

Alongside with the developments in the methods and approaches, approaches and applications to teaching the four skills have undergone some substantial changes. One of these skills, writing, has also witnessed some dramatic changes, in the form of approaches and strategies. Three approaches to writing, such as "Product", "Process", and "Genre" have shaped the teaching of writing to a great extent. While product approaches view writing as 'being primarily about linguistic knowledge, with attention focused on the

appropriate use of vocabulary, syntax, and cohesive devices', process approaches give priority predominantly to 'non-linguistic skills, such as planning and drafting, with less emphasis on linguistic knowledge' (Badger and White, 2000:153-154). As these two approaches constitute the two end poles on the continuum, a third approach to teaching writing came to the fore, namely genre approaches. Although genre approaches share some characteristics with product approaches such as emphasizing the linguistic dimension of writing, they differ in terms of their emphasis on the social context in which the text is created.

The literature on genre abounds in various definitions of the term 'genre'. Hyland (2004a:5) perceives genre as one of the "most important and influential concepts in language education", signifying what Johns (2002:2) has referred to as "a major paradigm shift" in literacy studies and teaching in the past fifteen years or so. Although it has been conceived as "primarily literary, entirely defined by textual regularities in form and content, fixed and immutable, and classifiable into neat and mutually exclusive categories and subcategories" Johns (2002:3), the term is, actually, not new. Hyland (2004a:1) traces the origin of genre to classical rhetoric, and states that "its scope has been extended beyond literary texts into everyday forms of speech and writing". Besides extending its scope and developing into a key concept in linguistics, language teaching, and modern thought, it has gained an unquestionable place in many areas of contemporary social and cultural studies. While human beings construct their lives through language, Hyland (2004a:2) pinpoints that individuals can realize their "most basic interaction of everyday life" through "the familiar structure that genres give to social events". Similarly, Rosmarin (1985:25) identifies genre as "the critic's heuristic tool, his chosen or defined way of persuading his audience to see the literary text in all its previously inexplicable and 'literary' fullness and then relate this text to those that are similar to or, more precisely, to those that may be similarly explained".

Genre has been receiving considerable interest since the 1970s and various approaches to genre, such as Systemic Functional Linguistics, The New Rhetoric, and English for Specific Purpose have emerged (Hyland, 2004a). These perspectives on genre differ from one another in terms of their intellectual roots, primary focus, and pedagogy. In line with these different approaches, it has been portrayed slightly differently by Bhatia (1993), Bhatia (2004), Freedman and Medway (1994); Hyland, (2004a); Swales, (1990).

The traces of the difference of emphases reflected in the definition of the term 'genre' could be attributed to differing views of the term. Hyland (2004a) identifies three broad, but overlapping schools of genre theory: *the New Rhetoric approach, the ESP approach, and Systemic Functional Linguistics*. *The New Rhetoric approach*, influenced by post structuralism, rhetoric, and first language composition, views genre "as the motivated, functional relationship between text type and rhetorical situation". The *ESP approach* is more linguistic in orientation and recognizes genre as "a class of structured communicative events employed by specific discourse communities whose members share broad social purposes". *Systemic Functional Linguistics*, on the other hand, stresses the "purposeful, interactive, and sequential character of different genres and the ways language is systematically linked to context through patterns of lexico-grammatical and rhetorical features".

Despite the differences in the emphases given to genre, there has been a widely-shared view that 'genres are conceptualized as goal-directed' Askehave & Swales, (2001:195). Genre, according to Swales (1990:45-46):

> Is a recognizable communicative event characterized by a set of communicative purpose(s) identified and mutually understood by the members of the professional or academic community in which regularly occurs. Most often it is highly structured and conventionalized with constraints on allowable contributions in terms of intent, positioning, form, and functional value. These constraints, however, are often exploited by the expert members of the discourse community to achieve private intentions within the framework of socially recognized purpose(s).

While Bhatia (1997:360) views genres as "the media through which members of professional or academic communities communicate with each other", and defines genres as "products of an understanding or a prior knowledge of generic conventions which are responsible for regulating generic constructs, giving them internal ordering", Hyland (2004a:1) emphasizes the goal-directed nature of genres, stating that they are "resources for getting things done using language: they represent a repertoire of responses that we call on to engage in recurring situations". This goal-directed, abstract but socially recognized view of genres, according to Hyland (2004a:21), is based on the assumptions that "the features of a similar group of texts depends on the social context of their creation and use, and that those features can be described in a way that relates a text to others like it and to the choices and constraints acting on text produces". The social dimension of genre

assumes that members of community have little difficulty in recognizing similarities in the texts they use frequently and are able to draw on their repeated experiences with such texts to read, understand, and perhaps write them relatively easily through genre knowledge.

Genre knowledge, according to Hyland (2004a:55ff), is not simply grammatical competence, but is the "ability to understand how to participate in the real world communicative events", knowledge of text such as conventions of grammar, vocabulary, content, organization, and so forth, which allow us to write and read texts with ease and confidence, and an "awareness of possible variation in understanding that deviations are acceptable to the extend that they do not cancel out function or appropriateness".

While sharing the view that genre has a crucial place in communication, Pavel (2003:202) draws attention to genre from the reader's perspective, stating:

> Genre is a crucial interpretive tool because it is a crucial artistic tool in the first place. Literary texts are neither natural phenomena subject to scientific dissections, nor miracles performed by gods and thus worthy of worship, but fruits of human talent and labor. To understand them, we need to appreciate the efforts that went into the production. Genre helps us figure out the nature of a literary work because the person who wrote it and the culture for which the person that person labored used genre as a guideline for literary creation.

Indeed, the factor which allows members of society to be able to write in a particular field answering the needs of this particular field and what enables members of the same society belonging to the same field to make sense of what is written is nothing more than generic knowledge. Looking at genre knowledge from a wider perspective, Hyland explains the connection between genre knowledge and communication, asserting:

> One of the most influential models of communication that has influenced language teaching in recent times has been associated with the notion of communicative competence, which goes well beyond what linguists term as grammatical competence and includes what could be broadly termed as sociolinguistic competence, which means the knowledge of what is socially acceptable in real-life socio-cultural situations. In addition to these two types of competence, one also needs a more selective and specialized kind of competence, which could be termed as generic competence, which allows a person to choose from a range of appropriate genres the one that is most suitable for achieving the communicative purpose(s) in institutionalized social contexts (Hyland 2003:317)

Despite the slight differences in the conceptualizations of and orientations to genre, the common ground for these ideas far outweighs the different orientations. This common ground is elaborated by Swales (1990:45-47), Bhatia (2004:23), and Hyland (2004a:51) as follows:

1. Genres are recognizable communicative events, characterized by a set of communicative purposes identified and mutually understood by members of the professional or academic community in which they regularly occur.

2. Genres are highly structured and conventionalized constructs, with constraints on allowable contributions not only in terms of the intentions one would like to give expression to and the shape they often take, but also in terms of the lexico-grammatical resources one can employ to give discoursal values to such formal features.

3. Established members of a particular professional community will have a much greater knowledge and understanding of the use and exploitation of genres than those who are apprentices, new members, or outsiders.

4. Although genres are viewed as conventionalized constructs, expert members of the disciplinary and professional communities often exploit generic resources to express not only 'private' but also organizational intentions within the constructs of 'socially recognized communicative purposes'.

5. Genres are reflections of the disciplinary and organizational cultures, and in that sense, they focus on social actions embedded within the disciplinary, professional and other institutional practices.

6. All disciplinary and professional genres have integrity of their own, which is often identified with reference to a combination of textual, discursive and contextual factors.

Similarly, Bhatia (1997:362) states that "there is no better illustration of the saying 'knowledge is power' than the one tied with generic power. Power to use, interpret, exploit and innovate novel generic forms is the function of generic knowledge which is accessible only to the members of disciplinary communities". This studied opinion is expressed by the same writer:

> Generic knowledge plays an important role in the packing and unpacking of texts used in a wide-ranging institutionalized socio-rhetorical context. While it imposes constraints on an uninitiated genre writer to conform to the conventions and rhetorical expectations of the relevant professional community, it, on the other hand, allows an experienced and established writer of the genre to exploit conventions to

create new forms to suit specific contexts. Unfortunately, however, this privilege to exploit generic conventions to create new forms becomes available only to those few who enjoy a certain degree of visibility in the relevant professional community; for a wide range of others, it is more of a matter of apprenticeship in accommodating the expectations of disciplinary conventions (Bhatia 1997:359).

The term which is central to genre knowledge and forms the essence of the definitions given so far is intertextuality. This in itself is a concrete way by the help of which writers are able to share repeated contexts, genre names, social purposes, and experiences of forms and content with readers. That said, it is worth mentioning that two of it sub-groups stand out in the literature; manifest intertextuality and interdiscursivity. While manifest intertextuality deals with the use of explicit parts of other texts that the writer merges into a current text through quotations, paraphrase, reference, irony, and so forth, interdiscursivity is concerned with the use of *conventions* drawn from a recognizable genre, including format, structure, style, use of visuals, patterns of grammar and lexis, interpersonal tone, and so forth, that link a text to a wider institution or community (Hyland, 2004a).

A number of studies have been conducted to understand and reveal the generic structure of different genres. Hyland and Tse (2005), Samraj (2002), Martínez (2001), Paltridge (2001), Bhatia (1993) are some of the researchers who have probed into the topic. Swales (1990), one of the leading figures in this field, analyzed moves in some genres ranging from folklore to literary studies, from abstracts to articles, from grant proposals, to thesis and dissertations, and Ph.D. defense (2004). Similar to Swales, Bhatia (1993) has devoted a lot of effort in analyzing research article Abstracts and Introductions, laboratory report introductions, student dissertation introductions, sales promotion letters, job application letters, legal language and so forth.

In her study on the generic structure of article Introductions and Abstracts of two specific fields, Conservation Biology and Wildlife Behavior, Samraj (2002) has revealed that research article introductions and abstracts in Conservation Biology bear a greater similarity in function and organization than the same two genres in Wildlife Behavior.

In another study focusing on the linguistic realization of adjectives and their frequency of use in five advanced scientific texts on Biochemistry, Soler (2002) came up with some semantic implications of the observed behavior. Like Soler, Marco (2000), who focused on collocations in medical frameworks in medical research papers, found that the frameworks *the…of*, *a…of*, and *be…to* enclose restricted sets of lexical items when used in

medical papers. It was also indicated that the selection of specific collocates for these frameworks is conditioned by the linguistic conventions of the genre.

In another study focusing on impersonality in research articles in the fields of physics, biology, and social sciences, Neff, J., E. Dafouz, M. Díez, H. Herrera, F. Martínez, R. Prieto, J. P. Rica and C. Sancho (2001) underlined the occurrence of a tension between the need to present the findings objectively and the need to persuade readers of their validity in the appropriate style. Yet in a similar study on self-mention in research articles, Hyland (2001) revealed that first person pronouns and self-citation are not simply stylistic optional extra but significant ingredients of promoting a competent scholarly identity and gaining accreditation for research claims.

Hyland and Tse (2005), who produced a corpus study of the evaluative *that* in published research articles and masters and doctoral dissertations written by L2 students, have found that the evaluative *that* is widely employed in these abstracts and is an important means of providing author comment and evaluation. They also revealed similarities and differences in how these groups used the structure by exploring what writers chose to evaluate, the stances they took, the source they attributed the stance to, and how they expressed their evaluations.

In their study on the incidence and effects on coherence of marked themes in interlanguage texts of native and non-native speakers of English, Green et al. (2000) found that non-native speakers (Chinese writers of academic texts) demonstrate a tendency to place certain topic fronting devices in sentence-initial position. This led to a deleterious effect on information structure and a negative effect on both local and global coherence.

As could be seen from the above mentioned studies, there do seem to be differences in the intertextual and discoursal realization across genres, registers, and writers as well.

Since English already witnessed the status of a unique global language in nearly every step of life, be it technology, science, education, economy, industry, art, communication and so on, it is a must for those interested in and dealing with foreign or second language teaching to recognize how crucial and essential it is to help learners become proficient users. In itself, this proficiency encompasses not only linguistic competence, but also pragmatic, sociolinguistic, and generic competence as well. This has crucial importance especially for academics in Turkey who must follow resources and produce works to be published in English. On this basis, Christie illustrates that "learning

the genres of one's culture is both part of entering into it with understanding, and part of developing the necessary ability to change it" (Christie, 1987:22 ff).

Hyland (2004) emphasizes the importance of academic writing stating that academic writing has attracted increasing attention from diverse fields such as philosophy, sociology of science, history, rhetoric, and applied linguistics. One of the reasons for the importance attached to academic writing lies in the recognition that disciplinary discourse is considered to be a rich source of information incorporating the social practices of academics. She claims that rather than simply examining nature, writing is actually seen as helping to create a view of the world. Noticeably, instead of being another aspect of what goes on in the disciplines, writing is seen as producing them. The second reason for the value given to academic writing is the fact that what academics accomplish by publishing articles, books, reviews, conference papers, and notes is essentially a *social* enterprise. Equally, maybe more important than what academics write about, it is how they produce text which is more crucial, "since scholarly discourse is not uniform and monolithic, differentiated merely by specialist topics and vocabularies. Rather, it is an outcome of multitude of practices and strategies".

Undoubtedly, this indispensable skill entails more than just linguistic knowledge. In addition, pragmatic knowledge shaped by conventions of the culture to which the language belongs is considered to define the conditions under which the language is to be employed (Wishnoff, 2000). In accepting and emphasizing the importance of pragmatic knowledge in allowing writers to both convey and interpret meaning, Wishnoff (2000:128) draws attention to the inseparable relationship between pragmatic knowledge and culture stating that, "culture obviously plays a significant role in defining what we might and might not say, when and where to say it, to whom we say it, and why we say it". Similarly, while acknowledging the idea that linguistic knowledge may be a prerequisite for mastery of pragmatic competence, Bardovi-Harlig (1999) claims that linguistic knowledge does not ensure an equal level of pragmatic competence.

Several interlanguage studies have supported Wishnoff's claim. In a study on the interlanguage of German learners of English, Kasper, (1979) have found that a kind of modality reduction takes place due to a consequence of low awareness of modality as a pragmatic category. Similarly, Ventola & Mauranen, (1990) state that Finns writing in English have a tendency to stick to a few 'safe' expressions of epistemic possibility, and have less variety in the expression of epistemic modality than do the native speakers of English. A study on the use of hedging by German academics in academic texts by Clyne,

(1991) has shown a high probability of transfer from the mother tongue, since German writers hedge more than native writers of English. They used double, sometimes triple hedging, which demonstrate that they followed the norms of their native culture when writing in a foreign language.

As such, people unfamiliar with the linguistic, rhetorical, and discoursal conventions and the expectations of their discourse communities are very likely to face serious problems, perhaps experience failure. As a result, they are unlikely to receive the appreciation and acceptance they deserve from the relevant international discourse communities regardless of their expertise in their fields and experience in academic genres in their native languages.

1.4 Purpose of the study

In describing academic writing as "academic writing is not just about conveying an ideational 'content', it is also about "the representation of the self", Hyland (2002: 1092) states that "writers gain credibility by projecting an identity invested with the individual authority, displaying confidence in their evaluations and commitment to their ideas". The importance of what Hyland underlines in the quote above is also emphasized by Scollon (1994:34), who sees academic writing as a "construction of authorial self as well as the presentation of fact". Hyland (2008:7) refers to the 'construction of authorial self' as 'voice/stance', which could be achieved through the ways writers negotiate representations of themselves and to take on the discourses of their communities. In defining 'voice/stance' as self-representation, subsuming the traditional view of voice as authoritativeness, and including personal choice in how writers express themselves, Hyland (2008:5 ff) underlines that "we do not sacrifice a personal voice by writing in the disciplines-we just recognize the boundaries which constrain it and give it meaning in contrast to other possible choices". This idea stresses that writers still decide how aggressive, conciliatory, confident, or self-effacing they want to be.

Given that academic writers need to use stance devices to be able to convey ideational content and to construct authorial self, present themselves, convey their judgments, opinions, and commitments, the importance of stance device use in academic writing can clearly be seen. Stance device use in academic writing is important since it allows the academic writer to "intrude to stamp their personal authority onto their arguments or step back and disguise their involvement" (Hyland, 2005:176).

A number of studies have focused on stance devices, such as "epistemic modality in MA dissertation" Gabrielatos and Tony, 2005; "indirectness" Hinkel, 1997; "metadiscourse" Hyland, 2004b; "hedging" Crismore and Kopple, 1997; Hunston and Thompson, 2000; Hyland 1995, 1999a, 2001; Lewin, 2005; Meyer, 1997; Salager-Meyer, 1998; Wishnoff, 2000; "impersonal engagement" Rescki, 2005; "modality" Keck and Biber, 2004; Camiciottoli, 2004; Dedaic, 2004; Rezzano, 2004; Neff, Ballestores, Dafouz, Martinez, Rica, Diez, and Prieto, 2004. Nevertheless, no comparative and contrastive study on the use of stance devices by native and non-native English speaking academic writers (Turks and Spanish in this study) to date has been done. This study aims primarily to shed some light on stance device employment by investigating eight modals (can, could, may, might, will, would, should, and must) in research articles by native and non-native English speaking academic writers. Only the eight modal verbs were chosen since they are integral to academic writing in the sense that they are the most frequent modal verbs found in academic texts. They are frequent in academic writing since they play a significant role in the convincingness of an argument in texts belonging to "soft" fields (Markkanen and Schroder, 1997). Adams-Smith (1984) has found that modal verbs make up 54 % of all the forms used to denote epistemic possibility. Another reason why modal verbs were chosen for the study is that modal adverbs are not as common as modal verbs in the research article for a comparative study. Although modal adjectives are very common in the research article, they were not chosen because of their idiosyncratic features. Yet another reason is that modal verbs serve a variety of functions. By examining the range of functions used in academic texts by the use of modals, a better understanding of the rhetorical functions peculiar to research article writing might be achieved.

In particular, this comparative dissertation seeks to investigate how native English speaking academic writers (Americans) and non-native English speaking academic writers (Turks) and (Spanish) express stance through the use of the modal verbs in their internationally published research articles.

As writer stance bears traces of the rhetorical traditions of the global and local discourse community of the writer as well as his/her cultural and educational background, and personality as demonstrated by some interlanguage studies by Kasper, (1979); Ventola & Mauranen, (1990); Clyne, (19991) and translation studies such as Tabakowska's, (1989), it is assumed that writer stance by native and non-native English speaking academic writers share similarities because of conformity impositions of a universal rhetoric of scientific exposition regardless of the writer's native language. It is also

presumed that writer stance might show differences since "the universal rhetoric of scientific exposition, structured according to a certain discourse pattern, allow for some tolerance for individual stylistic variation" (Widdowson, 1979:61).

In the light of the afore mentioned studies and in line with the assumptions made, this study aims to find out primarily any similarities and/or differences in the expression of stance by the use of modal verbs by native and non-native English speaking academic writers. Another purpose of the study is to investigate the relationship between modal verb use and arrangement of the moves and sub-moves in the research article. The final objective is to gain an insight into the motives behind the assumed similarities and/or differences in the use of modal verbs by native and non-native English speaking academic writers.

1.5 Statement of the Research Questions

This dissertation sets out to answer the following research questions:

1. Are there any significant differences in the use of the modal verbs between the non-native (Turkish and Spanish) English speaking academic writers?

2. Are there any significant differences in the use of the modal verbs between the non-native (e.g. Turkish and Spanish) and native (American) English speaking academic writers?

3. Do the native and non-native English speaking academic writers tend to use the modal verbs differently based on their functions?

4. Do the native and non-native English speaking academic writers tend to use the modal verbs differently based on the different rhetorical sections and moves?

1.6 Significance of the study

This study on native and non-native English speaking academic writers' use of stance devices-modal verbs- in their published research articles aims to contribute to genre studies and especially approaches to teaching advanced writing, teaching ESP and EAP. In addition to some general revelations, this study might make some contribution to teaching advanced writing to ESL learners. Above all, it might also lead us to question and accordingly revise the traditional ways modal verbs are taught.

1.7 Limitations

Academic texts, research articles in particular, have been the focus of much genre research, which has led the overall organizational and textual features of research articles to be the focus of a number of researches such as Bhatia 1993, 2004; Hunston and Thompson 2003, Meyer, 1997, Salager-Meyer, 1997a, Swales 1990, 2004; Hyland, 1999a, 2000a), just to mention a few. Swales (1990) has identified the moves and their purposes and functions, the use of language-specific features and the employment of discoursal and rhetorical conventions such as hedging, passivization, evaluation, and stance, that is, metadiscoursal features, have been the focus for some other researchers.

This study will be limited to comparative analysis of the use of stance by native English speaking academic writers (American) and non-native English speaking academic writers (Turks) and non-native English speaking academic writers (Spanish) through the use of eight modal verbs in their research articles published in an internationally published refereed journal. Any likely similarity and/or difference between these two groups' employment of stance will also make part of this study.

1.8 Definitions of the terms

The following terms will be used throughout this study in order to have consistency with the literature:

The term 'Genre' is used, taking after Swales (1990:58), to refer to:

> A recognizable communicative event characterized by a set of communicative purpose(s) identified and mutually understood by the members of the professional or academic community in which it regularly occurs. Most often it is highly structured and conventionalized with constraints on allowable contributions in terms of their intent, positioning, form, and functional value. These constraints, however, are often exploited by the expert members of the discourse community to achieve private intentions within the framework of socially recognized purpose(s).

The term 'Research Article' refers to internationally recognized standard article accepted in the world of the academia.

The term 'Discourse Convention' refers to conventions recognized and shared by a particular discourse community.

The term 'Moves' in the Research Article is used to refer to the communicative strategies/steps developed by Swales (1990).

The term 'Sub-moves' in the Research Article is used to refer to the communicative strategies/steps developed by Swales (1990).

The term 'Stance' refers to the ways writers project themselves into their texts to communicate their integrity, credibility, involvement used to communicate propositional content, feelings, attitudes, and value judgments.

Chapter 2
Review of the Literature

2.1 Stance and the research article

The traditionally held view of academic writing as a convention-bound monolithic entity involving distant, convoluted, and impersonal prose, devoid of writer involvement (Tang & John, 1999) has undergone some changes. In tandem with this new conceptualization, the widely held view of academic writing as a purely objective, faceless, dry, impersonal, and informational form of discourse has altered. This conceptualization of academic writing as nothing more than just a mere "collection of facts, unfolding in a direct and impersonal manner, and eventually leading to an inescapable truth", (Hyland 1988) has, for some time, been questioned. Moreover, it is presently being partly objected to. This runs in accordance with the findings of some studies, demonstrating that academic writing is not necessarily purely objective, impersonal, and informational and has succeeded to be seen as a persuasive endeavor involving interaction between writers and readers (Hyland, 1995, 1998, 2001, 2004b, 2005; Recski, 2005).

As the data in Table 1 and 2 below demonstrate, the research article, maybe the most popular form of academic writing, has some element of relatively subjective personal use of language. On account of this data, it could be inferred that, academic writing, far from being neutral or straightforward towards its content, includes its writer's evaluation and attitudes in addition to its propositional content. This finds its reflection in Rezzano's (2004) support of this current understanding of academic writing.

Table 1: Relative frequency (%) of grammatical categories used to express epistemic modality

Class	Journal corpus	Holmes' corpus	Writing Speech	Total
Lexical verb	27.4	35.9	31.5	33.3
Adverbials	24.7	12.8	21.5	18.1
Adjectives	22.1	6.6	2.3	4.0
Modal verbs	19.4	36.8	42.4	4.0
Nouns	6.4	7.7	2.3	4.5

(From Hyland, 1995:36)

Table 2: Distribution of modality in scientific discourse

Focus of study	Introduction	Methods	Results	Discussion
Modal themes (%) (Gosden)	6.8	1.0	6.1	13.6
Modal verbs (%) (Hannia & Akhtar)	11.1	11.8	6.9	15.1
Modal verbs (per 1000 words) (Butler)	9.74	0.65	3.14	12.51
Epistemic comment (per line) (Adam Smith)	High	Low	Low	High
Hedging comment (per 1000 words) Skelton	High	Low	Low	Very High

(From Hyland, 1998:53)

Rezzano (2004:102) enlarges this relatively new change in the conception of research articles as not being purely objective, stating:

> Many scholars have recognized that research articles, even those reporting experimental research, do not constitute an objective description of a piece of investigation, but rather a very complex persuasive text in which the writer needs to convince other members of the scientific community (particularly, the journal's editors and referees) of the importance of his/her work. … this phenomenon has frequently been analyzed within pragmatic and social frameworks and emphasis has been placed on the use what is termed "hedging".

While not underestimating the importance of the objective feature of scientific and academic writing, Hyland (2004b) draws attention to a great deal of research, seeking to achieve a successful interaction with their readers while keeping the integrity of their data. Evaluation, reporting conventions, and evaluation are, according to him, some of the ways writer-reader interaction is realized. The underscored interactional feature of academic writing is also emphasized by Hyland's (2004b:133) elaboration on the importance of the interactional dimension of academic writing:

In recent years there has been a growing interest in the interactive and rhetorical character of academic writing, expanding the focus of study beyond the ideational dimension of texts, or how they characterize the world, to the ways they function impersonally. Such a view urges that academic writers do not simply produce texts that plausibly represent an external reality, but use language to offer credible representation of themselves and their work, and to acknowledge and negotiate social relations with readers. The ability of writers to control the level of personality in their texts, claiming solidarity with readers, evaluating their material, and acknowledging alternative views, is now recognized as a key feature of successful academic writing. (Hyland, 2004b:133)

Similarly, in raising her objection to the idea that science is not the coolly objective discipline as asserted in many textbook and scientific style guidelines, academic writing, according to Salager-Meyer (1997b:105), "cannot be considered as a series of impersonal statements of facts which add up to the truth". Considering the three functions of the text as ideational, textual, and interpersonal (Halliday, 1994) and the fact that writers cannot avoid expressing an attitude to what they are claiming, it could be well appreciated that academic writing, like all forms of communication, "is an act of identity: it not only conveys disciplinary 'content' but also carries a representation of the writer" Hyland (2002:1092).

Consequently, the view that the research article is "a purely modest, self-effacing genre in which the writer acts as a humble servant of the discipline", though it bears some truth in itself, has been conceived differently. This view could easily be traced to Mauranen's challenging view of the academic writer. In emphasizing the nature of academic discourse, Mauranen (1997:115) underlines the importance of human involvement in academic discourse:

Academic discourse is a world where observations suggest that something might be the case, where states of affairs appear to hold, where it seems reasonable to suggest, and where we might infer; in other words, it is a world of uncertainties, indirectness, and non-finality- in brief, a world where it is natural to cultivate hedges.

Considering the underlined feature of academic discourse as indefinite, it could be stated that the fragment of truth scientists in general and academic writers in particular are exploring is only another step towards the discovery of other truths which will, in turn, advance knowledge and understanding in their fields.

In line with this growing realization that the writer has to, somehow, reflect his/her persona in what he/she writes, and in tandem with the importance attached to interactional dimension of academic writing, there has been an upsurge in the number of research conducted on this particular topic. As an illustration, Biber (2004: 107; 2006:97) emphasizes this shift of focus stating: "linguists have become increasingly interested in the linguistic mechanisms used by speakers and writers to convey their personal feelings and assessments". Such analyses have been carried out under several different labels including "attitude" and "modality" (Halliday, 1994), "evaluation" (Hunston,1994), (Hunston and Thompson 2000), "intensity" (Labov, 1984), "affect" (Ochs,1989), "evidentiality" (Chafe, 1986), "hedging" (Holmes, 1988; Hyland, 1998, and "stance" (Barton, 1993), Beach and Anson, 1992), (Biber and Finegan, 1988, 1989), (Biber, Johanson, Leech, Condrad, and Finegan, 1999; Biber 2004), (Conrad & Biber, 2000). Although these labels cover slightly overlapping areas, they all refer to writer/speaker point of view about the state of affairs or the information given.

In underscoring the possibility that writers can manipulate the three main kinds of scientific truth; 'shared knowledge contained in the literature (contextual truth), areas deemed true because of the statistical or experimental results of a study (evidential truth), and non-statistical judgments of fact or value about findings (interpreted truth) depicted by Skelton (1997) in order to persuade readers of their own contribution(s) to a debate, Hyland (1998) states that hedges play a very important role in writers efforts to persuade their readers. In the same vein, Hunston (1993) underlines that part of gaining acceptance of claims lies in the use of hedges to evaluate the and value of information. This assertion is supported by the findings of Hyland's (1998) study on the distribution of hedging devices in research articles. Hyland has found that five of the fifteen most frequent hedging devices used in research articles are modal verbs. Indeed, three of the most frequent five hedging devices are modal verbs (would, may, could, might, and should), which indicates the importance of modal verbs in the expression of writer stance in the research article.

In his study on disciplinary differences on authorial stance and claim making in research articles, Hyland (2006) has pinpointed, as could be seen in Table 3 below, that stance has an indispensable rhetorical function for writers in this particular genre. As shown below, stance has the highest frequency of use in all of the disciplines.

Table 3: Distribution of stance features across different fields

Feature	*Phil*	*Soc*	*AL*	*Mk*	*Phy*	*Bio*	*ME*	*EE*	*Total*
Stance	**42.8**	**31.1**	**37.2**	**39.5**	**25.0**	**23.8**	**19.8**	**21.6**	**30.9**
Hedges	18.5	14.7	18.0	20.0	9.6	13.6	8.2	9.6	14.5
Attitude markers	8.9	7.0	8.6	6.9	3.9	2.9	5.6	5.5	6.4
Boosters	9.75	1	6.2	7.1	6.0	3.9	5.0	3.2	5.8
Self mention	5.7	4.3	4.4	5.5	5.5	3.4	1.0	3.3	4.2

(From Hyland, 2006:29)

2.2 Stance

Running parallel with the growing realization that academic discourse is not just a mere collection of facts, unfolding in a direct and impersonal manner, and eventually leading to an inescapable truth Hyland (1988), Mauranen (1997:115) underlines the tentative nature of it saying:

> Academic discourse is a world where observations suggest that something might be
> the case, where states of affairs appear to hold, where it seems reasonable to suggest,
> and where we might infer; in other words, it is a world of uncertainties, indirectness,
> and non-finality- in brief, a world where it is natural to cultivate hedges.

In following the same line of thought, Salager-Meyer (1997:105) claims that "scientists inevitably indicate their attitude in their writing since science is not the coolly objective discipline as asserted in many textbooks and scientific style guides". According to Salager-Meyer (1997), academic writing cannot be considered as a series of impersonal statements of facts which add up to the truth, because academic discourse is both socially situated and structured to accomplish rhetorical objectives". In the same reasoning, Keck and Biber (2004) claim that the last two decades have witnessed an increasing interest in the linguistic devices used to convey feelings, attitudes, and assessments of likelihood, which "are crucial in academic discourse because they are central rhetorical means of gaining communal adherence to knowledge claims (Salager-Meyer 1997: 106)". Stance, be it the writer stance or the speaker stance, involves, amongst other things:

> The communication of assessments and value judgments concerning the described
> situation by appeal to evidence (evidentiality), assessment of the degree of
> likelihood concerning the described situation (epistemic modality), and arguments

regarding the necessity or desirability of the situation obtaining (deontic modality) Biber et al. (1999: 966, 972).

Similarly, Hyland (1999b:101) defines stance as "the ways which writers project themselves into their texts to communicate their integrity, credibility, involvement, and a relationship to their subject matter and their readers". Stance devices, according to Biber et al. (1999), are used to communicate propositional content, to express feelings, attitudes, values judgments, or assessments; that is, to express a 'stance'.

Despite some slight differences writers have in labeling and describing stance, they do agree on the reality that stance is expressed by using the same sources. Stance, according to Biber et al. (1999), can be expressed through paralinguistic, non-linguistic, and linguistic devices. Paralinguistic devices are used especially in conversation to convey emotive and attitudinal stance meanings, including pitch, intensity, and duration. Body posture, facial expressions, and gestures are some of the main means which make up the non-linguistic stance devices. Among the many linguistic features used to express stance in English are modal and semi-modal verbs, adverbial constructions, adjectives, nouns, and complement clause constructions (Keck and Biber (2004).

Biber et al. (1999), and Hunston and Thompson (2000) classify linguistic/ grammatical stance devices as stance adverbials, stance complement clauses, modals, and semi-modals, stance noun + prepositional phrase, and pre-modifying stance adverbs from a structural angle. Besides grouping stance devices from a structural perspective, they also divide stance adverbials into four groups: namely, *epistemic stance adverbials*, *attitude adverbials*, *style adverbials*, *ambiguity with other adverbial classes*, from a semantic perspective. Epistemic modality, according to Coates (1983:18), is concerned with "the speaker's and/writer's assumptions or assessment of possibilities, and in most cases, it indicates confidence or lack of confidence in the truth of proposition expressed". In other words, while epistemic stance markers are used to present speaker/writer comments on the status of information in a position, to mark certainty, doubt, actuality, precision, limitation, the source of knowledge, or the perspective from which the information is given, attitude stance markers express personal attitudes and/or feelings. Style stance devices, on the other hand, are employed to present the writer's/speaker's comments on the communication itself. Some researchers have dealt with the complexity of stance as shown in Table (Precht, 2000:9).

Table 4: Representation of main themes in stance frameworks

		Biber et al. (1999)	Hyland (1996b)	Markanen et al. (1993)	Perkins (1983)	Stolarek (1994)	Vande Kopple & Crismore (1990)	Vande Kopple (1985)
Lexico-grammatical	parts of speech	✓	✓		✓	✓		
	grammatical frames	✓				✓		
	person marking	✓	✓		✓	✓	✓	
Semantic categorization		✓	✓		✓	✓	✓	✓
Pragmatic	presentation of self		✓		✓	✓		✓
	interpersonal functions		✓					✓
	politeness				✓			

In addition to the different representations of main themes in stance frameworks, researchers seem to disagree on the parts of speech to be included in the analyses of stance as shown in Table 5 below (Precht, 2000:10).

Table 5: Parts of speech identified in the examination of stance

	lexical verb	adverbial	adjective	noun	modal verb
Biber & Finegan (1988)		✓			
Biber & Finegan (1989)	✓	✓	✓	✓	✓
Biber et al. (1999)	✓	✓	✓	✓	✓
Chafe (1983)	✓	✓			
Dry (1992)	✓	✓	✓	✓	✓
Holmes (1983)	✓	✓	✓	✓	✓
Hoye (1997)		✓			
Huebler (1983)	✓	✓			✓
Hyland & Milton (1997)	✓	✓	✓	✓	✓
Hyland (1994)	✓	✓	✓	✓	✓
Karkainen (1989)		✓	✓		✓
Palmer (1979)					✓
Perkins (1983)	✓	✓	✓	✓	✓
Prince et al. (1982)					
Salager-Meyer (1995)	✓	✓	✓	✓	✓
Schramm (1996)	✓				
Swales et al. (1998)	✓				
Williams (1996)	✓				

In his study on the historical change in the preferred devices to mark stance, Biber (2004) found that modal verbs have undergone a decrease in use, although the use of semi-modals, stance adverbials, and stance complement clause constructions have all increased. In their comprehensive study on the distribution of semantic stance devices across four registers-conversation, fiction, news, and academic-Biber et al. (1999) noted that epistemic stance adverbials are much more common in all four registers while style adverbials are more common in conversation than the other types. This finding indicates that stance

adverbials were found to be relatively common in academic writing. This runs opposite to the previously held view of most researchers.

In a comprehensive corpus study on the use, frequency, function, and place of stance devices across different registers; that is, conversation, fiction, news, and academic writing, Biber et al. (1999); Biber (2004) demonstrated that some stance adverbials are used more in some registers when compared to others. Biber (2004) found that (semi) modals are used across these registers; they were found to be used mostly in conversation. While some stance devices such as stance adverbials were used mostly in initial and medial position in conversation, fiction, news, and academic writing, academic writing had few instances of stance adverbials used in the final position.

In addition to the above mentioned studies, several other studies on stance have also been conducted such as:

- use of stance by expert and non-expert writers (Barton, 1993),
- markers of stance (Biber & Finegan 1988, 1989; Conrad & Biber, 2000),
- taxonomy of stance features (Hyland, 1999a).

or on the same feature under a different name 'evaluation' such as:

- general nouns (Halliday & Hasan, 1976),
- unspecific nouns (Winter, 1982),
- carrier nouns (Ivanic, 1991),
- shell nouns (Hunston & Francis, 1999),
- labels 'inherently unspecific nominal elements' (Francis, 1986; 1994),

just to mention a few.

As stated earlier, there are different linguistic devices such as modal and semi-modal verbs, adverbial constructions, and complement clause construction, just to name some, employed to express stance in English. As the objective of this dissertation is to investigate how native and non-native English speaking academic writers express their stance using modal verbs in their research articles, devices other than modal verbs, such as semi-modal verbs, adverbial constructions, and complement constructions are beyond the scope of this study.

2.3 Modality and modal verbs

> When we speak or write, we are often vague, indirect and unclear about just what are committed to. This might appear, superficially to be an inadequacy of human language: but only to those who hold a rather crude view of the purposes of communication. Vagueness and indirection have many uses… Whenever speakers and writers say anything, they encode their point of view towards it: whether they think it is a reasonable thing to say, or might be found to be obvious, questionable, tentative, provisional, controversial, contradictory, irrelevant, impolite or whatever. The expression of such speaker's attitudes is pervasive in all uses of language. All utterances encode such a point of view, and the description of the markers of such points of view is a central topic in linguistics.
>
> (Stubbs, M. 1996:202)

Referring to the above excerpt, one of the most important features of academic discourse, according to Hyland (2000a), is the way writers seek to modify their assertions, tone down uncertain or risky claims, emphasize what they believe to be true, and convey appropriately collegial attitudes to the members of their discourse community. In their endeavor to weigh evidence and draw conclusions from the data to be able to express themselves and to speak for themselves, scientists have to consider the two fundamental characteristics of science; certainty, doubt and skepticism. This could only be accomplished by using a number of linguistic devices.

The same viewpoint is also underlined by Myers (1989:5), who states that "researchers have to present themselves as the humble servants of the discipline, since claiming precision is not appropriate in all situations and writers do not always want to be precise". Echoing the same reasoning, Dubois (1987) underlines that researchers should protect their reputation as scientists, avoid absolute statements which might put themselves in an embarrassing situation, and should be open to other possibilities of interpretation. Only in this way can the fragment of truth researchers are exploring become another step towards the discovery of other truths in the advancement of knowledge and understanding of specific issues. As such, the linguistic devices which are used to express scientific uncertainty, tentativeness, skepticism, and doubt are indispensible sources for researchers.

In fact, imprecision, tentativeness, and indirection in language use serve many goals rather than indicating inadequacy. This function of language, along with some other goals, has been the subject of some studies in recent years. As has been underlined above,

the last two decades have witnessed an increasing interest in the linguistic devices used to convey personal feelings, attitudes, and assessments of likelihood, tentativeness, indirection (Keck and Biber, 2004). This runs in tandem with the growing realization that "academic discourse is not just a mere collection of facts, unfolding in a direct and impersonal manner, and eventually leading to an inescapable truth" (Wishnoff, 2000). The expression of tentativeness and personal attitudes, of commitment and detachment, according to Hyland (1998), falls within the semantic domain of modality. The notions of certainty and uncertainty occupy a central position in the characterization of hedging. According to Mauranen (1997), hedging and modality are interrelated concepts, with either one subsuming the other in different models. In the preface to "Modality in Contemporary English", Facchinetti, Krug, and Palmer (2003:vi) note that "modality is realized by linguistic items from a wide range of grammatical classes, cover not only modal auxiliaries and lexical verbs, but also nouns, adjectives, adverbs, idioms, particles, mood, and prosody in speech".

Modality, the main interpersonal resource, along with mood that signals social interaction, is defined as the speaker's assessment of the validity of the proposition in statements and questions, the obligation s/he requires of the responder to fulfill a command, or readiness of the initiator in an offer (Halliday, 1985, 1994). As such, modality consists of two types: modalization (probability, usuality) and modulation (obligation, inclination) (Lee, 2006). Taking into consideration these two types, speakers and writers use modality to realize a number of functions. That is to say, modality enables writers to show their certainty and/ding doubt towards their statements, to demonstrate the amount of the confidence they place on their claims. By so doing, it enables them to leave some room for their readers to evaluate and judge the truth value of their propositions.

As could be seen from the philosophical and linguistic studies on modality spanning the philosophy of logic (e.g. Haack, 1978), semantic linguistics (e.g. Lyons, 1977; Perkins, 1983; Wierzbicka, 1987; Palmer, 1986, 1990, discourse analysis (e.g. He, 1993), corpus studies (e.g. Coates, 1983), applied linguistics e.g. (Holmes, 1983; Brown, 1992) and pragmatics (e.g. Klinge, 1993, 1995; Stubbs, 1986; Turnbull & Saxton, 1997), Hyland (1998), modality is a crucial resource for speakers and writers. While drawing attention to the importance of modality in English by saying, "There is widespread agreement among both theoretical and applied linguists that modality is a common and very important aspect of English", Holmes (1988:21) underlines that " it is not easy for first and second language learners to acquire". In a similar vein, Hyland (1998:44) draws

attention to this indispensible source by underlying its function: "It is concerned with a writer's standpoint, judging the truth of statements in terms of possibility, probability or certainty".

Table 6: Relative frequency (%) of grammatical categories used to express epistemic modality

Class	Journal corpus	Holmes' corpus	Writing Speech	Total
Lexical verb	27.4	35.9	31.5	33.3
Adverbials	24.7	12.8	21.5	18.1
Adjectives	22.1	6.6	2.3	4.0
Modal verbs	19.4	36.8	42.4	4.0
Nouns	6.4	7.7	2.3	4.5

(From Hyland, 1995:36)

Modal verbs, as can be seen from Table 6, are the most common grammatical category used to express modality both in writing and speech in Holmes' corpus. Similarly, Biber et al. (1999) have found that stance devices are the most common in conversation and in written registers like academic prose and newspaper language.

Despite their widespread use, modal verbs are inexplicit in meaning since a modal verb can express different multiple stance meanings. For example, the modal verb "can", as shown below, expresses different stance meanings related to someone's ability to perform an act (a), whether someone has permission to perform an act (b), or whether some act/event is logically possible (c):

a) They can be artists or whatever they want to be.
b) You can go to this machine and get them.
c) The cover letter can really turn an employer on to wanting to interview you.

Keck and Biber (2004:4)

According to Hyland (1998), this polysemeous nature of the modal verbs is acknowledged by Huddleston (1971) who proposes that there are six distinct meanings of "may" and Coates (1983) admits that "could" has seven meanings and "should" five.

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In addition to the afore mentioned polysemeous nature of modal verbs, modal verbs have been classified differently by different writers. For example, Palmer (1986), Huddleston and Pullum (2002), and Quirk, Greenbaum, Leech, and Starvik (1985) distinguish three types of modality: epistemic, deontic, and dynamic. Epistemic modality is concerned solely with speaker's opinion, attitude, and/or belief to status of the proposition; that is, it refers to the assessment of possibility concerning the truth value of proposition. On the other hand, deontic modality, relates directly to the potentiality of the event signaled by the proposition. In other words, it refers to the attitude towards the desirability of an action or event. In the words of Lyons (1977:797):

> Any utterance in which the speaker explicitly qualifies his commitment to the commitment of the proposition expressed by the sentence he utters, whether this qualification is made explicit in the verbal component … or in the prosodic or paralinguistic component, is an epistemically modal, or modalized, utterance.

Dynamic modality, on the other hand, means the ability and disposition in relation to circumstantial events. They are exemplified by Palmer (2003:7) as:

Epistemic: *They may be in the office- They must be in the office.*
Deontic: *They may/can come in now. - They must come in now.*
Dynamic: *They can run very fast.- I will help you.*

Likewise, Hoye (1997:42) foregrounds the epistemic and deontic divisions of modality. In underlining the importance of modality, Halliday (1970: 335) acknowledges that; "modality is not a minor or marginal element in language" and draws attention to yet another dimension of modality; that is, subjectivity and objectivity.

2.3.1 Communicative functions of the modal verbs

Researchers seem to prefer to label the functions of modal verbs in English differently because of the different approaches and methodologies followed. For example, Keck and Biber (2004:10-11) categorize the modal verbs according to their functions as:

1. Permission/possibility/ability modals (can, could, may, might),

2. Obligation/necessity modals (must/should/have to), and

3. Prediction/volition modals (will, would, shall, be going to).

Similarly, Hoye (1997:240) classifies epistemic modals as:

A	B	C
possibility	probability	certainty
might	should	must
may	ought to	can't
could	would	
can	will	

As no occurrences of the modal verbs "have to", "ought to", "be going to", and "shall" were encountered in the data in the preliminary investigation, they were excluded in this study. In addition to this, the preliminary investigation also verified that the modal verbs used in the chosen research articles incorporate some other functions such as "suggestion", "deduction", and "expectation" other than the ones given above. In this respect, a compilation of the modal verbs and particularly their functions, categorized and described by different sources such as Quirk et al. (1985), Biber (1999), Biber et al. (1999), Biber and Finegan (1988), Precht (2000), Huddleston and Kullum (2002), Leech, (2004) and Biber (2006) has been made as illustrated in Table 7 below.

Table 7: Modal verbs and their functions

	can	could	may	might	will	would	should	must
ability	✓	✓						
advice							✓	✓
deduction	✓	✓					✓	✓
expectation							✓	
habitual					✓	✓		
hypothetical		✓			✓	✓	✓	
impossibility	✓	✓						
intention					✓	✓		
necessity								✓
obligation							✓	✓
permission	✓	✓	✓	✓				
possibility	✓	✓	✓	✓				
prediction					✓	✓		
probability					✓	✓		
suggestion	✓	✓	✓	✓				
volition					✓	✓		

2.4 Macro-structures, moves and sub-moves in the sections of the research article

In analyzing the use of modal verbs across the different rhetorical sections, and moves and sub-moves in the research articles, the use of modals across the moves in the different sections of research articles were analyzed taking the moves identified by Swales, (1990:127ff) as the basis. Analysis of the research articles' conclusion sections was also based on a modified version of the model outlined by Hopkins and Dudley-Evans (1988:118) for natural sciences to have deeper insight into modal verb use in the conclusion sections of the research articles.

Abstract moves

a) Introducing purpose

b) Describing Methodology

c) Summarizing Results

d) Presenting Conclusions

Introduction moves

Move 1: Establishing a research territory

a) by showing that the general research area is important, central, interesting, problematic, or relevant in some way (optional)

b) by making topic generalization (optional)

c) by introducing and reviewing items of previous research in the area (**obligatory**)

Move 2: Establishing a niche

a) by counter claiming (optional)

b) by indicating a gap in the previous research, or by extending previous knowledge in some way (**obligatory**)

c) by raising a question (optional)

d) by continuing a tradition /extending a finding (optional)

Move 3: Occupying the niche

a) by outlining the purposes or stating the nature of the present research (**obligatory**)

b) by announcing /describing present research (optional)

c) by announcing present/principal findings (optional)

d) by indicating the structure of the research paper (optional)

Methodology

Results

Discussion (Conclusion) Moves

Move 1: Points to consolidate your research space (**obligatory**)

Move 2: Points to indicate the limitations of your study (optional but common)

Move 3: Points to recommend a course of action and/or to identify useful areas of further research. (optional)

Discussion (Conclusion) moves suggested by *Hopkins and Dudley-Evans (1988:118)*

Background information

Statement of Results

(Un)expected outcome

Reference to previous research

Explanation of the Results

Exemplification

Deduction/hypotheses

Limitation

Suggestion/recommendation

       Suggestions for further research

       Pragmatic suggestions

Chapter 3
Methodology

3.1 Introduction

This study aims to find out primarily any similarities and/or differences in the use of stance through modal verb use by native and non-native English speaking academic writers. Another purpose of the study is to investigate the relationship between modal verb use and distribution of the moves and sub-moves in the research article. The final objective of this study is to capture an insight of the motives behind the assumed similarities and differences in the use of the modal verbs by native and non-native English speaking academic writers.

This comparative study partly employs a multi-dimensional approach. In this approach, a computer program (Wordsmith Tools) identifies the modal verbs in the articles, a statistical procedure identifies the occurrence of the modal verbs, and stance functions are used to interpret the modal verbs.

The approach employed in this study follows Biber's (1988) tradition to some extent. In his study, Biber describes this approach as involving:

> (1) The use of computer-based text corpora, providing a standardized data base and ready access to a wide range of variation in communicative situations and purposes: (2) the use of computer programs to count the frequency of certain linguistic features in a wide range of text, enabling many texts and genres; (3) the use of multivariate statistical techniques, especially factor analysis, to determine co-occurrence relations among the linguistic features; and (4) the use of microscopic analyses to interpret the functional parameters underlying the quantitatively identified co-occurrence patterns, (Biber, 1988: 63)

This study employs this multi-dimensional approach in analyzing stance through the use of modal verbs. This approach has the ability to perform both macro-and micro-analyses. Macro analyses were performed through the use of 45 articles in total, a number of variables, and a statistical technique, whereas micro analyses were performed to determine the functions of the modal verbs.

3.2 Data

The data for this study originate from an internationally published refereed journal, *Social Behavior and Personality.* This journal, where the focus is on a variety of issues ranging from psychological to educational sciences, was intentionally chosen as it is a well-established journal with clear boundaries. Due to practical reasons such as on-line availability, 45 articles were chosen. 15 articles published by native English speaking academic writers (American academic writers, henceforth AAWs), and 15 articles by non-native English speaking academic writers (Turkish academic writers, henceforth TAWs) and non-native English speaking academic writers (Spanish academic writers, henceforth SAWs) supply the data (Appendices A1, A2, and A3). The articles by TAWs and AAWs were published between 2000 and 2006. However, the articles by SAWs were published between 1993 and 2007. While some of the articles by the non-native speaker academics were the product of a single author, others were written by more than one author. It is worth noting that whether penned by a single author or by more than one, each article was written by a Turkish academic writer who held a university degree; is an assistant professor, an associate or a professor. This warrants that they had a high level of English language proficiency documented through a state run English Language Proficiency exam (KPDS or ÜDS). Only one article by the American and Turkish academic writers was chosen. In contrast, more than one article by the same Spanish writer had to be chosen to even out the number. The native speaker status of American academic writers is based on the biographical information given on their personal websites and in their articles. The same holds true for the Spanish Academic writers.

At the outset, three assumptions were made: the first one is that native English speakers may have given feedback to the non-native English speaking academic writers. Another assumption is that experience in the field may have an impact on the writer's use of modal verbs. These two possibilities are beyond the scope of this study. The final one is that modal verb use by non-native English speaking academic writers in their research articles does not undergo radical changes in the revision and publication process. This assumption is supported by Flowerdew (1999); Ventola & Mauranen (1990). Mauranen. (1999:127) has summed up some key areas non-native speakers experience difficulty in the order of importance in writing for publication:

(1) grammar, (2) use of citations, (3) making reference to the published literature, (4) structuring the argument, (5) textual organization, (6) relating to audience, (7) ways in

which to acknowledge claims, (8) ways in which to reveal or conceal the point of view of the academic community, (9) *use of "hedges" to indicate caution expected by the academic community* (Italics added), (10) "interference" of different cultural views regarding the nature of academic process. As seen in the previous list, non-native English speaking academic writers' difficulty in using hedges is at the bottom of the list, which strengthens the assumption that modal verb use by non-native English speaking academic writers in their research articles do not seem to undergo radical changes in the revision and publication process. This assumption is also supported by Ventola and Mauranen (1990) and Mauranen (1997:131). For example, Ventola and Mauranen (1990) have found that modality was not revised and corrected considerably. Similarly, Mauranen (1997) has indicated that native English speaker revisers did not make many corrections to hedges as a deliberate and motivated choice on two grounds: they felt that hedging was the writer's domain, therefore, not to be interfered with and that the writer's voice, which lies within the sphere of personal freedom of choice, is to be maintained sufficiently.

The modal verbs in the 45 articles of the study were identified by a computer program, Wordsmith Tools, and manually undertaken by the researcher himself to double-check. After this process, the modal verbs were highlighted and numbered by the researcher in two different sets for investigation. These modal verbs and their functions were analyzed by two different judges, one native English speaking American and the second, the researcher himself independently of each other. After that, the results were tabulated to see how much agreement was reached on the functions of the modal verbs. Spearman Correlation Coefficient test was run to the eight modal verbs to see the degree of reliability between the two raters. The test was applied to every modal verb across the articles. That is, a test was run to determine the inter-rater reliability on "can" in article 1. Then, the same procedure was repeated for "can" in article 2, and article 3, 4, 5, and 45. The same procedure was followed for the eight modal verbs analyzed. In the next stage, the modal verbs were coded in a word document showing the number of its features such as their functions, using the following coding. In addition to this coding entailing the sections in the articles, two other codings including both the moves and the steps in each move as suggested by Swales (1990:127-175); Swales (2004:207-240); Swales & Feak (2000:173-212) were carried out.

Variables coded for the analysis

<u>Modal Verbs</u>

can

could

may

might

will

would

should

must

<u>2. Independent variables</u>

native English speaking academic writers   (AAWS)

non-native English speaking academic writers (TAWs)

non-native English speaking academic writers (SAWs)

<u>3. Functions of the modal verbs</u>

ability

expectation

impossibility

meta discourse

obligation

possibility

prediction

suggestions

Although some other functions such as advice, deduction, hypothetical, permission, probability, and volition were also included in the coding , they were not considered in the analysis as they were not adequate enough for statistical analysis.

<u>4. Abstract Moves</u>

Introducing purpose

Describing Methodology

Summarizing Results

Presenting Conclusions

Introduction Moves

Establishing a territory   Claiming/showing centrality

                                   Making topic generalizations

                                   Reviewing items of previous research

Establishing a niche   Counter claiming

                                   Indicating a gap

                                   Question-raising

                                   Continuing a tradition/extending a finding

Occupying the niche   Outlining/giving purposes

                                   Announcing/present findings

                                   Indicating RA structure

Method

Results

Discussion (Conclusion) Moves

    Points to consolidate

    Limitation

    Further study

In addition to applying the conventional move model suggested by Swales (1990) to analyze modal verb use across the different rhetorical sections of research articles, analysis of the research articles' conclusion sections were based on a modified version of the model outlined by Hopkins and Dudley-Evans (1988:118) for natural sciences in order to have a deeper insight into modal verb use in the conclusion sections of the research articles.

Conclusion moves

Background information

Statement of Results

(Un) expected outcome

Reference to previous research

Explanation of the Results

Exemplification

Deduction/hypotheses

Limitation

Suggestion/recommendation

      Suggestions for further research

      Pragmatic suggestions

After the coding process, Varbrul was run to carry out variable rule analysis and associated data manipulations and displays. In addition to using this program to detect the percentages and functions of each modal verb used in the articles by both groups, the second purpose of using it is identifying any meaningful difference in the use of the modal verbs by both parties (Appendix C).

In this study, a move is defined as a segment of a text which is shaped and constrained by a specific communicative function as defined by (Nwogu, 1991:114):

> By the term "move" is meant a text segment made up of a bundle of linguistic features (lexical meanings, propositional meanings, illocutionary forces, etc.) which give the segment a uniform orientation and signal the contend of the discourse in it. Each "move" is taken to embody a number of "Constituent Elements" or submoves which combine to constitute information in the move.

In most cases, the unit of analysis was the sentence. Where a sentence appeared to include two moves, it was assigned to the move that seemed to be more salient. In very few cases where it was impossible to decide which of the moves within a sentence is more salient, it was coded as containing two moves, which was necessary for only two sentences in the entire data.

3.3 Data Analysis

After the modal verbs in the articles were identified by a computer program, Wordsmith Tools, and by the researcher himself manually to double-check, the researcher highlighted and numbered the modal verbs in two different sets for investigation by two different judges: one for the native speaker judge and the other for the researcher himself. Then both the native speaker and the researcher analyzed all the modal verbs throughout the different sections; "Abstract", "Introduction" (literature review), "Methodology", "Results", and "Conclusion". Next, independently of each other, they decided on the function(s) of every modal verb in their own contexts. After that, the results were tabulated to see what measure of agreement was achieved on the functions of these modal verbs. Spearman Correlation Coefficient test was applied to the eight modal verbs to find out the degree of reliability between the two raters. The test was applied to every modal verb across the articles. The purpose of running this test was to determine the inter-rater reliability on "can" in article 1. Then, the same procedure was carried out for "can" in article 2, and article 3, 4, 5 …and 45. The same procedure was applied to the other seven

modals. In general, for the most part, the results of the Spearman Correlation Test on the whole were between 85 and 98. The mean of the test was over 90 %, which lies within the acceptable range according to Gay (1987); Miles and Huberman (1994) (Appendix B).

Although no considerable disagreements between the native English speaker and the researcher on the functions of the modal verbs occurred, one particular area of disagreement surfaced: the functions of "can". Indeed, the dividing line between the possibility and ability function of "can" was the main cause of the disagreement:

Such effects *can* be decreased by improving self-protecting behaviors.

While the native English speaker interpreted the function of "can" in the above clause as "ability", the researcher decided that it expressed "possibility". Such differences in the interpretation of "can" were discussed, negotiated, and it was concluded that it is because the possibility function of "can" subsumes its "ability" and "permission" functions, as explained by Leech (2004: 75). The disagreement was resolved by applying the criteria proposed by Leech (2004: 75):

    a) "can" ('ability') and "can" ('permission) require a human or at least animate subject, the 'possibility' sense is the only one available when the subject is inanimate, as in

      Appearances can be deceptive.

    b) Another 'possibility' meaning is its likelihood in passive clauses:

      This game can be played by young children.

Despite this high inter-rater reliability, the few modal verbs on the functions of which the native English speaker and the researcher disagreed were analyzed again and discussed by the researcher and the native speaker. Then these modal verbs were coded in a word document showing the number of their features such as their functions, using the coding. In addition to this coding entailing the sections in the articles, two other codings including the moves and sub-moves in the research article suggested by Swales, (1990; 2004), were also carried.

After the coding process, Varbrul was run to carry out variable rule analysis and associated data manipulations and displays. In addition to using this program to find out the percentages and functions of each modal verb used in the articles by both groups, the

second purpose of taking such a step was to detect any meaningful difference in the use of the modal verbs by both parties (Appendix C) Apart from this, these steps are broken down as below.

Steps in analyzing stance through the use of the modal verbs:

Step 1. Preparations for and completion of computational analysis

- choosing the journal and the articles
- identifying and highlighting the modal verbs in two different sets of the same articles
- analyzing the modal verbs to determine their functions in their own contexts

Step 2. Quantitative statistical analysis

- coding the modal verbs
- running Spearman Correlation Coefficient test to see and obtain inter-rater reliability (Appendix B)
- discussing the functions of the few modal verbs which cause disagreements
- running Varbrul test to see the frequencies of the modal verb use across the different sections of the articles, the moves in each section and the sub-moves of each move
- running Varbrul test to figure out any significant difference between the two groups in the use of the modal verbs

Step 3. Qualitative analysis

- examining the articles and analyzing the modal verbs and their contexts to determine functional, contextual, and discourse characteristics of the modal verbs

Chapter 4

Results and Discussion

4.1 Overview of the study

Overall, the purpose of this study was to shed some light on how native English speaking academic writers (AAW), non-native English speaking academic writers (TAWs), and (SAWs) expression of stance through the use of the eight modal verbs in their internationally published research articles. Specifically, it set out to answer the following research questions:

1. Are there any significant differences in the use of the modal verbs between the non-native (Turkish and Spanish) English speaking academic writers?

2. Are there any significant differences in the use of the modal verbs between the non-native (e.g. Turkish and Spanish) and native (American) English speaking academic writers?

3. Do the native and non-native English speaking academic writers tend to use the modal verbs differently based on their functions?

4. Do the native and non-native English speaking academic writers tend to use the modal verbs differently based on the different rhetorical sections and moves?

4.2. Overall distribution of modal verb use by both non-native and native English speaking academic writers in their research articles

As Table 8 indicates, both the non-native and native English speaking academic writers used the modal verbs with varying percentages. The analysis reveals similarities as well as differences in the overall frequencies. Of the 1044 occurrences of modal verbs in the data, SAWs employed them the least, 28 % of the total modal verb use, followed by TAWs with 33 %. On the contrary, AAWs used them the most (38 %) in their research articles. This observation runs in line with the findings of some earlier researches (Ventola and Mauranen, 1990). In their study on non-native writers' texts and the linguistic revision of their texts by native-English revisers, Ventola, and Mauranen, (1990) have found that non-native writers used fewer modal expressions and they employed little variety in their application choice. The difference between native and non-native English speaking academic writers' use of modals is mostly explained in terms the conventions of the writer's cultural background (Markkanen, 1989), educational background and also the multi-functionality of "can" (Kasper, 1979).

Table 8: The percentages (%) of the overall distribution of modal verb use by non-native and native English speaking academic writers in their research articles

	can		could		may		might		will		would		should		must		total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
TAWs	81	**23**	38	**11**	109	**31**	18	**5**	26	**8**	32	**9**	39	**11**	5	**1**	348	**33**
SAWs	68	**23**	45	**15**	50	**17**	13	**4**	33	**11**	38	**13**	42	**14**	6	**2**	295	**28**
AAWs	41	**10**	18	**5**	123	**31**	46	**12**	42	**11**	90	**22**	28	**7**	13	**2**	401	**38**
																	1044	

The differences observed in the overall modal verb use by the groups could also be seen in the distribution of the frequency of the individual modal verbs as illustrated in Table 9.

Table 9: Modal verb use by the groups in rank order

TAWs	SAWs	AAWs
1. may (31%)	1. can (23%)	1. may (31%)
2. can (23 %)	2. may (17 %)	2. would (22%)
3. could/should (11%)	3. could (15%)	3. might (12%)
4. would (19%)	4. should (14%)	4. will (11%)
5. will (8%)	5. would (13 %)	5. can (10%)
6. might (5%)	6. will (11%)	6. should (7%)
7. must (1%)	7. might (14%)	7. could (5%)
8. --------	8. must (2%)	8. must (2%)

The groups' preferences of individual modal verb use also bear some similarities as well as some differences. For one thing, both TAWs and AAWs used the same modal verb "may" the most. For another thing, all of the groups employed "must" the least. When it comes to the differences, Table 9 shows that SAWs employed "can" the most. This finding matches with those of Vold (2006), Rezzano (2004), and Biber et al. (1999). A case in point is that Vold (2006) has found that "may" has the highest frequency of use among eleven epistemic modality markers in medical research articles. Similarly, Biber et al. (1999) have shown that "may" is frequently used to mark logical possibility in academic texts. Yet another support to this finding comes from Rezzano (2004), who has indicated that "may" and "can" are the most productive devices for the expression of low degrees of certainty in academic writing. This finding is consistent with that of Neff et al (2000). In a contrastive study on native and non-native English speakers' use of modal and reporting verbs in the expression of writer stance in argumentative texts, Neff et al. found that the non-native English speaking university writers (German, French, Dutch, Spanish, and Italian) all used "can" a lot more than the native English speaking university writers (American). Neff et al. (2000) state that the overuse of "can" by Spanish and Italian writers is due to transfer from the L1 epistemic meanings of Spanish modal verb *"poder"* and the Italian modal verb *"potere"*. Hence students did not distinguish between "can" when used as a definitive possibility, and "could" as a remote possibility. On the whole, they claim that their results suggest a transfer from Spanish to English of the linguistic norms of formal writing because of the typological differences between English and Spanish. While

English provides a variety of modal verbs, Spanish relies heavily on one modal verb "poder". The same idea is shared by Gabrielatos and McEnery (2005), who underline that the status and practices of epistemic modality in students' culture, their first language, educational, and academic contexts influence non-native English speaking students' use of epistemic modality. Another support to the influence of culture on modal verb use comes from Hinkel's (1995) study on the use of modal verbs. Hinkel (1995) found that culture influences the usage of root modals "must", "have to", "ought to", and "need to" in NS and NNS writing. In the same study, Neff et al. (2000) found that Spanish university students used "may" and "might" the least, whereas their American counterparts used "may" the most. Another difference lies in the rank order of the modal verbs the groups used from the most to the least. For example, TAWs employed "may" the most followed by "can", "could", and "should" respectively. Unlike this group, SAWs used "can" with the highest frequency followed by "may", "could", and "should". Comparatively higher use of "can" by the latter group is a feature which deserves attention. On the other hand, AAWs used "may" with the highest frequency, similar to TAWs. Unlike TAWs and SAWs, AAWs used "would" the second most followed by "might", "will", and "can". In fact, AAWs' relatively higher use of "would" and "might" stands out.

Although the difference in terms of the percentages between the three groups' use of the modal verbs appears to be slight, some varying degrees of significant differences as well as some similarities emerge between the non-native English speaking academic writers; that is TAWs and SAWs. In fact, the similarities outweigh the differences as illustrated in Table 10.

4.3.1 Overall use of modal verbs by the non-native English speaking academic writers (TAWs vs. SAWs) in their research articles

The results of the statistical test performed show that the similarities between the two non-native English speaking academic writers outnumber the difference. When the significance value is smaller than the Varbrul weight, it indicates statistically significant difference. The closer the significance value to Varbrul weight 0.5 is, the less the significance occurs. When the significance value is bigger than the Varbrul weight, it indicates no statistically significant difference. As Table 10 shows, the non-native English speaking academic writers showed similar tendencies in the overall use of modal verbs across their research articles except for the modal verb "may".

Table 10: The results of Varbrul test illustrating similarities and differences in the use of modal verbs between the non-native English speaking academic writers (Turkish academic writers, TAWs) and (Spanish academic writers, SAWs) in their research articles

Modal verbs	Turkish academic writers (TAWs)			Spanish academic writers (SAWs)			Significance
	n	%	Varbrul weights	n	%	Varbrul weights	
can	81	23	0.502	68	23	0.498	p≤0.948 not significant
could	38	11	0.418	45	15	0.492	p≤0.104 not significant
might	18	5	0.540	13	4	0.460	p≤0.663 not significant
will	26	8	0.401	33	11	0.599	p≤0.107 not significant,
would	32	9	0.417	38	13	0.583	p≤0.145 not significant
should	39	11	0.441	42	14	0.559	p≤0.255 not significant
must	5	1	0.414	6	2	0.586	p≤0.577 not significant
may	109	31	0.646	50	17	**0.364**	**p≥0.0001 significant**
Total	**348**			**295**			

Only one statistically significant difference was observed; that is, in the use of "may". The significance value for the use of "may" by the two groups (p≥0.0001) indicates a statistically significant difference. As the significance values for the use of the other modal verbs by these groups are higher than the p value; that is, p≤ significance value, no statistically significant differences were seen.

4.3.2 Overall use of modal verbs by the non-native English speaking academic writers (TAWs and SAWs) and native English speaking academic writers (AAWs) in their research articles

The statistical analysis of the results by the use of Varbrul yields a lot more differences than similarities between the native (AAWs) and the non-native English speaking academic writers TAWs and SAWs) as shown in Table 11. The results of the statistical test performed indicate no statistically significant difference between the native (AAWs) and the non-native English speaking (TAWs) academic writers' use of only three modal verbs: "may", "will", and "must". The significance value for "may" by TAWs and AAWs' is p≤0.857, which shows no difference in the use of "may". Another similarity between these two groups lies in the use of "will". The significance value for "will" by TAWs and AAWs' is p≤0.161, which indicates no difference between the groups. The same holds true for the use of "will" by AAWs and SAWs, since the significance value for this modal verb is p≤0.770. The native and the non-native English speaking groups also show similarity in the use "must". The significance value for "must" by TAWs and AAWs is p≤0.692, which indicates no difference between the groups. The same observation holds true for the use of "must" by AAWs and SAWs. The significance value for "must" by SAWs and AAWs (p≤0.336) also shows that there is no difference between the groups in the use of this modal verb.

Table 11: The results of Varbrul test illustrating similarities and differences in the use of modal verbs between the non-native (TAWs and SAWs) and the native English academic writers (AAWs) in their research articles

Modal verbs	Turkish academic writers (TAWs)			American academic writers (AAWs)			Significance	Spanish academic writers (SAWs)			American academic writers (AAWs)			Significance
	n	%	Varbrul weights	n	%	Varbrul weights		n	%	Varbrul weights	n	%	Varbrul weights	
can	81	23	0.694	41	10	0.306	**p≥0.0001 significant**	68	23	0.693	41	10	0.307	**p≥0.0001 significant**
could	38	11	0.708	18	5	0.292	**p≥0.001 significant**	45	15	0.772	18	5	0.228	**p≥0.0001 significant**
may	109	31	0.505	123	31	0.495	p≤0.857 not significant	50	17	0.359	123	31	0.641	**p≥0.0001 significant**
might	18	5	0.312	46	12	0.688	**p≥0.003 significant**	13	4	0.280	46	12	0.720	**p≥0.001 significant**
will	26	8	0.417	42	11	0.583	p≤0.161 not significant	33	11	0.516	42	11	0.484	p≤0.770 not significant
would	32	9	0.294	90	22	0.706	**p≥0.0001 significant**	38	13	0.367	90	22	0.633	**p≥0.001 significant**
should	39	11	0.616	28	7	0.384	**p≥0.046 significant**	42	14	0.671	28	7	0.329	**p≥0.003 significant**
must	5	1	0.308	13	2	0.692	p≤0.1 not significant	6	2	0.386	13	2	0.614	p≤0.336 not significant
Total	**348**			**401**				**295**			**401**			

As has been underlined, the results of the test, which was run to find out similarities and differences between the non-native (TAWs and SAWs) and the native English speaking academic writers (AAWs) indicate more differences than similarities.

The non-native English speaking academic writers (TAWs) and the native English speaking academic writers (AAWs) differed significantly in the use of five modal verbs: "can", "could", "might", "would", and "should". As the significance values for these modal verb uses by (TAWs) are $p \geq 0.0001$ for "can", $p \geq 0.001$ for "could", $p \geq 0.003$ for "might", $p \geq 0.0001$ for "would", and $p \geq 0.046$ for "should", statistically significant differences between these two groups in the use of these modal verbs were observed. However, it should be pointed out that the difference between (TAWs) and (AAWs) in the use of "should" is slight.

On the other hand, (SAWs) and (AAWs) showed differences in the use of six modal verbs: "can", "could", "may", "might", "would", and "should". As the significance values for these modal verb uses by (SAWs) are $p \geq 0.0001$ for "can", $p \geq 0.0001$ for "could", $p \geq 0.0001$ for "may", $p \geq 0.001$ for "might", $p \geq 0.001$ for "would", and $p \geq 0.03$ for "should" respectively, statistically significant differences between these two groups in the use of these modal verbs were observed. What differs (TAWs) from their non-native English speaking academic writer counterparts (SAWs) lies in the use of "may". It may be seen that (TAWs) used the modal verbs like (AAWs) more than (SAWs).

4.4. Overall distribution of modal verb use by the groups based on their functions

It was assumed at the outset that similar tendencies as well as different ones in modal verb use according to their functions might exist between the two non-native English speaking academic writer groups and between the non-native and the native English speaking academic writers.

Overall, both the non-native and native English speaking academic writers expressed the same three functions the most with varying percentages; that is, they expressed "possibility" the most followed by "prediction", and "suggestion" respectively. However, they had different tendencies in the use of the other modal verbs based on their functions. As Figure 1 shows, TAWs used a high percentage, 59 % of the modal verbs to express "possibility". Of the 348 total occurrences of the modal verb use, they used 16 % to express "prediction", followed by 13 % to make "suggestions", and to express "ability" 6 % respectively. In other words, they employed almost two-thirds of the modals to express "epistemic possibility" and 'prediction".
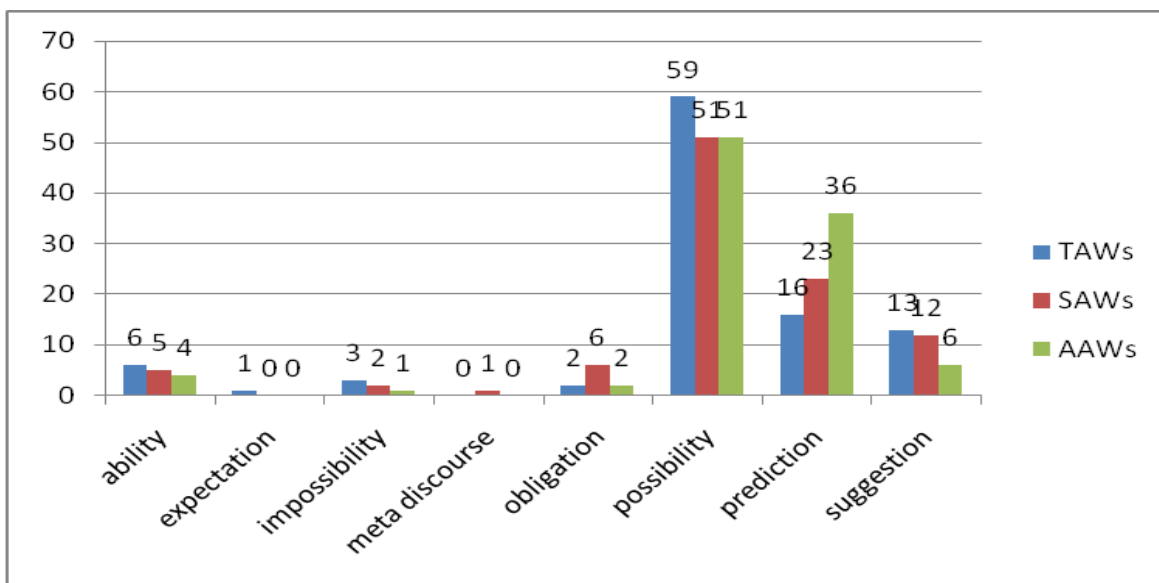
Figure 1: The percentages (%) of the overall distribution of modal verb use by the groups according to their functions in their research articles

As Figure 1 shows, SAWs' use of modal verbs for the realization of different functions across their articles also displays a similar distribution. That is, SAWs employed a great percentage, 51% of the modal verbs to express "possibility". Of the 295 total occurrences of the modal verb use, they employed 23 % to express "prediction", followed by "suggestions", "obligation" 6 %, and to express "ability" 5 % respectively. Like TAWs, they used almost two-thirds of the modal verbs to express "epistemic possibility" and "prediction".

AAWs employed more than half of their modal verb use, 51 % to express "epistemic possibility" like the other two groups. The second rhetorical function they used the modal verbs the second most is to express "prediction", which also holds true for the other groups as well. AAWs expressed "prediction" with 36 % of their total modal verb use. These are followed by making "suggestions" 6 %, expressing "ability" 4 %, and expressing "obligation" 2 % respectively.

4.4.1. Possibility

As can bee seen in Figure 2, both the non-native and native English speaking academic writer groups used four modal verbs to express epistemic possibility: "may", "can", "could", and "might" with varying percentages. Both the non-native and native English speaking academic writers used "may" the most. This finding is supported by Vold (2006), who admits that "may" has the highest frequency of use among eleven epistemic

modality markers in medical research articles. Similarly, Biber et al. (1999) have shown that "may" is frequently used to mark logical possibility in academic texts.
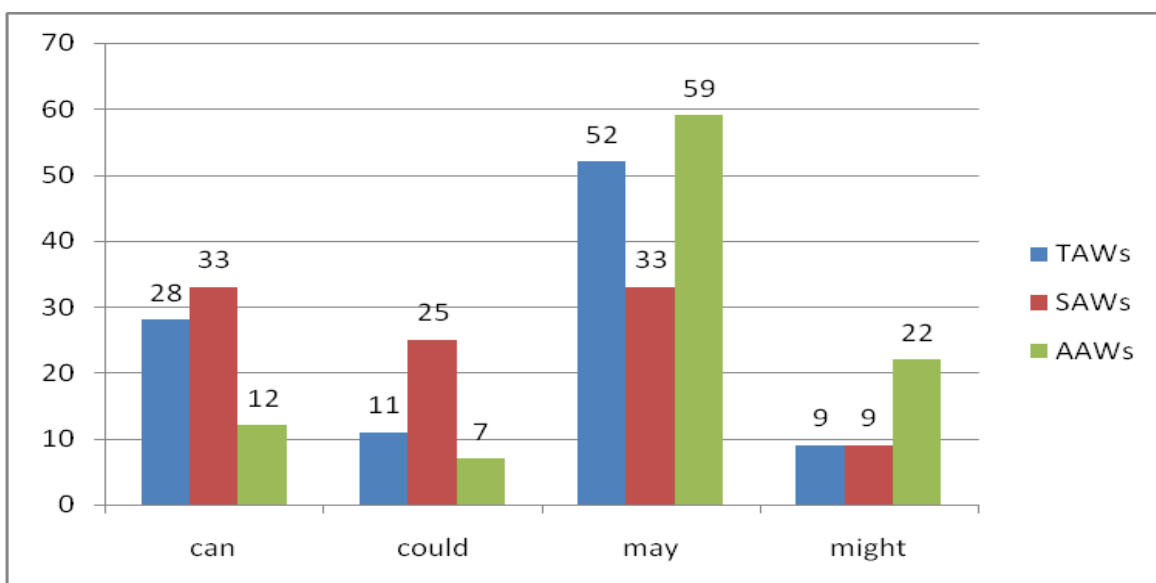
Figure 2: The percentages (%) of the modal verbs used to express epistemic possibility

However, the groups showed different tendencies in the order of modal verbs they used from the most to the least. While the non-native English speaking academic writers tended to use the less formal "can" and "could" to express epistemic possibility more, the native English speaking academic writers used the more formal "might" with a slightly weaker epistemic possibility meaning more. The non-native English speaking academic writers' extra reliance on "can" and "could" more than "might" could be due to (1) the multifunctionality of "can" and "could", (2) the disproportionate attention these modal verbs received in L2 writing materials, and (3) the amount of exposure the writers had to these modal verbs.

Both the non-native and the native English speaking academic writers expressed epistemic possibility mainly to open a discursive space where readers can dispute their interpretations, to help facilitate open discussion in order to invoke alternative propositions, allow room for disagreement or negotiations, to decrease their responsibility for the truth-value of their propositions, to tone down their statements and claims in order to be less vulnerable to criticism, to project politeness, and to convey a suitable degree of deference and modesty to the audience.

The modal verb with the highest frequency of use for epistemic possibility is "may". The function of "may" in contexts as in example (1) was considered in the light of expressing possibility from the researcher's part:

> (1) Sternberg (1992) defines *thinking style as a preferred way of thinking* (italics original). It is not an ability, but it is an advisable method of using and expressing one or more abilities. In addition, two or more individuals who have a similar standard of ability *may* have and develop quite different styles of thinking…
>
> (Balkıs & Işıker, 2005:285)

The groups used "may" to open a discursive space as in example (2):

> (2)…University students are in a transitional period between adolescence and adulthood. This period has been called *emerging adulthood* (italics original), and includes the years between the late teens into the twenties, generally the ages of 18-25 years (Arnett' 2000). In this stage of life, individuals are faced with specific developmental tasks which are peculiar to this period, such as taking responsibility for oneself, making independent decisions, having a job, preparing to set up a family, establishing and maintaining meaningful close relationships with others, establishing relationships, and so on. In this stage, being unsuccessful in setting up intimate relationships or experience role confusion *may* prevent the youth attempting to establish close relationship with others' and the young person *may* isolate him-or herself from others, or *may* be shunned by others…
>
> (Ceyhan, 2006:368)

In example (2), which was taken from the introduction section of a Turkish academic writer's research article, the writer uses "may" to speculate about the possible problems university students may face, after introducing the topic. By displaying a non-assertive stance, the writer helps facilitate open discussion. It also shows that the writer is knowledgeable. This textual feature not only enables the writer to create a smooth transition to her own argument but also warms up the reader for the forthcoming arguments, all of which strengthens her credibility.

Another modal verb the groups used to express epistemic possibility is "can". "Can" is widely used by the non-native groups to express this function. The function of "can" in contexts as in example (3) was considered in the light of expressing prediction from the researcher's part:

(3)…Social network was measured by the Social Atom Scale (SAO) developed by Dökmen (1993). Two different scores *can* be obtained from the scale regarding the volume and the richness of the social network. This study was undertaken…

<div align="right">(Türküm, 2005: 621)</div>

The groups used "can" with an epistemic possibility meaning to express their tentative stance on the issue being discussed as in example (4):

(4) Sternberg (1992) defines *thinking style as a preferred way of thinking* (italics original). It is not an ability, but it is an advisable method of using and expressing one or more abilities. In addition, two or more individuals who have a similar standard of ability <u>may</u> have and develop quite different styles of thinking. Sternberg claims that the styles resemble the abilities like the large part of a function of an environment, and styles of thinking *can* possibly be developed. Styles of thinking are also variable in the sense that different styles *can* be used in different situations because styles seem to be partly a function of tasks and situations…

<div align="right">(Balkıs & Işıker, 2005:285)</div>

A pattern common to TAWs is the use of "can" with an epistemic possibility meaning in **"It can be……that…."** clause with verbs such as (state, say, claim, argue, define, and conclude) to display their tentative stance towards the issue in hand as in examples (5) and (6):

(5) …Certainly it is not sufficient to classify all individuals who have to work long hors due to the requirements of their jobs as workaholics. It is critically important to understand why workaholic individuals voluntarily spend so many hours on the job at the expense of their private lives. Finally, <u>it *can* be argued that</u> in order to understand workaholism it is important to take into consideration not only personal factors but also situational factors (Harpaz & Snir, 2003).

<div align="right">(Ersoy-Kart, 2005:610)</div>

In example (5), the writer displays a non-assertive stance by using "can" to soften her argument. This tentative approach to the issue under discussion is strengthened by using "can" in a passive clause, which also acts as a face saving strategy.

A pattern common to SAWs is the use "can" with an epistemic possibility meaning in defining a term, especially in the "Introduction" sections of their research articles as in example (6):

(6)…Finally, psychotism *can* be defined as the degree of insensitivity towards people relationships: individuals showing tendency towards loneliness, lack of affection, a response to violence and impersonal relationship…

(Fernandez, & Castro, 2003:358)

Unlike TAWs' use of "can" in passive constructions, SAWs use the same modal verb in active clauses to run to a conclusion in the conclusion sections of their research articles as in example (7):

(7)…In summary, we *can* conclude that this type of entrepreneur is a manager with some specific features who is different from entrepreneurs and from the population at large…

(Diaz & Rodriguez, 2003:745)

Another common pattern SAWs display is the use of "can" in mainly passive constructions with a first person pronoun with verbs such as (observe, assume, say, and confirm) as a metatextual feature as in example (8):

(8)…To test Hypothesis 1a we carried out a path analysis with the three behavioral intentions of remaining, in short, medium and long term as predictor variables, and actual service duration at six months as independent variable. <u>As *can* be seen</u> (Figure 1), intention in the short term is that which shows the strongest relationship at actual service duration as six months.

(Chacon, Vecina, & Davila, 2007:634)

Unlike TAWs and AAWs, SAWs employ one fourth of their use of "can" as a metatextual feature to guide the reader and/or to refer to parts of their articles

The third modal verb the groups used to express epistemic possibility meaning is "could". As illustrated in Figure 2, the non-native English speaking academic writers employed it more than the native English speaking academic writers. Similar to "can" and "may", all the three groups used 'could' to express possibility. The function of "could" in

contexts as in example (9) was considered in the light of expressing possibility from the researcher's part:

(9)…If cheating is thought to be a wrong behavior by societies, the underlying reasons for this kind of behavior should be discovered. On the other hand, if the connection between the teacher and the student is reduced (Blinn, 1993-1994), cheating *could* continue for years and remain on the agenda. Cheating is also a condition that prevents the student from learning. Some people contend that students *could* also learn while cheating. How much it is real learning *could* be discussed…

(Semerci, 2006:47)

The groups used "could" to express their awareness and acceptance of some other explanations of the issue as in example (10):

(10)…As noted earlier, PA *could* have a more relevant role than it may seem, and much more relevant than that for which it is normally given credit, with respect to long relationships..

(Sangrador &Yela, 2000:209)

The final modal verb the groups used to express epistemic possibility meaning is "might". As can be seen in Figure 2, AAWs used "might" twice more than both TAWs and SAWs. This might be due to relatively little exposure the non-native English speaking academic writers have to "might" compared to "can" and "could". Another explanation could be that both "can" and "could" are more multifunctional compared to "might". Like the other three modal verbs "may", "can", and "could", the groups used "might" mostly in the "Introduction" and "Conclusion" sections of their research articles. The function of "might" in contexts as in example (11) was considered in the light of expressing possibility from the researcher's part:

(11)...A particular discrepancy *might* emerge at a given moment because of external social environments… At another moment, internal factors such as one's goals *might* trigger a discrepancy. Although such shifts in external and internal factors may affect the immediate focus on anyone's attention, we might wonder whether there are certain individuals who by dint of personality are more chronically prone to accessing the self-discrepancy previously set forth. I propose that individual differences in level of self-focused attention *might* serve to identify such individuals…

(Fromson, 2006:336)

In example (11), the writer used "might" to display his tentative stance on the issue under discussion, which shows that the writer is knowledgeable about the issue. This non-assertive tone acts as a face saving strategy. The non-native English speaking academic writers used the same modal verb for the same purpose as in example (12):

(12)…It <u>could</u> be concluded that this style of environment creates and/or supports nursing students' dependent behaviors. Students contribute to the assertiveness of their friends by encouraging them to communicate. This *might* help explain why students need peer support to be assertive…

(Kukulu et al., 2006:37)

4.4.2. Prediction

As illustrated in Figure 1 on page 48**,** prediction is the second most commonly expressed function both by the non-native and native English speaking academic writers. The writers used "will" and "would" to pronounce their degree of certainty in the expected outcomes of their research; that is, to express prediction with varying percentages. As can be seen in Figure 3, the writers used "would" the most followed by "will". However, while the native English speaking academic writers used the tentative "would" twice as frequently as "will" to make predictions, the non-native English speaking academic writers tended to use these two modal verbs "will" and "would" with similar percentages.

Figure 3: The percentages (%) of the overall modal verb use employed to express prediction

The function of "would" in contexts as in example (13) was considered in the light of expressing prediction from the researcher's part:

(13)…We also expected an interaction effect between race and learning strategy whereby African American students *would* endorse cooperative learning significantly more than did the White American students-but the reverse *would* be true for the endorsement of competitive and individualistic learning preferences.

(Ellison, Boykin, Tyler, & Dillihunt, 2005:701)

Both the non-native and the native speaking academic writers used "would" to make prediction mostly in the "Methods" and "Results" sections of their research articles as in example (14):

(14)… The present study examined the reliability and validity of the Work-BAT-Turkish Form. The main hypotheses in this study are as follows:
Hypothesis 1: Factor analysis *would* produce three distinct scales (WE, WI, and D)
Hypothesis 2: WI, WE and D *would* correlate with the Jenkins Activity Survey-Type A Behavior subscale…

(Ersoy-Kart, 2005:612)

The other modal verb the groups employed to make prediction is "will". The function of "will" in contexts as in example (15) was considered in the light of expressing prediction from the researcher's part:

(15)…The first set of hypotheses involves the relationship between OCB and motives. The Results were expected to replicate those obtained by Rioux and Penner (2001) and Finkelstein and Penner (2004).
Hypothesis 1a
OCBO *will* correlate positively with the more altruistic motives of concern for the organization (OC) and for others (PV): the OC-OCBO relationship *will* be stronger of the two.
Hypothesis 1b
OCBO and IM motives *will* show no significant relationship…

(Finkelstein, M. A., 2006:607)

As is the case with 'would', both the non-native and native English speaking academic writers used "will" to state their predictions mostly in the "Methods" and "Results" sections of their research articles as in example (16):

(16)…(2) Due to conscious awareness of shame present in Attack Self (AS), Withdrawal (WD), and to a lesser extent Attack Other (AO) scripts, their scores *will* be correlated with the ISS Shame and SCL-90-R GSI scores, (3) due to the shame internalization common to the WD and AS scripts, their scores *will* be correlated with the (reverse scored) ISS Self Esteem scores,…

<div align="right">Elison, Pulos, & Lennon, 2006:164)</div>

As has been underlined, both the non-native and native English speaking writers used "would" and "will" with varying percentages to express their predictions especially in the "Methods" and "Results" sections of their research articles.

4.4.3. Suggestion

Another function both the non-native and native English speaking academic writers realized by using "should" the most followed by "may", "could", "might", and "can" respectively with varying percentages is making suggestions as seen in Figure 4. Although both the non-native and native English speaking academic writers used "should" for this purpose, they differed in their preferences for the other modal verbs. As Figure 4 shows, TAWs and AAWs have more variety in the choice of modal verbs they used to make suggestions.
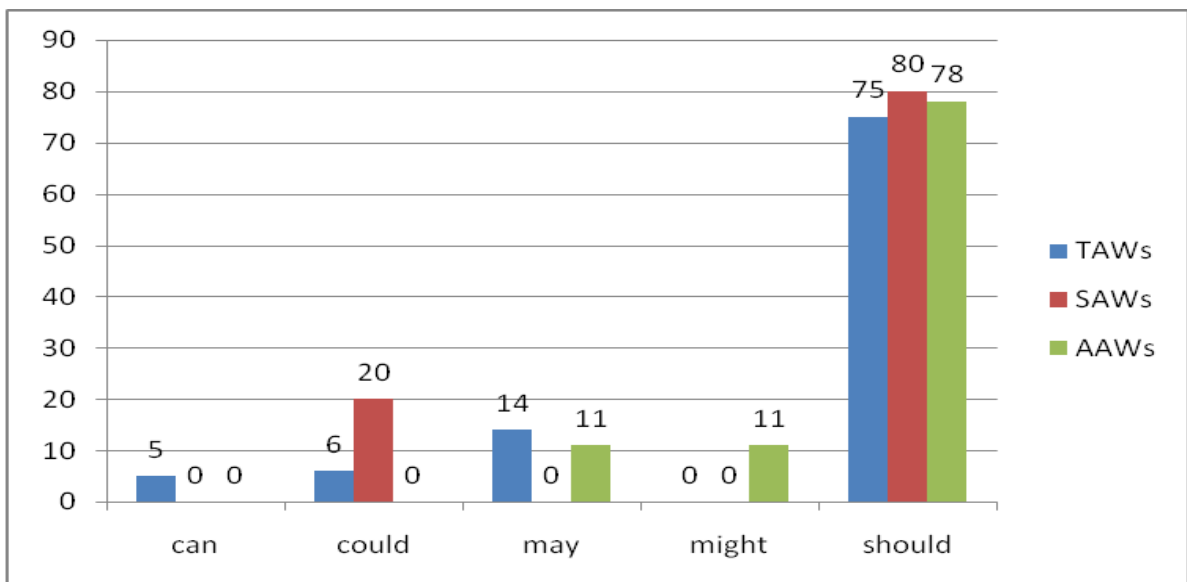
Figure 4: The percentages (%) overall modal verb use to make suggestions

This rhetorical act, which is generally found in the "Conclusion" sections of the research articles, aims to offer pedagogical advice as well as recommendations for further study. The function of "should" in contexts as in example (17) was considered in the light of offering suggestion from the researcher's part:

(17)…Finally, we consider that further research *should* be done on this type of organization, mainly from the field of social sciences. In this sense, public administrations should promote activities or training programs aimed at promoting self-employment, not randomly but defining the profile of the target population…

(Diaz & Rodriguez, 2003:745)

As can be seen in Appendices I and J, the non-native English speaking academic writers made suggestions both pedagogical and for suggestions further study. However, the native English speaking academic writers made no pedagogical suggestions at all (Appendix K). Overall, although the native group made fewer suggestions than the non-native groups (Appendices I, J, K), they made suggestions for further study as in example (18):

(18)…An important implication of this research is that both teachers and researchers *should* pay more attention to individual learning preferences of students in the learning context. Further research *should* look at the effects that would be obtained when teachers take into account such preferences.

(Ellison et. al. 2005:706)

The non-native English speaking academic writers made pedagogical suggestions by using "should" as in example (19):

(19)…In Turkey, much emphasis *should* be placed on identifying and modifying dysfunctional relationships in couple therapy and premarital counseling practice. Further psychological training on cognitive behavior theory *should* be given to adolescents and university students involved in romantic affairs in order to change their irrational relationship beliefs…

(Hamamcı, 2005:324)

One striking revelation of the study is that offering advice is very common among TAWs. A noteworthy feature of TAWs' advice is that it addresses the needs of their local discourse community.

Another modal verb used to make suggestion is "may". The function of "may" in contexts as in example (20) was considered in the light of offering suggestion from the researcher's part:

> (20)…The scale is fast and easy to administer. Future research *may* include identifying more factors associated with likability…
>
> (Reysen, 2005:206)

As can be seen in Figure 4, only TAWs and AAWs employed "may" to make suggestions as in example (21):

> (21)…Further efforts *may* expand these findings by using different scales and methods, and research designs…
>
> (Ceyhan, 2006:377)

In example (21), which was chosen from the conclusion section of the writer's article, the writer makes suggestions for further study.

Yet another modal verb used by only the non-native English speaking academic writers to make suggestion is "could". The function of "could" in contexts as in example (22) was considered in the light offering suggestion from the researcher's part:

> (22)…We are aware that these results cannot be generalized, and do not include all potential dimensions of the extraversion construct. Thus, this analysis should be repeated among other professions. Equally, the scale *could* be completed with other items, or new scales *could* be created to evaluate extraversion in other professional or life contexts…
>
> (Oviedo-Garcia, 2007:687)

In example (23), the writers preferred "could" over other modal verbs to make suggestions for further studies:

> (23)…These hypotheses *could* be tested out with regard to new male and female roles in other studies of personality and values, and also in different populations and cultures…
>
> (Aluja & Garcia, 2004:624)

The modal verb which only the native English speaking academic writers used to make suggestions is "might" as illustrated in Figure 4. The function of "might" in contexts as in example (24) was considered in the light of offering suggestion from the researcher's part:

(24)…Future studies *might* extend the sample to provide greater external validity. The scale is not built to screen…

(Reysen, 2005:206)

In example (25), the writers used "might" to make suggestions for further study:

(25)…First, further examination of women's concepts of relationships and relationship styles *might* be fruitful for understanding the different orientations of women who did or did not report imaginary companions…

(Gleason et al. 2003:734)

Another modal verb which was used only by one academic writer group, that is TAWs, is "can" to make suggestions. The function of "can" in contexts as in example (26) was considered in the light of offering suggestion from the researcher's part:

(26)…This research *can* be extended by including other levels of educational organizations.

(Deniz et al. 2005:30)

In example (27), which was chosen from the conclusion section of the research article, the writers used "can" to make suggestion:

(27)…This research offers practical implications for both educators and career counselors. Educators should arrange their methods of teaching and assessment in accordance with students' dominant thinking styles. Teachers *can* learn about students by making use of the TSI and the SDS…

(Balkıs&Işıker, 2005:292)

4.4.4. Obligation/necessity

Another function both the non-native and native English speaking academic writers realized is obligation by using "must". As illustrated in Figure 5, the groups used only "must" to express obligation. The use of "must" to express obligation in research articles aims to display a desire to control the thoughts, inferences, and actions of the reader, to lead the reader towards actions the writer considers to be correct, to impose the writer's opinion on the reader, and to demonstrate authority in their field.

Figure 5: The percentages (%) overall modal verb use to express obligation

The function of "must" in contexts as in example (28) was considered in the light of expressing obligation from the researcher's part:

> (28)…The findings provide preliminary support for adding motive fulfillment to a conceptual view of sustained OCB. A complete understanding of citizenship performance must consider both dispositional and organizational variables…
>
> (Finkelstein, 2006:615)

Both the non-native and the native English speaking academic writers used "must" to express obligation in the "Conclusion" sections of their research articles, especially to underline the significance of a problem, and the urgency of a solution needed as in example (29):

(29)…Therefore, training programs to improve young adults' communication skills *must* be carried out intensively to make them more functional and effective in the future, because they have great importance in the development of society…

(Ceyhan, 2006:377)

In example (29), the writer uses "must" to display a desire to control the thoughts and inferences of the reader on the relevance and urgency of the issue. It also aims to control and guide the reader's actions, which might be seen as a demonstration of authority.

4.4.5. Ability

Another function both the non-native and the native English speaking academic writers realized with varying percentages is expressing ability as seen in Figure 6. Unlike the other section specific functions, this function is not section or move bound. Both the non-native and English speaking academic writers expressed ability by using "can" and "could". However, the percentages of "can" and "could" TAWs and AAWs employed to express ability are the same.
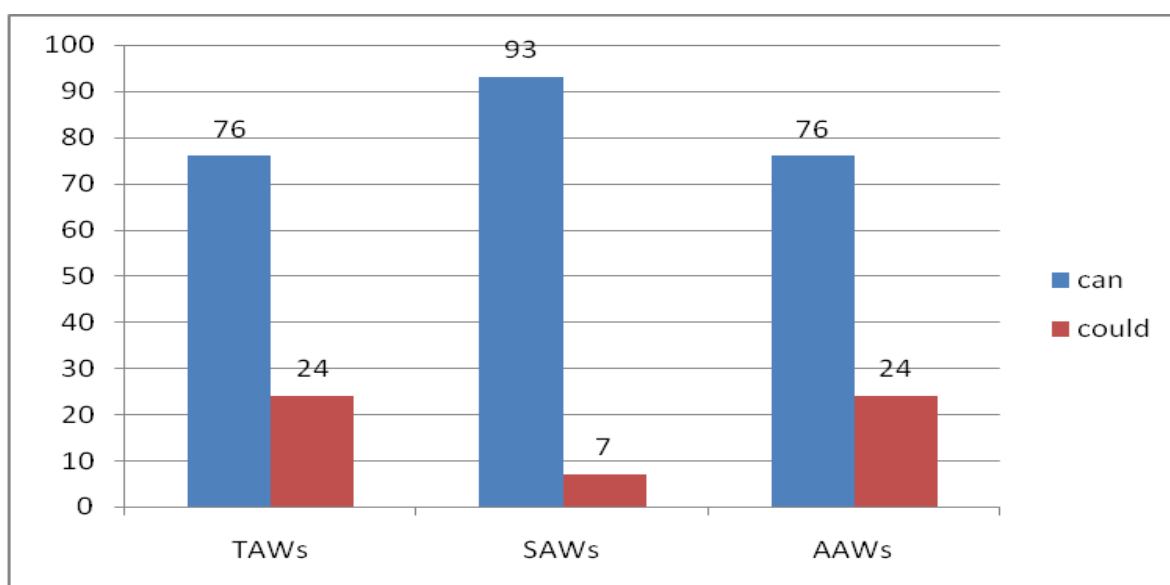
Figure 6: The percentages (%) "can" and "could" use to express ability

The function of "can" and "could" in contexts as in example (30) was considered in the light of expressing ability from the researcher's part:

(30)…Emotionally expressive individuals are very cheerful and they *can* impress others. Emotionally sensitivity (ES) is defined as the a*bility of perceiving and*

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interpreting other individuals' nonverbal communications.(Italics original)
Emotionally sensitive individuals *can* precisely interpret the emotional signals of others…

(Deniz et al., 2005:21)

(31)…As a dominance hierarchy stabilizes, the participants get to know their ranks. They do not have to fight as often, since they *can* predict the outcome of most potential encounters…

(Braza et al., 2007:204)

In example (31), which was chosen from the conclusion section of the writers' article, the writers expressed ability by using "can". In example (32), which was taken from the introduction section of a RA by native English speaking academic writers, the writers expressed ability (in the past) by using "could":

(32)…Because shyness and imaginary companions have not been investigated in adults, we include a measure of shyness but hypothesized that those who could and could not remember pretend friends would not differ…

(Gleason et al., 2003:726)

4.4.6. Impossibility

As can be seen in Figure 7, both the non-native and native English speaking academic writers expressed impossibility by using "can" and 'could' to varying degrees. The function of "can" and "could" in contexts as in examples (33) and (34) was considered in the light of expressing impossibility from the researcher's part:

(33)…Although socialization *cannot* account completely fort the origins of styles and there are environmental pressures which make the changing of innate attitudes difficult, it is an undeniable fact that some individuals favor less rewarding styles…

(Balkıs & Isıker, 2005:285)

(34)…In contrast, Davis et al. found that amount of time spent volunteering *could* not be predicted from either fulfillment of altruistic or self-oriented motives…

(Finkelstein, 2006:613)
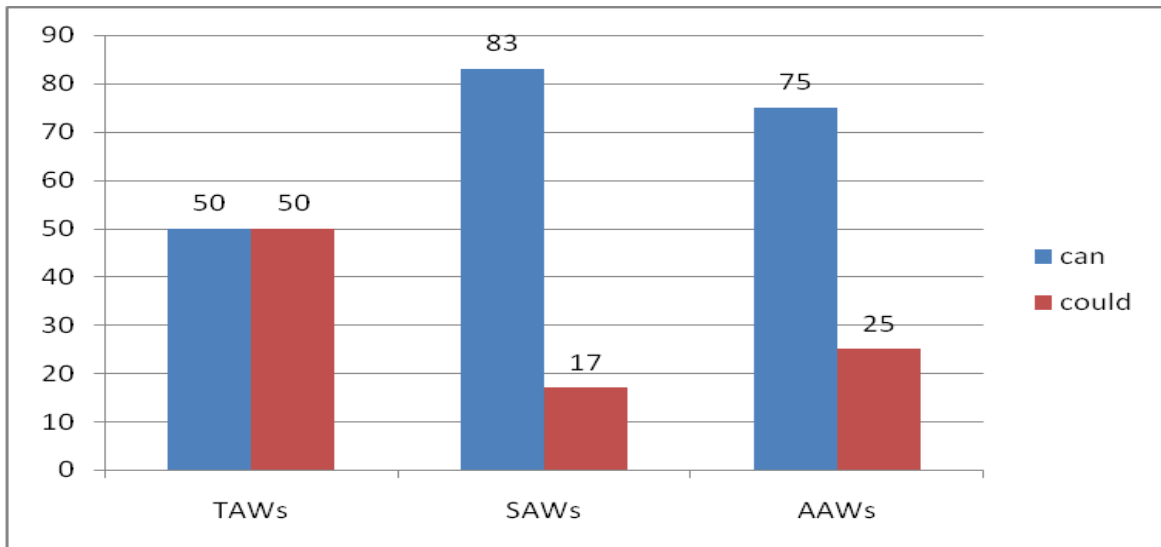
Figure 7: The percentages (%) 'can' and 'could' used to express impossibility

The use of "can" and "could" to express impossibility is not peculiar to any section or move of the research article, as in example (35), which was chosen from the conclusion and (36), which was taken from the introduction sections of the cited writers:

(35)…The direction of influence between motive strength and motive fulfillment also cannot be discerned from the present data…

(Finkelstein, 2006:614)

(36)…It is a reality that forcing children to work *could* not be eliminated in the short term…

(Bildik et al. 2005:296)

4.4.7. Meta discourse

Contrary to the other functions which both the non-native and native English speaking academic writers realized, only SAWs realized this function by using "will" as seen in Figure 8.
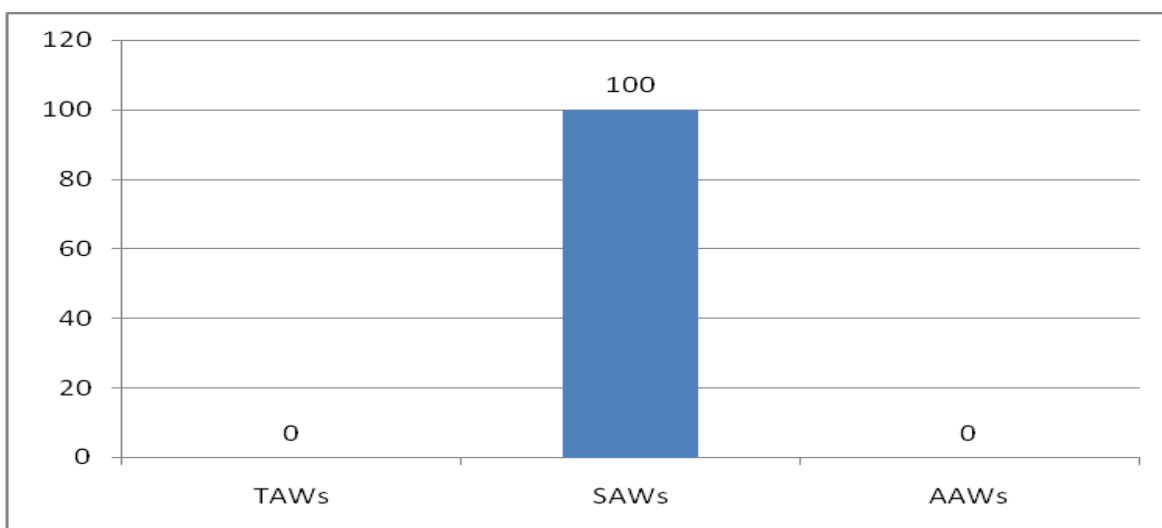
Figure 8: The percentages (%) 'will' used to express meta discoursal function

The function of "will" in contexts as in example (37) was considered in the light of expressing a meta-discoursal function from the researcher' part:

> (37)…Thus, with the aim of identifying the social behaviors related to social adjustment during the preschool period, the study *will* explore the differences between different types of social status as regards their behavioral profiles…
>
> (Braza et al. 2007:196)

This use of "will" was also observed both in the introduction and conclusion sections of the research articles as seen in example (38). In this example, the writers use "will" with a meta-discoursal function to inform the reader about where the undisclosed issue will be dealt with:

> (38)…In fact, the data from our global investigation about this topic (not included here for obvious space reasons) seem to suggest many interesting differences. They *will* be tackled in two forthcoming studies (Yela Sangrador, in pres)…
>
> (Sangrador and Yela, 2000:216)

4.4.8. Expectation

This rhetorical act is one of the rarely expressed functions in the research articles, just four times; three times by the TAWs and once by the SAWs.
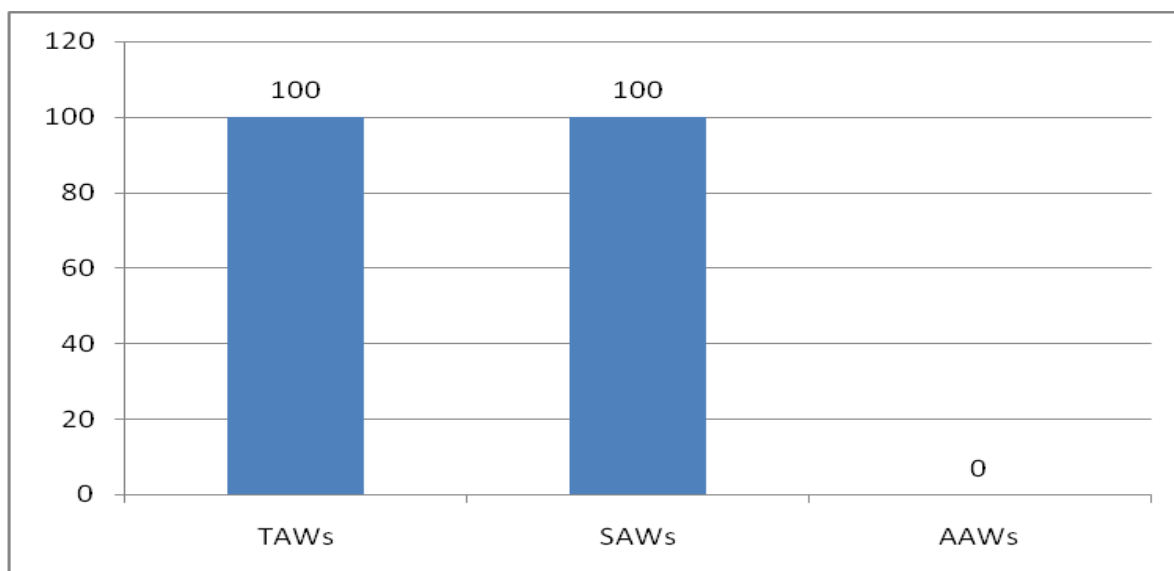
Figure 9: The percentages (%) "should" used to express expectation

The function of "should" in contexts as in example (39) was considered in the light of expressing expectation from the researcher's part:

> (39)…Jones and McNamara (1991) suggested that those who have adopted a religious lifestyle give more importance to family and believe that women *should* not spend much of time at work…
>
> (Sevim, 2000:78)

As illustrated in Figure 9, the writers used only "should" to express expectation. In example (40), the writer expresses an expectation from men by using "should":

> (40)…Men, typical, believe men should conceal their tender feelings in order to present an impression of strength to others…
>
> (Hamamcı, 2005:322)

4.5. Overall distribution of modal verb use by the groups across the different sections of their research articles

In this section of the study, the overall distribution of modal verb use by the groups across their research articles will be dealt with, as different sections of the research article seem to govern the choice of modal verbs.

As has been stated above, there are some similarities and differences between the non-native English speaking academic writers (TAWs) and (SAWs) and the non-native English speaking academic writers (TAWs and SAWs) and the native English speaking writers (AAWs) in the use of modal verbs. These similarities and differences between the groups in the overall use of modal verbs were also seen in the distribution of modal verb use across the different sections of their research articles. As can be seen in Table 8 on page 41, the data incorporate 1044 tokens of modal verbs. Based on the frequency distribution of the modal verbs across the different sections of the research articles, some preliminary observations could be made with relative ease.
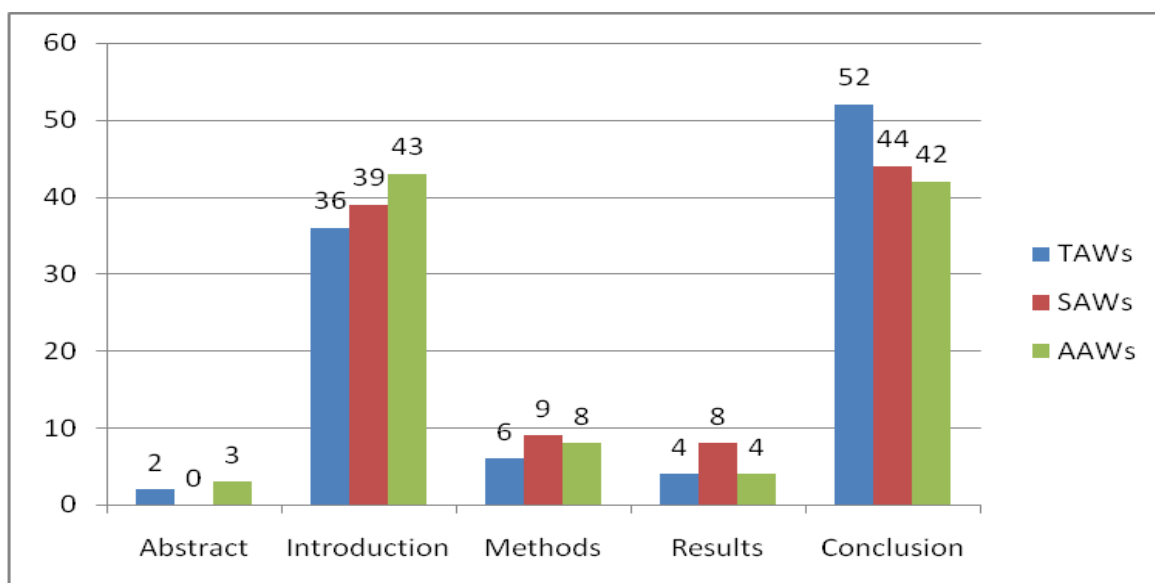
Figure 10: The percentages (%) of the overall distribution of modal verb use by the groups across the different sections in their research articles

This study has shown that the distribution of modal verbs in research articles is not evenly distributed between the different rhetorical sections. As Figure 10 shows, the "Conclusion" and the "Introduction" sections respectively are the most heavily modalized sections of the research articles. While the non-native English speaking academic writers used the modal verbs the most in the "Conclusion" section (TAWs 52 %, SAWs 44 %), the

native English speaking academic writers (AAWs) had the highest use of modal verbs in the "Introduction" sections 43 %, though the difference is slight. The observation that the "Conclusion" sections of the non-native groups had the highest frequency of modal verb use matches with the findings of some previous studies, which demonstrate that hedges/modality tend to cluster in the "Discussion/Conclusion" sections followed by the Introduction sections (Hyland, 1998; Salager-Meyer, 1994; Swales, 1981, 1987, 1990; Yearley, 1981 and Varttala' 1999). This variation in the distribution of modal verb use across the different rhetorical sections of the research articles seems to reflect the different purposes of the rhetorical sections of the research article. In other words, this observation could be accounted for by considering the fact that the level of claim made in the different rhetorical sections of scientific papers explains the differences observed in the percentages of the modal verbs used in these particular papers.

Running in an opposite direction, the native English speaking academic writers (AAWs) used the modal verbs the most in the "Introduction" sections of their research articles (43 %), followed by the "Conclusion" (42 %), "Methods" (8), "Results" (4 %), and "Abstract" (3) sections, though the frequency of difference between the "Introduction" and the "Conclusion" sections is very slight.

As expected, the distribution of modal verb use across the different rhetorical sections of the research articles has shown that some were heavily modalized such as the "Introduction" and the "Conclusion" sections, and some are relatively less modalized such as the "Methods", "Results", and the "Abstract" sections. All this seems to indicate that modal verb use across the different sections is move determined. It is clear from the distribution of the modal verbs across the different rhetorical sections of the research articles that choice of tentative expressions and/or imprecision, and tentativeness seems to be partly required and dictated by the different rhetorical sections. The two mostly modalized sections of the research articles; the "Conclusion" and "Introduction" sections indicate that these two rhetorical sections are and should be general and tentative while the "Methods" and "Results" sections are particular and precise.

From a theoretical point of view, the "Introduction" sections referred to 'encapsulated problem solution texts' by Swales (1990:138), motivate the study and justify the reason(s) behind the research. As is widely accepted, following Swales' (1994) seminal work on the rhetorical functions of the "Introduction" sections of the research paper, writers employ some strategies, some obligatory, some optional, from claiming/showing centrality and making topic generalizations to reviewing items of previous research, from

making counter claims and indicating gaps in previous studies and raising questions to continuing a tradition/extending a finding, from outlining/giving purposes to announcing/ describing present research to announcing present findings to indicating research articles structure. In order to be able to realize these rhetorical functions, the non-native and native English speaking academic writers in this study preferred to convey their imprecision by heavily employing modal verbs in the "Introduction" sections of their research articles. In doing so, they facilitated the process in preparing the reader to expect and welcome inconclusive, or even opposing views likely to be presented in the remaining parts of their research articles.

The relatively heavy distribution of modal verbs in the "Conclusion" and "Introduction" sections demonstrates the writers' awareness of the fact that these two sections are general and tentative; therefore, modalization of these two sections by the groups seems to be a deliberate rhetorical act. The three groups were found to resort to modal verbs to varying degrees to be able to sound general and tentative as claimed by Hyland (2005: 190). In pressing the case, Hyland admits that considerable writer intrusion is a characteristic of these two sections where "arguments are generally emphasized and decisions, claims, and justifications are made". In the same vein, Salager-Meyer, (1992: 105) maintains that lack of assertiveness displayed through heavy use of the modal verbs in these sections indicates that they are "indicative rather than definitive". By indicating this indicative feature of these two sections, the three groups abstained from committing themselves to absolute statements.

In contrast, the "Abstract" "Results", and "Methods" sections exhibit lower percentages of modal verb use respectively, which supports findings of a study by (Salager-Meyer, 1994; Swales, 1990). A research article's abstract', according to Bhatia (1993:78), "is a description or factual summary of the much longer report, and is meant to give the reader an exact and concise knowledge of the full article". This piece of information consists mainly of what the author did, how the author did it, what s/he found, and what s/he concluded. Considering the factual and compact nature of the "Abstract", it could be said that neither group in this study felt the need to modalize their abstracts as much as they did in the other sections of their research articles.

According to Salager-Meyer (1994: 161), the "Methods" sections are "almost purely factual, include a list of procedural formulae, a description of the process obtaining data and processing data". Similarly, the "Results" section is a "straightforward presentation of findings, consisting of presenting a clear description of the results,

describing the process of processing data, and making claims about statistical tests"
(Swales, 1990). These requirements of this section necessitates objective recounting,
precision and clarity, which could very well be achieved, as was done by the groups in this
study, without resorting to modal verbs.

**4.5.1 Overall distribution of modal verb use by the groups in the "Abstract" sections
of their research articles**

As has been previously stated, the "Abstract" is a brief factual summary of the
research article, which aims to give the reader concise knowledge of the full article
(Bhatia, 1993). As such, the "Abstract" is expected to have few, if any, tentative
expressions and statements. The results of this study support this expectation in that the
"Abstract" sections of the groups are by far the least modalized section. Despite this
overall similarity, AAWs were found to use relatively more modal verbs than TAWs and
SAWs.
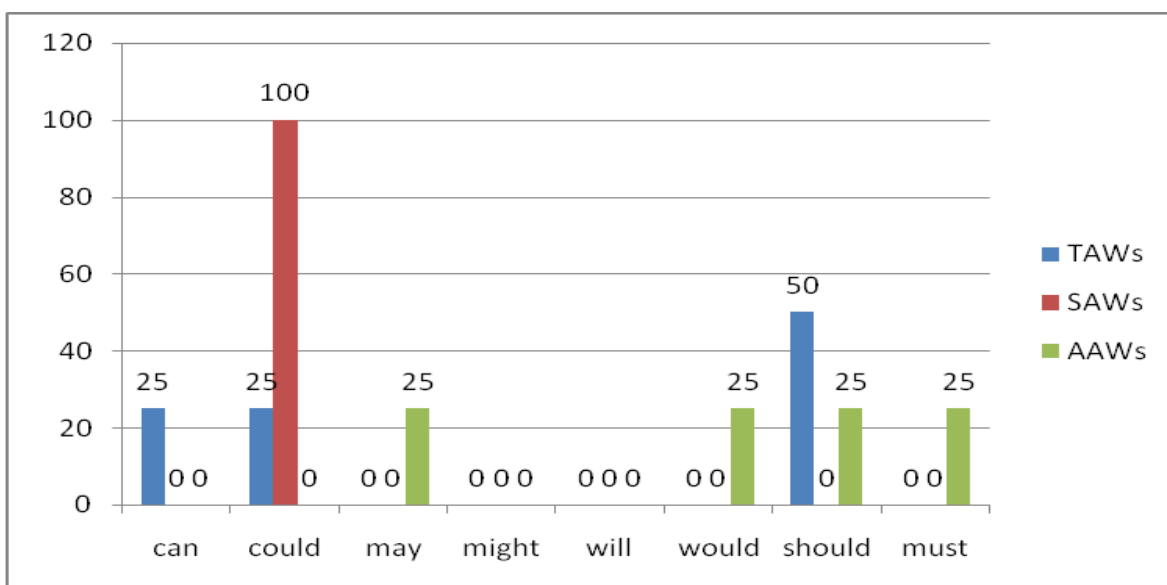
Figure 11: The percentages (%) of the overall distribution of modal verb use by the groups
in the "Abstract" sections of their research articles

As Figure 11 shows, TAWs used modal verbs the second most, while SAWs used them the
least. As can be seen from the same Figure, TAWs used four modal verbs "can", "will",
"could", and "should" while SAWs used only one modal verb "will" in the "Abstract"
sections of their research articles. On the other hand, AAWs employed "may", "would",
"should", and "must", each once. TAWs used "can" once in giving background

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information and "could" in introducing the purpose of the study. In this section, only the most commonly used modal verbs will be exemplified. The purpose of using "can" in contexts as in example (41) was considered in the light of introducing the topic, an additional communicative strategy, from the researcher's part:

> (41)… In all educations systems, cheating is a serious problem. It is regarded as a significant problem because of its frequency and interference in learning and evaluation process. As cheating is not a fair behavior, it *can* be dealt with morally. Kohlberg (1969, 1979, 1984) tried to explain our moral behaviors by relating moral developments to age and intellectual development. The relationship between Kohlberg's moral development concept and cheating could help find the reasons and solutions for cheating. The aim in this paper is to explain the opinions of the students…
>
> (Semerci, 2006:41).

In example (41), the writer used "can" to make an introduction to his topic, to reach a smooth transition from a general statement to his particular point, to situate the new study on a sound footing, and to prepare the reader for the new study. Another modal verb TAWs used in this section of their research articles is 'should'. TAWs used "should" twice to make suggestions. The purpose of using "should" in contexts as in example (42) was considered in the light of making suggestions from the researcher's part:

> (42) …The findings point to several considerations for nursing curricula including that faculties *should* plan and provide opportunities for learning activities that increase students' assertiveness.
>
> (Kukulu et al. 2006:27)

In example (42), the writers use "should" to make suggestions for further study.

Unlike TAWs, SAWs writers used "could" once in summarizing their results. The purpose of using "could" in contexts as in example (43) was considered in the light of summarizing/explaining results from the researcher's part:

> (43)…Results show that the main sources of emigrants are countries with moderate development and the main sink countries are ranked from Human Development Index Rating 10 to 30. This *could* be in part due to a psychological reason…
>
> (Sotelo & Gimeno, 2003: 55)

In example (43), the writers use "could" to explain the reason for their findings.

AAWs, however, used "may", "would", "should", and "must" twice each to introduce their purpose, to describe their methodology, to present their conclusions, and finally to make suggestions. The purpose of using "may" in contexts as in example (44) was considered in the light of introducing the topic from the researcher's part:

> (44)…The ESRS *may* be used to assess empathy in complex interactions of situations, target and responded and provides a model for studying complex social situations.
>
> (Staats et al., 2006:431)

In example (44), the writer use "may" to introduce their topic tentatively. Another modal verb AAWs used in the "Abstract" sections of their research articles is "would" to describe their methodology. The purpose of using of "would" in contexts as in example (45) was considered in the light of making tentative predictions from the researcher's part:

> (45)…The author expected that more women than men *would* wash their hands and that a few subjects *would* wash their hands for the (15 seconds or more) recommended by the American Society for Microbiology (ASM and the Centers for Disease Control and Prevention (CDC).
>
> (Monk-Turner, Edwards, Broadstone, Hummenl, Lewis, and Wilson, 2005:629)

In example (45), the writer use "would" to make tentative predictions about one of the possible findings of their study.

4.5.2 Overall distribution of modal verb use by the groups in the "Introduction" sections of their research articles

As underlined earlier, the "Introduction" sections of the research articles by TAWs and SAWs is the most heavily modalized section, and the second mostly modalized sections in the research articles by AAWs, though the difference is slight. Another similar tendency between the groups could be seen in the distribution of modal verb use employed in the "Introduction" sections of the research articles. As Figure 12 shows, both the non-native and native English speaking academic writers used "may" the most in this section of their research articles with varying percentages. They used "will" and "'must" with similar percentages. However, they had different tendencies in the use of the other modal verbs.

While TAWs and SAWs used "can" the second most, AAWs used "would" and "will" with the same percentage the second most. Another different tendency between the groups is that SAWs used "could" and "should" relatively more than both TAWs and AAWs. Yet another tendency that is different is AAWs' infrequent use of "could" in this section of their research articles.
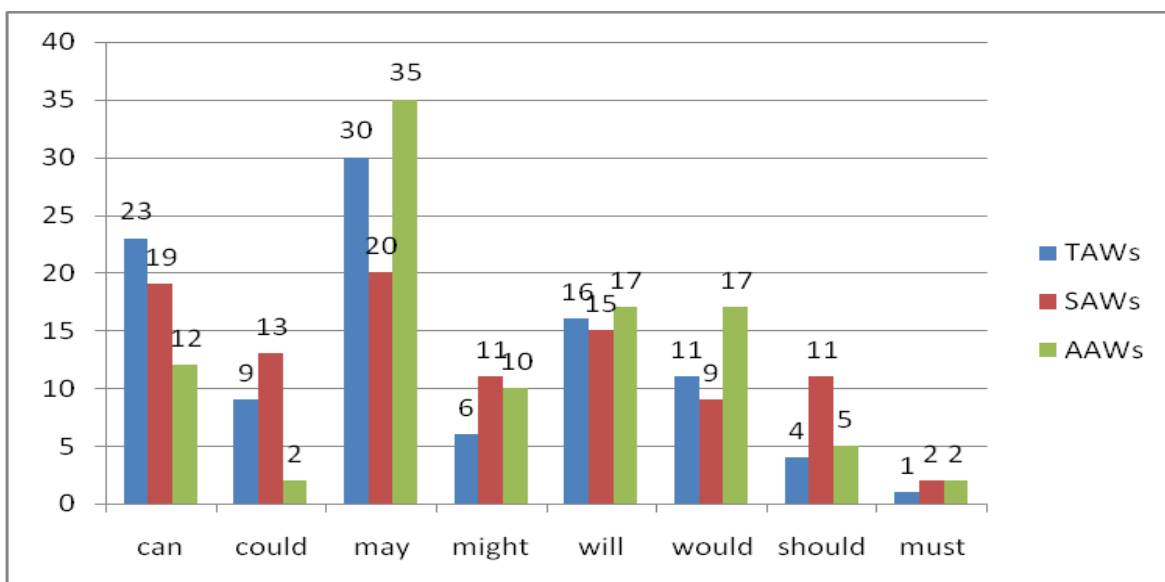
Figure 12: The percentages (%) of the overall distribution of modal verb use by the groups in the "Introduction" sections of their research articles

4.5.2.1 Overall distribution of modal verb use by the groups across the "Moves" in the Introduction sections of their research articles

The tree moves 'establishing a territory', 'establishing a niche' and 'occupying the niche' in the Introduction sections, according to Swales (1990:142), are motivated by the writer's

> need to reestablish in the eyes of the discourse community the significance of the research field itself, the need to 'situate' the actual research in terms of that significance, and the need to show how this niche in the wider ecosystem will be occupied and defended.

As can be seen in Figure 13, the writers invested a great deal of rhetorical effort in their research articles. They not only stated problems they intended to solve, but also established both the importance of their areas and their contributions to their fields. This shows that writers are responsive to rhetorical pressures of their discourse community.

As presented in Figure 13, the groups used modal verbs to varying degrees in the realization of these three moves in the "Introduction" sections of their research articles, though the frequency of modal verb use by the groups varies. The first move, "establishing a territory" by far had the highest occurrence of modal verbs followed by "occupying the niche", and "establishing a niche" in the articles of the researched groups. Both the non-native (TAWs) and (SAWs) and the native English speaking academic writers (AAWs) used modal verbs the most to realize the move "establishing a territory", followed by "occupying the niche", and finally "establishing a niche".
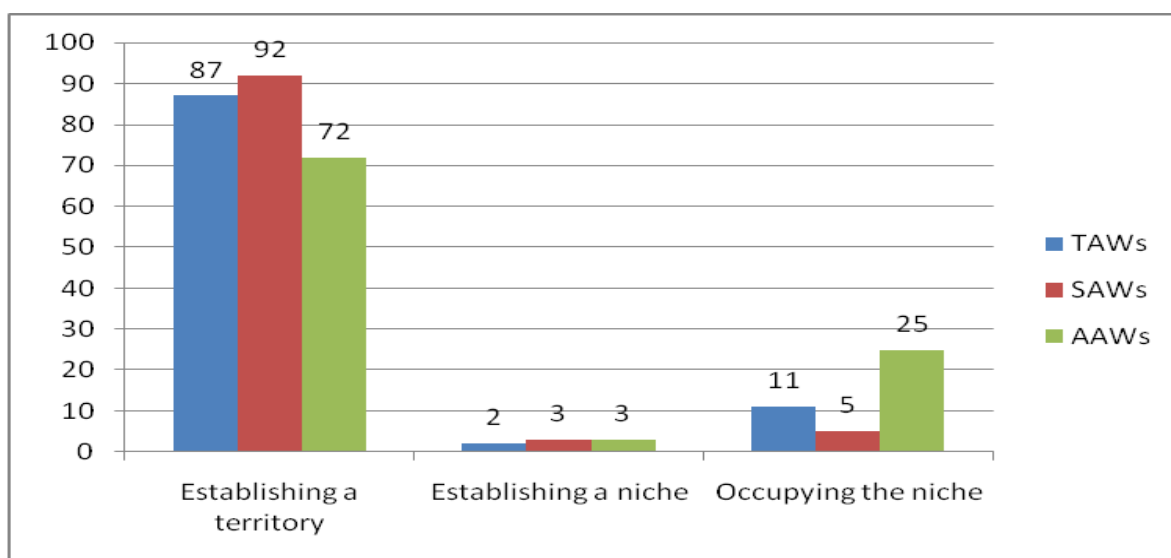
Figure 13: The percentages (%) of the overall distribution of modal verb use by the groups across the "Moves" in the Introduction sections of their research articles

4.5.2.1.1 Overall distribution of modal verb use by TAWs across the "Moves" in the Introduction sections of their research articles

The predominant realization of the move, "establishing a territory" has found its reflection on the distribution of modal verb use by TAWs across the sub-moves in this section of their research articles. TAWs used many more modal verbs in the realization of the sub-moves "establishing a territory" than they did in the realization of the sub-moves of the other two moves. For example, as can be seen in Appendix L, TAWs used modal verbs to realize three sub-moves 'claiming centrality, making topic generalizations, and reviewing relevant literature' to establish a territory. On the other hand, they used modal verbs only to indicate a gap and continue a tradition in order to "establish a niche". Similarly, they used modal verbs just to realize three sub-moves to 'occupy the niche". That is, they employed modal verbs to describe their methodology the most and to give the purpose of their study, and finally to announce their findings.
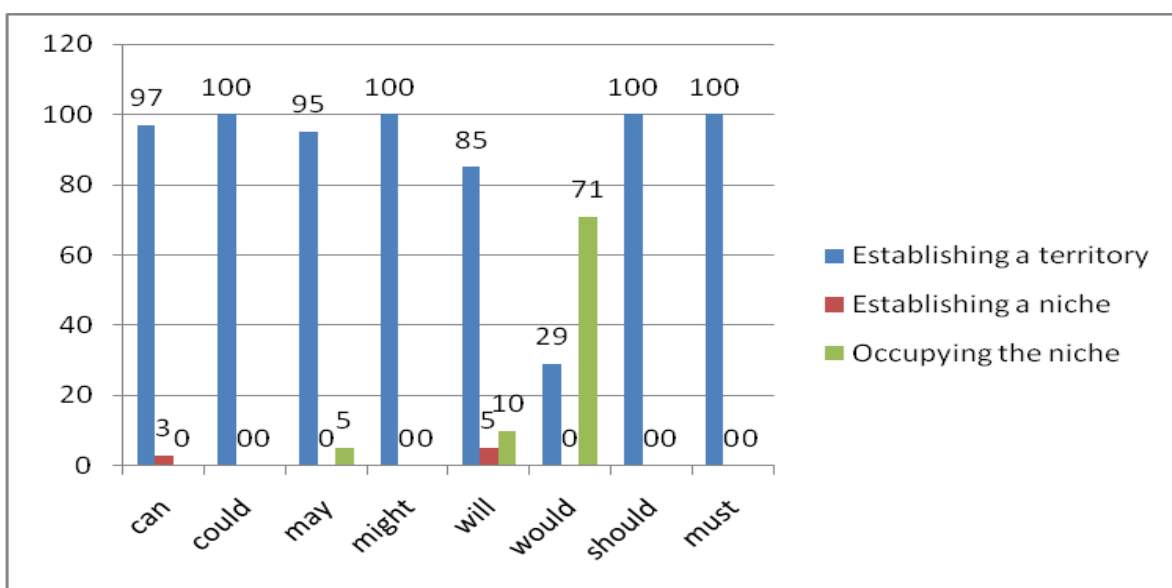
Figure 14: The percentages (%) of the overall distribution of modal verb use by TAWs across the "Moves" in the Introduction sections of their research articles

4.5.2.1.2 Overall distribution of modal verb use by SAWs across the "Moves" in the Introduction sections of their research articles

Similar to TAWs, SAWs used modal verbs the most to "establish a territory" followed by to "occupy the niche", and finally to "establish a niche". Like their TAW counterparts, SAWs used modal verbs the most to review items of the relevant literature the most, followed by to make generalizations, and finally to claim centrality in order to

"establish a territory" (Appendix M). On the other hand, in order to "establish a niche", they used modal verbs simply to indicate a gap in previous studies. They also used modal verbs just to describe their research to "occupy the niche" unlike TAWs.
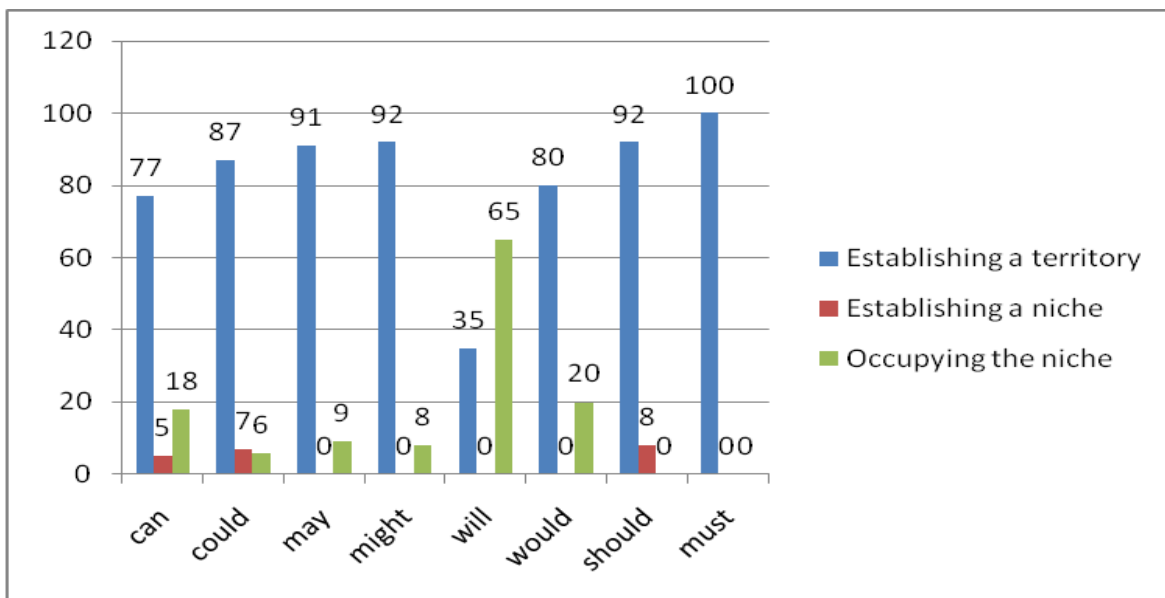
Figure 15: The percentages (%) of the overall distribution of modal verb use by SAWs across the "Moves" in the Introduction sections of their research articles

4.5.2.1.3 Overall distribution of modal verb use by AAWs across the "Moves" in the Introduction sections of their research articles

As can be seen from Figure 16, AAWs' use of modal verbs to realize the moves of the "Introduction" section of their research articles bears some similarities as well as some differences with those of TAWs and SAWs. AAWs used modal verbs to realize the move "establishing a territory" by far the most' followed by "occupying the niche" and "establishing a niche" like their TAW and SAW counterparts. Despite this similarity, AAWs differed from them in the frequency of modal verbs they used to realize the sub-moves. In fact, they employed modal verbs to realize the move "occupying the niche" much more. As can be seen from Figure 16 and Appendix N, the native English speaking academic writers (AAWs) used modal verbs the most to 'review items of previous research' followed by to 'claim centrality', and finally to 'make topic generalization' in order to "establish a territory". To recapitulate, both the non-native (TAWs and SAWs) and the native English speaking academic writers (AAWs) used modal verbs, though slightly different, in varying percentages to realize the same sub-moves to "establish a territory".
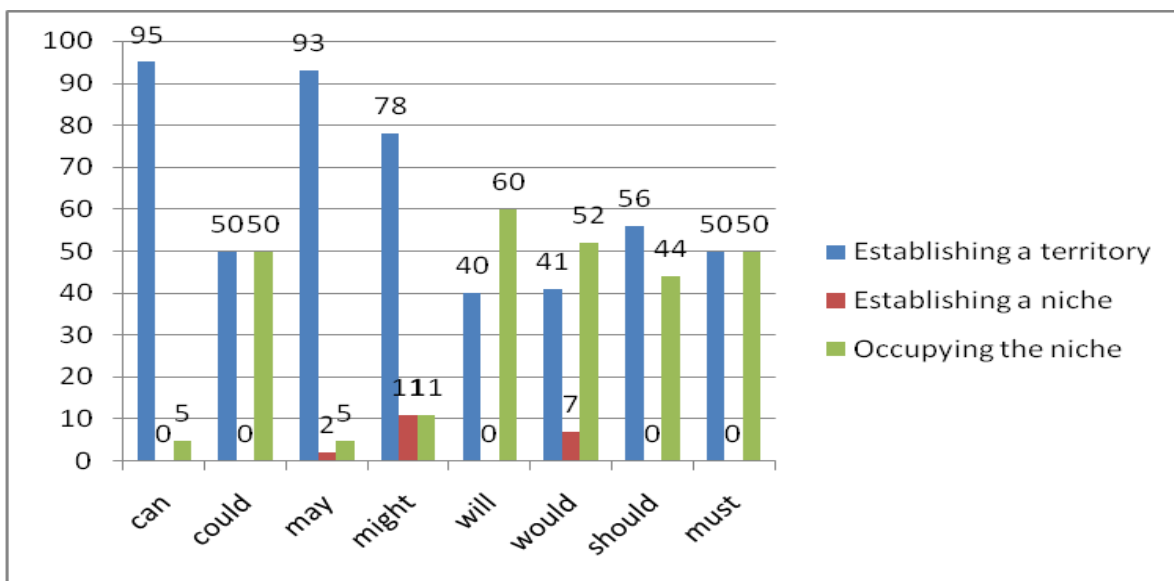
Figure 16: The percentages (%) of the overall distribution of modal verb use by AAWs across the "Moves" in the Introduction sections of their research articles

4.5.3.1 Overall distribution of modal verb use by the groups to "establish a territory"

As underlined on page 35ff, according to Swales (1990:141) CARS model for article introductions, academic writers realize the first move of the "Introduction" sections of their research articles "establishing a territory" by 'claiming centrality' and/or 'making topic generalizations' and/or reviewing items of previous research'. Both the non-native and native English speaking academic writers employed the sub-moves to "establish a territory" to varying degrees to emphasize the importance of their area and avoided any hostile depiction of earlier studies/researches. In this section, writers' use of modal verbs in the realization of these sub-moves will be exemplified.

A widely realized sub-move by all the groups is reviewing items of previous research. The purpose of using a modal verb, in this case "may", in contexts as in example (46) was considered in the light of reviewing items of previous research from the researcher's part:

> (46)…In summary, research on children with and without imaginary companion
> suggests that children with imaginary companions *may* be predisposed to engaging
> in fantasy play and *may* have heightened imaginative abilities in comparison to their
> peers…
>
> (Gleason et al., 2003: 723)

In example (46), the writers use "may" to summarize the findings of some previous research on children with or without imaginary companions. By using "may" in this excerpt, the writers display their tentative stance in reviewing items of previous studies, which aims to indicate the writers' awareness of the fact that this part of information is merely one component among other components, and the writers have something in mind to say on this issue.

Another sub-move the writers realized by using modal verbs is claiming centrality. The purpose of using a modal verb, in this case "may", in contexts as in example (47) was considered in the light of claiming centrality from the researcher's part:

> (47)…Understanding the manager's beliefs is critical in the business world since the business philosophy depends, to a large degree, upon the beliefs held by management. Particularly when business situations are ambiguous, managers tend to rely on their belief systems to make decisions (Schilit, 1988). Ethical beliefs *may* also be an important determinant in tolerance for ambiguity. Therefore, this study attempts to investigate the relationship between ethical beliefs and tolerance for ambiguity. The results of this study…
>
> (Öngen, D. 2006)

In example (47), after the writer gives some background information about the topic under discussion, she uses "may" to draw attention to the importance of her point; that is, 'ethical beliefs' in tolerance for ambiguity. In other words, the writer aims to tentatively show the relevancy of her study to the topic. In realizing this communicative act, the writer prefers to sound tentative.

The final sub-move the groups used modal verbs to realize in order to "establish a territory" is making topic generalization. The purpose of using a modal verb, in this case "may", in contexts as in example (48) was considered in the light of making topic generalization from the researcher's part:

> (48) University students are in a transitional period between adolescence and adulthood. This period has been called *emerging adulthood* (italics original), and includes the years between the late teens into the twenties, generally the ages of 18-25 years (Arnett, 2000). In this stage of life, individuals are faced with specific developmental tasks which are peculiar to this period, such as taking responsibility for oneself, making independent decisions, having a job, preparing to set up a family, establishing and maintaining meaningful close relationship with others, establishing

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friendships, and so on. Thus, the person is expected to be adult. In this stage, being unsuccessful in setting up intimate relationships or experiencing role confusion **may** prevent the youth from attempting to establish close relationships with others, and the young person **may** isolate him-or herself from others, or **may** be shunned by others…

<div align="right">(Ceyhan, A. A. 2006:368)</div>

In example (48), the writer uses the modal verb "may" thrice to make topic generalizations. In realizing this communicative act, the writer prefers to sound tentative rather than assertive, which enables her to later place her own argument on a sound footing.

4.5.3.2 Overall modal verb use by the groups to "establish a niche"

As Figure 13 on page 73 shows, the move the groups used modal verbs to realize the least is "establishing a niche". TAWs used modal verbs to employ just two sub-moves 'indicating a gap' and 'continuing a tradition' to "establish a niche", while SAWs uses modal verbs to realize just one sub-move 'indicating a gap' to "establish a niche". Unlike TAWs and SAWs, AAWs used modal verbs to "indicate a gap", followed by to 'continue a tradition', and finally to 'raise questions' in order to "establish a niche". Both the non-native and the native English speaking academic writers indicated a gap in previous research. In referring work not yet undertaken, the writers were seen to avoid imputing neglect to other researchers. As 'indicating a gap in previous research' is the only common move realized by the groups, the realization of solely this move will be exemplified. The purpose of using a modal verb, in this case "may", in contexts as in example (49) was considered in the light of indicating a gap in previous research from the researcher's part:

(49)…Few researchers have specifically investigated sex differences in desire. However, the available studies suggest that men *may* experience desire more frequently than do women. For example, Useche, Vi;;egas, and Alzate (1990) surveyed a sample of Colombian high school students and found that more young men (80 %) than young women (49 %) reported experiencing sexual desire at least once a week. A survey of college students yielded similar results (Beck, Bozmna, & Qualtrough, 1991). Whether men also experience a higher level (as opposed to frequency) of sexual desire than do women has yet to be systematically investigated. The present study is designed to….

<div align="right">(Regan, P. & Atkins, L. 2006:97)</div>

In example (49), the writers use "may" to tentatively indicate what is missing in previous studies, work not yet undertaken, and avoided oversight to other researchers.

4.5.3.3 Overall modal verb use by the groups to "occupy the niche"

The final move the groups realized in the "Introduction" sections of their research articles is "occupying the niche" in varying percentages as could be seen in Figure 13 on page 73. TAWs used modal verbs to realize three sub-moves 'to give purpose', 'to describe their research', and 'to announce their findings' in order to realize the final move; that is, to "occupy the niche". Unlike TAWs, SAWs used modal verbs just 'to describe their research'. On the other hand, AAWs used modal verbs 'to give a purpose' and 'to describe their research in order to "occupy the niche". The purpose of using a modal verb, in this case "would", in contexts as in example (50) was considered in the light of giving purpose from the researcher's part:

> (50) …The second goal was to analyze the effects of gender, age, and education level on dysfunctional relationship beliefs. We anticipated that males and females *would* differ in terms of their endorsement of dysfunctional beliefs about relationships because of the differences in their socialization patterns…
>
> (Hamamcı, 2005:315)

In example (50), the writer uses "would" in emphasizing the details of and expectations from her study.

The other commonly realized sub-move, which the groups realized by using modal verbs to "occupy the niche" is 'describing their research'. The purpose of using a modal verb, in this case "would", in contexts as in example (51) was considered in the light of giving purpose from the researcher part':

> (51)…Because shyness and imaginary companions have not been investigated in adults, we included a measure of shyness but hypothesized that those who could and could not remember pretend friends *would* not differ. Finally, a measure of a positive childhood…
>
> (Gleason et al., 2003:726)

In example (51), the writers tentatively described their research by using "would".

4.5.4 Overall distribution of modal verb use by the groups in the "Methods" sections of their research articles

As underlined on page 66, the "Methods" section is the third least modalized section after the "Abstract" section in the research articles. Considering the main purpose of this section, the narrowest part of the research article as a straightforward reports of the procedures and materials employed, as "describing, in various degrees of detail, methodology, materials, and procedures" Swales and Feak, (1994:156), with good reason, this part is the least modalized part. As underlined by Hyland (1998), this section was characterized by formulaic procedures and methodological rules, 'assuming a great deal of domain knowledge of lexical relations but also a tacit understanding of argumentative function of this section itself'.

As can be seen from Figure 17, the groups used most of the modal verbs in varying degrees in this section of their research articles. Interestingly, the non-native groups shared a similarity in employing "can" the most. For example, while TAWs used "can" the most, SAWs employed "can" and "should" the most. On the other hand, AAWs used "would" the most. However, they did not use "can" and "must" at all. Likewise, TAWs and SAWs did not employ "might" at all. In this section, only the most commonly used modal verbs will be exemplified.
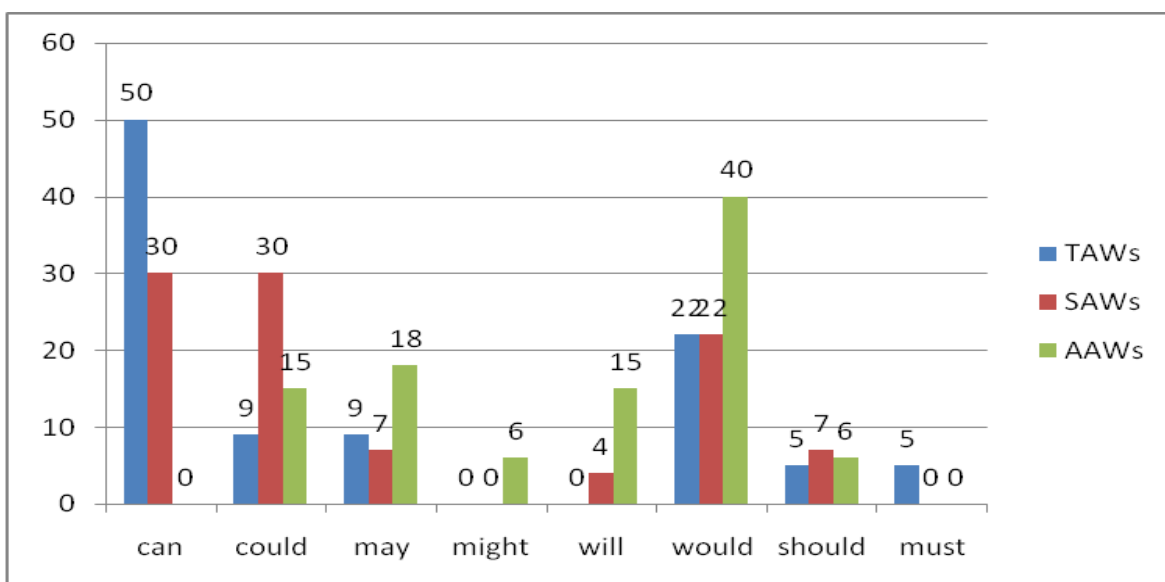
Figure 17: The percentages (%) of the overall modal verb use by the groups in the "Methods" sections of their research articles

The purpose of using a modal verb, in this case "can", in contexts as in example (52) was considered in the light of describing data collection method from the researcher's part:

> (51)…Social network was measured by the Social Atom Scale (SAO) developed by Dokmen (1993). Two different scores *can* be obtained from the scale regarding the volume and the richness of the social network…
>
> (Türküm, A. S., 2005::621)

In informing the reader about the specifics of the scale the writer is describing, she uses "can" to demonstrate that it would be wise to be tentative which in itself can be seen as a face-saving strategy.

The second most commonly used modal verb by this group in the "Methods" sections is "would". This relative frequent use of this modal verb could be taken as an indication of this group's awareness of the fact that the "Methods" sections of research articles consists mainly of precise and factual description of the methodology, data collection, and data analysis procedures. The purpose of using a modal verb, in this case "would", in contexts as in example (52) was considered in the light of stating an expected finding of the study from the researcher's part:

> (52)…Principal component analysis with varimax rotation was conducted on the 20 items to test whether or not the same factor structure *would* emerge in the Turkish sample…
>
> (Öngen, D. 2006:186)

In the above excerpt, the writer informs the reader about the expected outcome of the instrument she intends to use.

SAWs' use of the modal verbs in this section shares some similarities as well as some differences with the TAWs' employment of them. SAWs used "can" with an epistemic possibility meaning the most, alongside "should". SAWs used 'can' with an epistemic possibility meaning the most, alongside "should". "Will", "could", "must", and "would" followed them. The percentages of the use of these modal verbs are rather low. Unlike the other two groups, SAWs did not use "may" and "might" at all in this section. The purpose of using a modal verb, in this case "should", in contexts as in example (53) was considered in the light of stating hypothesis from the researcher's part:

(53)…According to the two psychological reasons in the first sections those countries with low development *should* not be an important source of international immigrants. The main source *should* be middle-developed countries where it is possible to find most of the advantages of developed countries…

(Sotelo & Gimeno, 2003:56)

In the above excerpt, the writers express their conviction by using "should" when explaining their hypothesis.

As Figure 17 shows, AAWs used four modal verbs "would", "could", "may", and "will" the most frequently in the "Methods" sections of their research articles. The purpose of using a modal verb, in this case "would", in contexts as in example (54) was considered in the light of describing data collection procedure from the researcher' part:

(54)…Students were brought out of their respective homeroom classrooms to another classroom which served as the testing site. Twelve students were tested at a time. Students were told that the purpose of their participation was to determine their preferences for how they *would* best like school activities to be conducted. Students were given10 minutes to complete the questionnaire and were informed of right not to participate. Students were asked to be honest as their responses *would* not be seen by anyone except…

(Ellison et al., 2005:702)

The second modal verb this group commonly used in this section of their articles is "could". Needless to say, "could", symbolizing epistemic possibility meaning, expresses a more tentative stance. The purpose of using a modal verb, in this case "could", in contexts as in example (55) was considered in the light of describing data collection procedure from the researcher's part:

(55) …The informed consent contained information (phone number and email) that *could* be used to contact the first author should they have any subsequent questions about, or want to learn the results of this study.

(Christopher, A.N., & Jones, J.R.,2002:745)

4.5.5 Overall distribution of modal verb use by the groups in the "Results" sections of their research articles

        As emphasized on page 66**,** the "Results" sections of the articles were the second least modalized section preceded by the "Abstract" sections. Given that the main purpose of the "Results" sections, the core of the research article, of the research article is to "describe the findings accompanied by variable amounts of commentary" (Swales and Feak, 1994: 157), and "convey new knowledge through the presentation, explanation and interpretation of the data" (Hyland, 1998: 30),this section "represents a carefully constructed discourse to persuade readers of the validity of the scientific facts which underline a particular knowledge claim". More than anything, modal verbs are used less by the groups than in the other sections; namely, the "Conclusion", "Introduction", "Methodology" sections. Similar observations which were made in the use of modal verbs in the "Methodology" sections are also prevalent in this section. For one thing, all of the groups used the same modal verbs such as "can", "would", and "should" with varying percentages. None of the groups employed "will" in this section of their research articles.

Figure 18**:** The percentages (%) of the overall modal verb use by the groups in the "Results" sections of their research articles

        To evoke a different idea, TAWs and SAWs share some similarities in the distribution and use of the modal verbs. Both groups used "can" the most followed by "would". TAWs used "can" the most followed by "would", "could", "should", and "can", while SAWs employed "can" the most followed by "would", "should", "may", and

"might". On the other hand, AAWs used 'would' the most followed by "should", "may", "can", and "must". The overall percentage of the modal verb use with an epistemic possibility meaning constitutes the majority of the modal verbs used by TAWS in the "Results" sections of their research articles. This overall picture could be interpreted as a reflection of the importance of being tentative TAWs give to presenting their results. Only the most commonly used modal verbs will be exemplified in this section. The purpose of using a modal verb, in this case "could", in contexts as in example (56) was considered in the light of giving the details of the finding(s) from the researcher's part:

> (56)…The method used most by the students is to talk to the one next to them (41.1 %) and to look at the others' papers (38.4 %). Turrens et al (2001) have also mentioned cheating by looking at others' papers. It is emphasized that students *could* be prevented from cheating by using the kind of teaching that provides learning instead of the methods that challenge the students to memorize (74 %). On the other hand, it is indicated that cheating *could* be avoided by careful scrutiny by supervisors during examinations (47.9 %).
>
> <div align="right">(Semerci, C., 2006:46)</div>

In explaining one of the possible solutions to the problem, the writer of the above excerpt preferred to remain tentative and imprecise by using "could". A slightly different strategy is achieved through the use of "would" by the same group. The purpose of using a modal verb, in this case "would", in contexts as in example (57) was considered in the light of giving details of finding(s) from the researcher's part:

> (57)…Table 1 shows the means, standard deviations, skeweness and Kurtosis values of the DAS and MLS. In the analysis of the mean values, DAS scores were somewhat below the score of 114.8 (SD=14.7) which was found by Spanier (1976) in married couples. Approximately 61 % of the sample *would* be classified as maritally adjusted using the cutoff score reported by Spanier….
>
> <div align="right">(Hamamcı, 2005:318)</div>

In the above excerpt, which was chosen from the very beginning of the "Results" section of the RA, the writer presents her findings in a relatively confident approach. In fact, she employs "would" in her comments on how the sample should be classified. Another modal verb TAWs commonly used in the "Results" sections of their research articles is "may". As was the case with the use of "can" and "could", TAWs preferred to remain

tentative in presenting and commenting on their results as seen in the excerpt below. The purpose of using a modal verb, in this case "may", in contexts as in example (58) was considered in the light of giving details of finding(s) from the researcher's part:

(58)…For the item analysis classical test theory and item-total reliability correlations were used. With a cut-off point of .20, the correlations of only two items … are below .20. This *may* stem from the way the questions were phrased in the Turkish questionnaire….

(Ersoy-Kart, 2005:614)

SAWs employed "can" and "would" the most in this section. "May", "should", "might", and "could" subsequently followed. However, they did not use "will" and "must" in this section of their research articles. The use of "can" with an epistemic possibility meaning was used to explain and/or comment on their results. The purpose of using a modal verb, in this case "can", in contexts as in example (59) was considered in the light of explaining and/or commenting on findings from the researcher's part:

(59)…Table 1 shows the average values of tolerance for the rights, tolerance for the groups, liking for the groups, total tolerance and total liking. It is remarkable that all the values of tolerance for the rights are higher than 5, which *can* be interpreted as a high willingness to extend all the rights, considering that the measures could have ranged from 1… to 7….

(Sotelo, M.J., 2000)

When it comes to AAWs' use of the modal verbs in the same section of their research articles, it could be said that they used all of the modal verbs, save for "will", with varying percentages. For example, while they used "would" the most, they employed the others with relatively lower percentages. The modal verb with the highest percentage of use in this section is "would", which was mostly used in underlining and commenting on predictions. The purpose of using a modal verb, in this case "could", in contexts as in example (60) was considered in the light of commenting on predictions already made in the "Results" sections of their research articles from the researcher's part:

(60)…It was predicted that the theorized relationship between specific self-discrepancies and their attendant emotions *would* be more pronounced among those high on self-consciousness…Thus, while the correlation between discrepancies and

emotions should be stronger among those high on self-consciousness, it was not hypothesized that the mean value level of negative affect *would* differ significantly due to level of self-consciousness.

(Fromson, P.M., 2006:341)

As can be seen in the above excerpt, the writer used "'would" with a probability meaning in commenting on his prediction. Another modal verb with relatively less widespread use in this section of the native English speaking academic writers' articles is the epistemic "may". The purpose of using a modal verb, in this case "may", in contexts as in example (61) was considered in the light of commenting on findings from the researcher's part:

(61)…It was predicted that the theorized relationship between specific self-discrepancies and their attendant emotions *would* be more pronounced among those high on self-consciousness. However, as discussed earlier, although the emotional reactions of individuals who are high on self-consciousness *may* be more predictable when self-discrepancies are present, they do not as a group necessarily experience a greater degree of self-discrepancies in the first place than do less self-focused individuals…

(Fromson, 2006:341)

As the above excerpt illustrates, the writer preferred a modal verb "would" with a probability meaning when presenting his findings. However, the same writer preferred to display a much more tentative approach using an epistemic "may" in commenting and speculating on the possible cause(s) of the finding.

4.5.6 Overall distribution of modal verb use by the groups in the "Conclusion" sections of their research articles

As Figure 10 on page 66 shows, TAWs and SAWs modalized the "Conclusion" sections of their research articles the most, whereas AAWs modalized the same section the second most. This finding supports some earlier findings by (Swales, 1981, 1987, 1990; Yearley, 1981; Salager-Meyer, 1994; and Vartala, 1999). From a theoretical point of view, Swales (2004) likens the structure of the research article to that of the hourglass with the "Introduction" starting broadly and then narrowing down. Contrary to the "Introduction" section, the "Discussion/Conclusion" section moves incrementally outward. Considering the fact that the findings are foregrounded and the work of others are cited to confirm,

compare, and contrast with the present findings, the "Conclusion" section is expected to be general and tentative rather than particular and precise. According to Hopkins and Dudley-Evans, (1988), research article writers realize a number of sub-moves to realize three moves "to consolidate important points", "state limitations", and "make suggestions". These sub-moves range from providing background information to stating their results, from expressing their (un)expected outcomes to referring to previous research, and from explaining and exemplifying to making deductions/hypotheses in order to be able to consolidate important points. In addition to these strategies, they also state their limitations and make recommendations. In their attempts to realize these moves of the "Conclusion" section, which is general and tentative, research article writers conveyed their imprecision by employing modal verbs to varying degrees, as shown in Figure 10 on page 66.
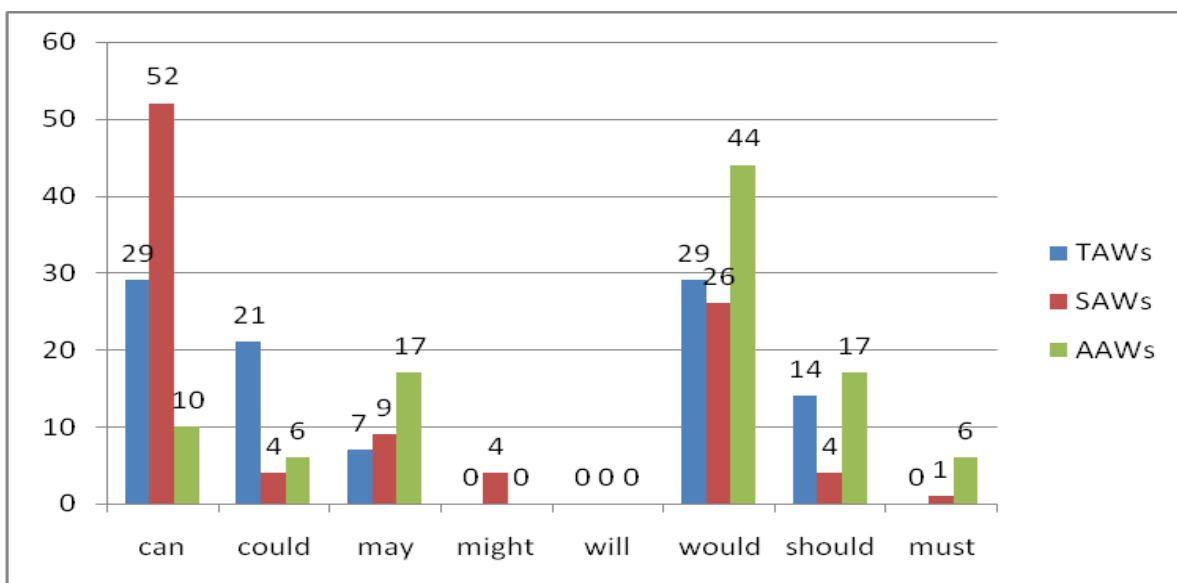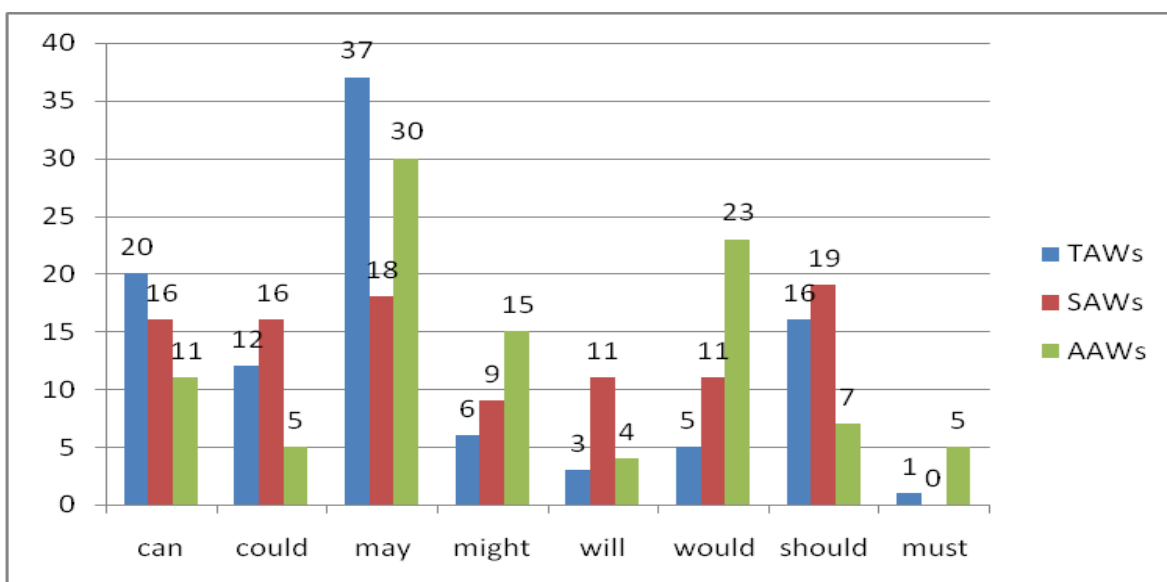

Figure 19: The percentages (%) of the overall modal verb use by the groups in the "Conclusion" sections of their research articles

As can be seen from Figure 20, the groups employed modal verbs to varying degrees in this section of their research articles. As was the case in the "Introduction" section, the three groups used "may" the most in the "Conclusion" as well. Contrary to this similarity, the groups showed some differences in their choice of some other modal verbs. For example, TAWs employed "may" the most, followed by "can", "should", "could", "might", "would", and "must" respectively. However, SAWs used "may" and "should" evenly the most, followed by even employment of "can" and "could", which were followed by "would" and "will". Unlike these two groups, AAWs employed "may" the

most, followed by "would", "might", "can", and "could" respectively. What is striking about this choice of modal verbs is that all of the modal verbs used in this section have an epistemic possibility meaning.

4.5.6.1 Overall distribution of modal verb use by the groups across the "Moves" in the Conclusion sections of their research articles

As Figure 20 shows, the distribution of modal verb use across the "Moves" in the Conclusion sections displays a common pattern: the same ranking. Indeed, all of the groups used modal verbs by far the most to "consolidate important points". Secondly, they employed modal verbs to "make suggestions" and finally to "state limitations" of their studies.
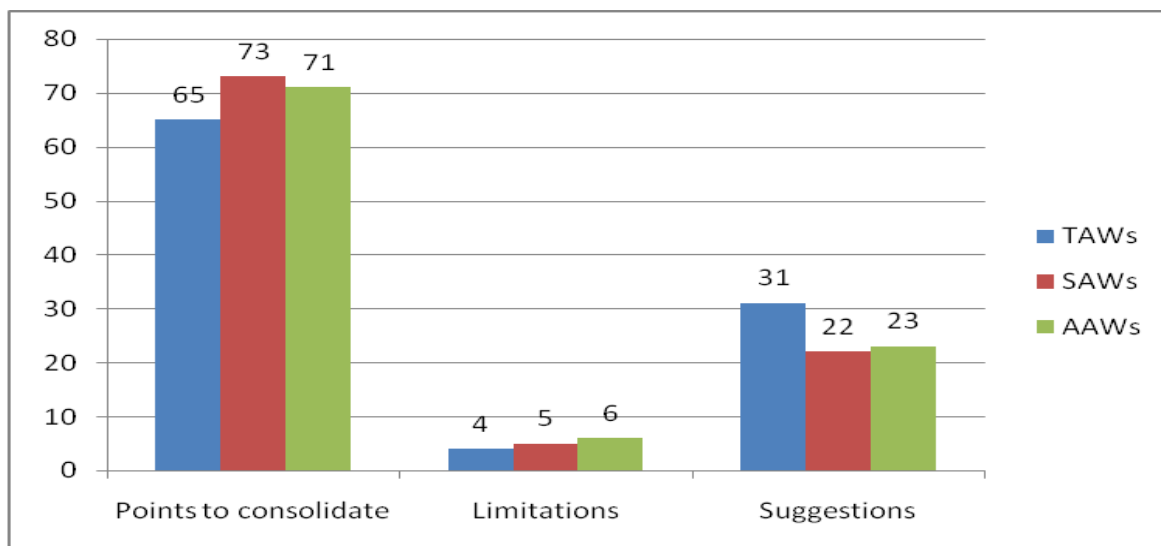
Figure 20: The percentages (%) of the overall modal verb use by the groups to realize the "Moves" in the Conclusion section of their research articles

4.5.6.2 Overall distribution of modal verb use by TAWs across the "Moves" in the Conclusion sections of their research articles

As Figure 21 shows, three important features draw attention in the modal verb choice of TAWs to realize the moves in the "Conclusion" section of their research articles. To begin with, they widely employed modal verbs with epistemic possibility meaning such as "may", "might", "can", and "could to "consolidate important points". For another thing, they frequently used modal verbs such as "will", "would", and "must" to "state their limitations". Finally, they used "should", "would", and "must", followed by "could", "can", "may", and "might" with a relatively lower percentage, to "make suggestions".
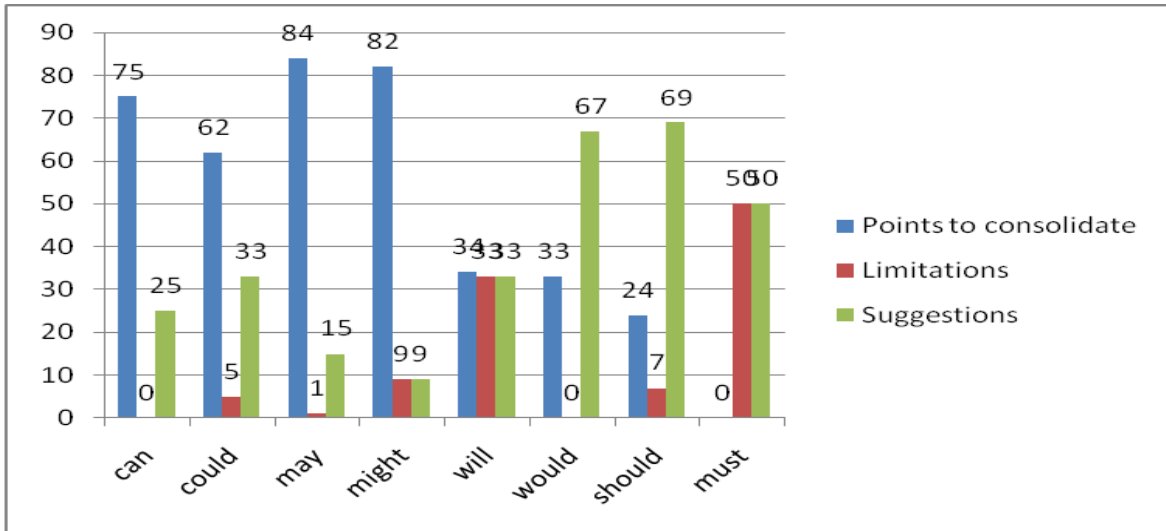
Figure 21: The percentages (%) of the overall modal verb use by TAWs to realize the "Moves" in the Conclusion sections of their research articles

4.5.6.3 Overall distribution of modal verb use by SAWs to realize the "Moves" in the Conclusion sections of their research articles

As could be seen from Figure 22, three important features about SAWs' use of modal verbs to realize three moves draw attention. Like their TAW counterparts, SAWs used modal verbs such as "may", "might", "can", and "could" with epistemic possibility meaning to "consolidate important points". However, unlike them, SAWs used "should", "can", and "could" to "state limitations" of their study. In the same way, unlike their TAW counterparts, SAWs employed "should" and "would", "will", "could", and "can" to "make suggestions", which looks striking.
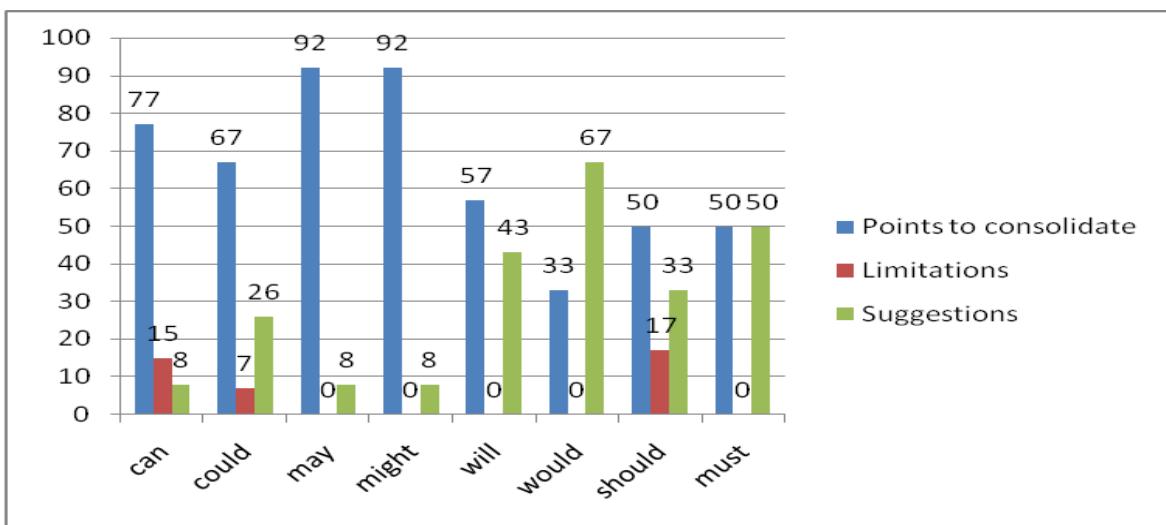
Figure 22: The percentages (%) of the overall distribution of modal verb use by SAWs to realize the "Moves" in the Conclusion section of their research articles

4.5.6.4 Overall distribution of modal verb use by AAWs to realize the "Moves' in the Conclusion sections of their research articles

As seen in Figure 23, three striking features about AAWs' use of modal verbs to realize the "Moves" in the Conclusion sections of their articles add extra dimension. For one thing, unlike their non-native English speaking counterparts, AAWs employed all of the modal verbs by far the most to consolidate important points. For another thing, they preferred "would", "should", and "must" to "state limitations" of their research, which differ this group from the other two groups. Finally, contrary to the other two groups, AAWs preferred "will", "might", "may", "must", and "could" to "make suggestions". The percentages of modal verb use by AAWs' to realize the "Conclusion" moves bears both similarities and differences with their employment by TAWs and SAWs' employment of modal verbs for the realization of different rhetorical purposes. An interesting similarity is that all of them employed the modal verbs the most to realize the same rhetorical purpose: that is, to explain their research findings. They employed more than 50 % of their modal verb use for this goal.
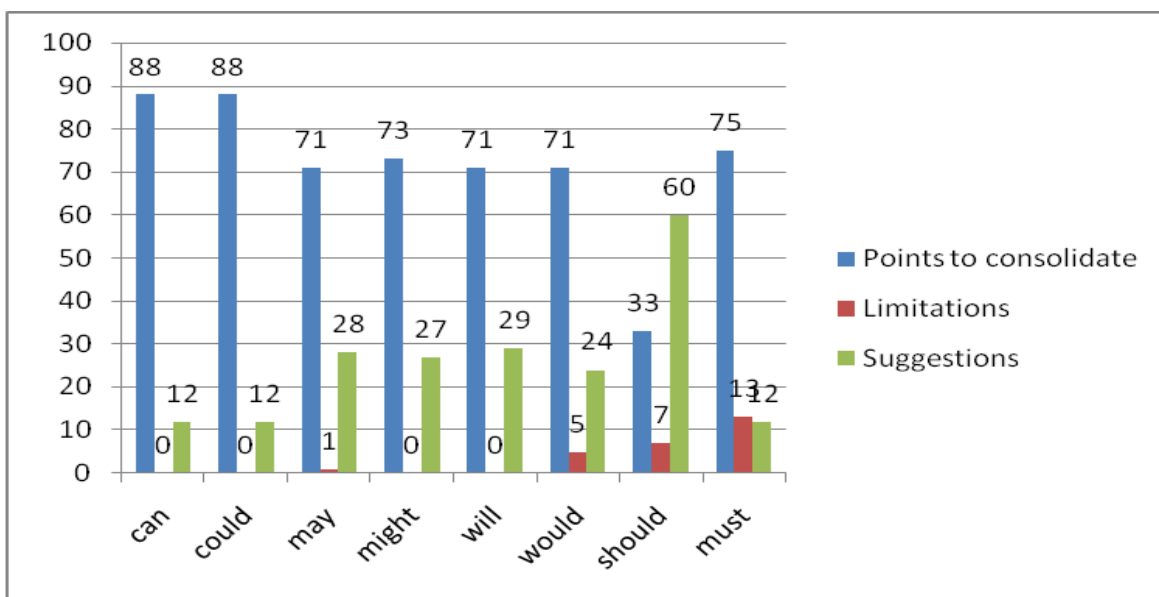
Figure 23: The percentages (%) of the overall distribution of modal verb use by AAWs to realize the "Moves" in the Conclusion sections of their research articles

4.5.6.5.1 Overall distribution of modal verb use by the groups to "consolidate important points"

As underlined on page 35, according to Swales (2004:234ff) CARS model and Hopkins and Dudley-Evans' (1988:118) model for article conclusions, academic writers realize the first move of the "Conclusion" sections of their research articles "consolidating important points" by giving background information' and/or 'stating their results', and/or 'stating their (un)expected outcomes', and/or 'referring to previous research', and/or 'making explanations', and/or 'making exemplifications'. As can be seen from Appendices O, P, and Q, the non-native and native English speaking academic writers displayed different tendencies in their realization of the sub-moves to consolidate important points by using modal verbs. In this section, only the sub-moves commonly realized by the groups by using modal verbs will be exemplified. The purpose of using a modal verb, in this case 'would', in contexts as in example (61) was considered in the light of stating the result(s) research from the researcher's part:

(61) …The findings suggest that to encourage OCB effectively, organizations would do well to offer diverse citizenship opportunities, allowing individuals to choose those that are most personally satisfying and fulfill relevant motives

(Finkelstein, 2006:613)

Another widely employed sub-move the groups realized by using modal verbs is making explanations about their results. The purpose of using a modal verb, in this case "may", in contexts as in example (62) was considered in the light of explaining results from the researcher's part:

(62)…Women were more likely than were men to perceive intelligence as a source of social power. This gender difference *may* be reflecting social changes that have placed a higher priority on education, especially for women. The finding that men were more likely than were women to report sexuality as a source of power *may* be indicative of a cultural shift with men experiencing more emphasis on their being sexually desirable…

(Powers & Reiser, 2005:564)

In example (62), the writers have a tentative stance in explaining and commenting on their findings by using "may" with an epistemic possibility meaning.

4.5.6.5.2 Overall modal verb use by the groups to "state limitations"

The second move of the conclusion section, which all the groups realized to varying degrees by using modal verbs, is stating limitations of their research. As can be seen from Appendices O, P, and Q, the groups displayed different tendencies in their choice of modal verbs to state limitations of their research. In this section, only the most frequently and infrequently used modal verbs will be exemplified. The purpose of using a modal verb, in this case "should", in contexts as in example (63) was considered in the light of drawing attention to limitation of the study mentioned from the researcher's part:

> (63)…Finally, we *should* stress that analysis with structural equations does not guarantee that the factor structure identified is correct, nor does it establish the relative importance of the different traits identified. The confirmatory factor analysis should be complemented with a structural analysis using other measures of the extraversion construct…
>
> (Oviedo-Garcia, M.,A., 2007:687)

In example (63), the writers aim to underline one of the limitations of their research by using "should" (first usage of 'should').

4.5.6.5.3 Overall modal verb use by the groups to "make suggestion"

The final move of the conclusion section, which all the groups realized by using different modal verbs with varying percentages is "making suggestion". As Appendices O, P, and Q show, both the non-native and the native English speaking academic writers made suggestions for further research, though AAWs realized this move less than both TAWs and SAWs. However, both non-native groups used a lot more modal verbs to make pedagogical suggestions. It might be tentatively suggested that the non-native English speaking academic writers' employment of modal verbs to make pedagogical suggestions may result from a perceived need to respond to their own local discourse communities' concerns with effective application of their research findings. In this section, only the most commonly used modal verbs for this purpose will be exemplified. The purpose of using a modal verb, in this case "should", in contexts as in example (64) was considered in the light of making suggestions for further research from the researcher's part:

> (64)…Future studies *should* be conducted with extensive and random sampling of participants and different samples such as distressed and nondistressed married

couples or married and divorced individuals. In future studies, clinical diagnostic interviews *should* be used to assess psychopathology such as depression and anxiety symptoms before administering the scales, or alternatively, some scales such as the BDI could be given to participants…

(Hamamcı, Z.,2005: 324)

In example (64), the writer made suggestions for further study by using "should". The writer's choice of "should" for this purpose could be viewed as a reflection of the writer's expertise in her field. Writers also used the same modal verb "should" to forward pedagogical suggestions. The purpose of using a modal verb, in this case "should", in contexts in example (65) was considered in the light of making pedagogical suggestions from the researcher's part:

(65)… This research offers practical implications for both educators and career counselors. Educators *should* arrange their methods of teaching and assessment in accordance with students' dominant thinking styles. Teachers **can** learn about students by making good use of the TSI and SDS. Thus, teachers **can** raise the academic achievements of students through knowing them well…

(Balkis and Işıker, 2005: 292)

In example (65), the writers preferred to use "should" to make suggestions, which could be seen a reflection of their wish to be taken as experts in their fields. However, the same writers prefer to have a more tentative stance in mentioning the details of suggestions.

Chapter 5
Summary and conclusion

5.1 Summary of the study

As publishing in English is one of the principal routes of gaining recognition within the framework of the global research community and as international dissemination of knowledge is now possible mostly through English, it is essential for researchers to be able to communicate in this lingua franca to reach global readership. Discourse studies have shown that being able to communicate in English entails knowledge of discourse aspects besides lexico-grammatical knowledge. Given this apparent need to produce well-written research articles bearing features of discourse aspects, this study was motivated by a concern to investigate native and non-native English speaking academic writers' employment of stance in their internationally published research articles in English.

This study set out to investigate how non-native English speaking academic writers, TAWs (Turkish academic writers), SAWs (Spanish academic writers) and American academic writers (AAWS) employ stance through the use of eight modal verbs in their internationally published research articles in one discipline-*Social Behavior and Personality*. It was anticipated that employment of stance may transcend knowledge of lexico-grammatical aspects of knowledge, bearing traces of the rhetorical traditions of the global and local discourse community of the writer as well as his/her cultural/educational background, and personality. Therefore, it was assumed that writer stance might display similarities as well as difference(s). Specifically, it set out to answer the following research questions:

1. Are there any significant differences in the use of the modal verbs between the non-native (Turkish and Spanish) English speaking academic writers?

2. Are there any significant differences in the use of the modal verbs between the non-native (e.g. Turkish and Spanish) and native (American) English speaking academic writers?

3. Do the native and non-native English speaking academic writers tend to use the modal verbs differently based on their functions?

4. Do the native and non-native English speaking academic writers tend to use the modal verbs differently based on the different rhetorical sections and moves?

5.2 Discussion and conclusions

It is important to point out that the main purpose of this comparative study was to analyze writer stance in research articles by non-native English speaking academic writers (Turkish academic writers, TAWs) and (Spanish academic writers, SAWs), and native English speaking writers (American academic writers, AAWs) and formulate some possible interpretations of the results. Because the data originated from only one discipline; that is psychology, naturally, it is necessary to make broad generalizations carefully, cautiously concerning the expression of writer stance using only the eight modal verbs under discussion. Nevertheless, despite being the first comparative study on the expression of writer stance in research articles by non-native and native English speaking academic writers, the findings of this study could still reveal some important issues.

This study has shown that the groups have displayed, through the employment of the modal verbs to express stance, that they are well aware of the fact that "academic discourse is not just a mere collection of facts, unfolding in a direct and impersonal manner, and eventually leading to an inescapable truth" (Wishnoff, 2000:128). In the same vein, they have demonstrated that they know the importance of two fundamental characteristics of science: certainty, doubt, and skepticism by modifying their assertions, toning down uncertain or risky claims, emphasizing what they believe to be true, conveying appropriately collegial attitudes to the members of their discourse community, and by protecting their reputation as scholars, avoiding absolute statements which might put themselves in an embarrassing situation. Shortly, they have shown that they are well aware of the characteristics of writing as stated by Stubbs:

> When we speak or write, we are often vague, indirect and unclear about just what are committed to. This might appear, superficially to be an inadequacy of human language: but only to those who hold a rather crude view of the purposes of communication. Vagueness and indirection have many uses… Whenever speakers and writers say anything, they encode their point of view towards it: whether they think it is a reasonable thing to say, or might be found to be obvious, questionable, tentative, provisional, controversial, contradictory, irrelevant, impolite or whatever. The expression of such speaker's attitudes is pervasive in all uses of language. All utterances encode such a point of view, and the description of the markers of such points of view is a central topic in linguistics.
>
> (Stubbs, M., 1996:202)

Overall, this study has shown that the non-native English speaking academic writers (TAWs) and (SAWs) displayed no statistically significant difference in the overall modal verb use across their research articles except for "may". However, the non-native English speaking academic writers (TAWs and SAWs) and the native English speaking academic writers (AAWs) showed statistically significant differences in the overall modal verb use across their research articles in the use of "can", "could", "may", "might", "would", and "should". This could mean that being a non-native English speaking academic writer makes a difference in the use of modal verbs to express stance in the research article.

In addition to these similarities and differences, the non-native English speaking academic writers (TAWs) and (SAWs) displayed similar tendencies in the use of modal verbs based on their functions. They tended to use "can", "could", and "may" to express possibility similarly. They also used "will" and "would" to express prediction similarly. The final similar tendency they displayed is on the use of "should" to express expectation.

The only similar tendency the non-native (TAWs and SAWs) and the native (AAWs) English speaking academic writers displayed is on the use of "must" to express obligation/necessity and "should' to make suggestion. While TAWs used "can" and "could" to express ability and "will" to express a metadiscoursal function similar to AAWs, SAWs employed "can" and "could" to express impossibility like AAWs.

In addition to these similar tendencies the non-native English speaking academic writers displayed in the overall use modal verbs across their research articles and in the use of modal verbs based on their functions, they also displayed similarities in the overall distribution of modal verb use across the sections, moves and sub-moves in their research articles. The non-native and the native English speaking academic writers showed different tendencies in the modal verb choice they in the sections and moves and sub-moves in their research articles.

Given the different tendencies the non-native and native English speaking academic writers displayed in the overall distribution of modal verb use across their research articles, in the use of modal verbs differently based on their functions, and in the modal verb choice in the sections and moves and sub-moves, it could be underlined that being a non-native English speaking academic writer makes a difference in the use of modal verbs to express stance in the research article.

One of the important revelations of this study is that writer stance, through the use of the modal verbs in research articles, seems to be closely interconnected with the discourse

community, genre conventions of the discourse community, the global and local as well, cultural/educational background of the writer, English language proficiency of the writer, and the writer's personality and/or style as underlined by Ivanič (1998). (Fløttum, K., Dahl, T., and Kinn, T. 2006). According to them, four settings; the national/native language culture the author belongs to, leading to a national/language identity, academic identity, disciplinary identity, and disciplinary identity, each in their own way has an impact on the identity of the academic writer (2006: 17ff).

Broadly speaking, writer stance, be it a native or non-native English speaking academic writer, in research articles is closely interrelated and also governed by the global discourse community and its genre conventions. Evidence to support this observation comes from the finding regarding the standing of the rhetorical sections of the research articles from the most to the least modalized sections. Indeed, the "Conclusion" sections as being modalized the most followed by the "Introduction", "Results", "Methodology", and finally the "Abstract" sections respectively. This finding is supported by the revelations of some studies (Swales, 1987, 1990, 2000, 2004; Swales & Feak, 1994; Yearley, 1981; Salager-Meyer, 1994; Varttala, 1999; Martin-Martin, 2008). In addition to the overall distribution of the modal verbs across the rhetorical sections, distribution of moves and sub-moves and individual modal verbs across these sections demonstrate that writer stance runs parallel with the universal rhetoric of research article writing, structured according to a certain discourse pattern.

Another element of evidence supporting this observation appears from the specific feature that the use of the modal verbs is move oriented and determined as the match between the total number of the modal verbs employed and the moves realized answers to this. Overall, of the 1044 occurrences of the modal verbs, TAWs' use of the modal verbs constitutes 33.3 %, SAWs' use makes up 28.3 %, whereas AAWs' employment constitutes 38.4 % of the total modal verb use. This distribution parallels with the number of sub-moves employed. While AAWs realized 193 sub-moves in total, TAWs realized 190 sub-moves. SAWs' employment of sub-moves stands out 182. (Appendices I, J, K)

Furthermore, the frequent use of 'may' with its epistemic possibility meaning in the "Conclusion" and "Introduction", and the use of "will" and "would" with their prediction meaning in the "Methods" sections of research articles also demonstrate that writer stance is governed by the genre conventions of discourse community. The predominant use of "may" with its epistemic possibility meaning by both the non-native and the native English speaking academic writers to express possibility is most likely

governed by the genre conventions of the research articles and the global discourse community. This finding matches with those of Vold (2006), Rezzano (2004), and Biber et al. (1999). A case in point is that Vold (2006) has found that "may" has the highest frequency of use among eleven epistemic modality markers in medical research articles. Similarly, Biber et al. (1999) have shown that "may" is frequently used to mark logical possibility in academic texts. Yet another support to this finding comes from Rezzano (2004), who has indicated that "may" and "can" are the most productive devices for the expression of low degrees of certainty in academic writing.

Another motive influencing and determining writers' employment of stance through the use of the modal verbs seems to be their cultural background. The influence of cultural background is recognized in the modal verb choice of writers in realizing the same rhetorical purpose. For example, although both the non-native groups and the native group made some suggestions for further research, they differ in their means of realizing the same goal; that is to say that, they differ in the choice of the modal verbs to achieve the same goal. In fact, TAWs used "should" mostly, SAWs used "will", and AAWs employed "may", with few exceptions. The origin of this preference could be traced back to the local discourse community conventions and cultural background of the writers.

Yet, another apparent influence of the cultural background of the writers lies in their move choice, especially TAWs' preference of some sub-moves. While AAWs and SAWs made no pedagogical suggestions addressing to their respective global and/or local discourse community, 85 % of the TAWs realized this rhetorical strategy with their local discourse community as their addressee. As projecting pedagogical suggestions is an optional rhetorical/communicative strategy, it seems that this might be explained only through reference to the writers' cultural background and expectations of the writers' local discourse community and its genre conventions. This is supported by the finding that 93 % of the Turkish articles published in 2007 in *Educational Sciences: Theory & Practice*, a Turkey-based counterpart of *Social Behavior and Personality*, include pedagogical suggestions, addressing the local community.

In addition to the influence of the global discourse community and genre conventions, cultural and educational backgrounds of the writers seem to have a determining role on writer stance in research articles as well. As has been underscored, while AAWs expressed epistemic possibility by relying heavily on "may" (59 %), they also used "might" (22 %), "can" (12 %), and "could". However, TAWs realized the same goal by using "may" (52 %) followed by "can" (28 %), "could" (11 %), and "might" (9 %).

On the other had, SAWs employed "may" and "can" equally (33 %), each followed by "could" (25 %), and "might" (9 %). In other words, except for "may", while AAWs preferred the formal "might" to the other relatively informal one "can", TAWs and SAWs preferred the informal modal verb "can" and "could" to the formal one, "might". It is plausible that cultural or educational background of the TAWs and SAWs may be the motive behind this common choice, which is supported by Crawford's (2004) findings. Crawford's study on the use of modal verbs by native and non-native English speakers in cross-cultural business lecturers and the interactional strategies they activate has demonstrated that while the native speakers preferred formal modal verbs like "may"and "would", the non-native ones opted for "can". Similar support is extended by Karkkainnen. Karkkainen, E. (1990) found that Finnish learners of English use fewer expression of epistemic modality than native speakers of English. They also have less variation in the expressions and adhere to a few favorite ones. Likewise, Kasper (1979) suggests that a kind of reduction takes place in the use of Finish writers' hedges. TAWs' preference of "can" over the formal modal verb "might" to express possibility meaning might be due to both their educational background and also the multi-functionality of "can". It is a well-recognized fact that "can" is by far the first modal verb introduced to EFL learners thanks to English language course books. In addition to its early introduction to EFL learners, "can" is also a multi-functional modal verb, serving a couple of functions ranging from epistemic to deontic ones. Its multi-functional feature undoubtedly influences the amount of exposure EFL learners have to this verb, which will in turn, probably affect Turkish EFL learners' preference of this verb over the ones to which they have less exposure to.

Further subtle effect on writer stance in research articles seems to arise from English language proficiency level of the writers, especially their pragmatic knowledge of English. This is evident in the functions for the expressions of which the groups employed "may" and "can". AAWs used "can" for theoretical and "may" for factual possibility as suggested by Leech (2004:82). Unlike AAWs, neither TAWs nor SAWs paid little or no attention to this shade of difference in employing them to express epistemic possibility. This might be attributed to their English proficiency levels and/or their pragmatic knowledge of English.

In addition to exterior factors influencing writer stance in research articles, writers' own personalities; their unique stylistic choices might affect their choices for the expression of stance. Indeed, stance is interwoven with personality. Although the examples are not abound, writers from all of the groups employed different modal verbs with similar

functions such as "may" and "might" to express epistemic possibility meaning in the same context with no apparent reason that might not be accounted for apart from stylistic choices.

To recapitulate, the results of this study have demonstrated that writer stance through the employment of the eight modal verbs, be it a native or non-native English speaker writer, in research articles is governed by a couple of writer external and writer internal factors. For one thing, it has been observed that writer stance is determined by the global discourse community and its genre conventions. It goes without saying that the writer who aspires to address the global discourse community and seeking acceptance from it is bound to be able to meet the requirements of the relevant discourse community and its genre conventions.

Although writer stance is governed by the genre conventions of the discourse community to a great extent because of the "uniformity of academic papers imposed by the requirements of the genre" (Mauranen, 1993), this seems to fall short of explaining the whole picture. According to Mauranen (1993), "writing is a cultural object which is very much shaped by the educational system a writer has been socialized." As suggested by some interlanguage studies by (Kasper, 1979; Karkkainen, 1990; Ventola & Mauranen, 1990; Clyne, 19991) on the employment of hedging by non-native speakers, cultural background (mother tongue) of the writer seems to have a determining role on writer stance. Markkanen, (1989:144) maintains that some cultures are more 'hedgy' than other and that 'academic writing is influenced by the conventions of the writer's cultural background'. For Example, Clyne's (1991) research on interlanguage study of German scholarly writing demonstrated that German writers hedge more both in German and in English than do native speakers of English. Another study showing the relationship between cultural background and employment of hedging in English comes from Vassileva's study on hedging in Bulgarian and English research articles. Vassileva (1992) found that hedging is culturally determined. Similarly, Martin-Martin has shown that native English speaking academic writers used more hedging devices that their non-native English speaking counterparts in research articles. Since no writer can abstract herself/himself from the genre conventions of their local discourse community, it is plausible that the pragmatics of hedging is culturally determined and the local discourse community plays a role on writer stance in research articles.

It is also likely that writer's educational background, English proficiency level, and their own personality/stylistic choice seem to influence writer stance.

5.3 Implications of the study

One of the most important implications of this study is the pressing need to underline the significance of the genre knowledge and the purposes of the different rhetorical sections of the research article and how they determine writer stance for the non-native English speaker academic writer who aspires to be able to address her/his global discourse community. Since this global discourse community and its genre conventions are shaped by the Anglo American academic rhetorical tradition and its conventions, it is a must for the non-native English speaker academic writer to be aware of and follow the conventions of this discourse community, which necessitates pragmatic knowledge besides lexico-grammatical knowledge of English.

Another important implication of this study might be raising non-native English speaking academic writers' awareness of the significance of expressing writer stance appropriately in research articles. More specifically, non-native English speaking academic research article writers might be sensitized about how Anglo American rhetorical tradition differs from their own and other rhetorical traditions in appreciating exaggerations, overstatements, assertions, and amplifications. These are seen as a valid and eloquent rhetorical device to convey writer's power of conviction and/or desirability.

In addition to boosting their consciousness on the global discourse community and its conventions, they might also sensitized on the impact of the local discourse community and its conventions, cultural, educational background and the personality of the writer on their expression of stance as academic writers.

Yet another implication of this study might be raising non-native English speaking academic writers' consciousness about the fact that modal verbs, though very important, are only one means of expressing stance. They could be informed that some verbs, adverbs, adjectives, and nouns could be used to express writer stance.

The study has also implications regarding the teaching of academic writing at undergraduate and graduate levels. Although writer stance is not one of the central determining factors on an article's publication (Flowerdew, 1990:127), it certainly displays a lot about a writer's awareness of his/her global discourse community and its conventions, his/her local discourse community and its conventions, his/her educational and cultural background, as well as his/her personality. Therefore, proficiency in displaying appropriate stance will be a great asset both for undergraduate and graduate students in their endeavor to both read and view their colleagues' articles with a critical and informed eye and take

their stance accordingly. Consciousness on this issue will also empower them to display their stance in their own articles and dissertations.

Another implication of the study concerns the teaching of English modal verbs at higher levels. Instead of teaching modal verbs out of context in artificially constructed contexts designed for only teaching purposes, authentic materials, such as the research article, could be used to raise advanced learners' awareness of the functions which modal verbs serve in the real world as suggested by He and Tsoneva (1998). They claim that the study of modal meaning requires an understanding of the context in which the modal is embedded. This not only makes learning modal verbs meaningful, it also helps learners enjoy doing something real for a real purpose. In this endeavor, instead of just underlining the epistemic possibility meaning of some modal verbs, learners could be sensitized about the importance of some crucial rhetorical purposes such as time and place of, and reasons for being tentative, imprecise, uncertain, hesitant, and assertive, and how these communicative strategies are accomplished by using stance devices.

5.4 Limitations of the study

Two important factors should carefully be taken into consideration in interpreting the findings of this study. First of all, as the data for this study come from only one discipline: psychology, the findings should be very cautiously generalized. If the data had originated from several disciplines from both soft and hard sciences, and produced more than three groups of on-native English speaker academic writers, sound generalizations could safely be made.

5.5 Suggestions for further research

One venue for further research could be conducting a comparative study on native and non-native speaker academic writers' employment of stance in research article writing using modal verbs with richer data originating from several disciplines from both soft and hard sciences, produced by academic writers belonging to different rhetorical traditions. Such a study might investigate the influence of stance by writers from different rhetorical traditions on readers and editors. Specifically, it could focus on to what degree writer stance affects an articles' publication.

Another focus of a further comparative study might be the use of other stance devices such as adverbs, adjectives, nouns, and verbs which are used to express stance in research article writing.

Similarly, a comparative study on non-native and native speaker academic writers' employment of adverb satellites with particular modal verbs in research articles to express their stance might be worth investigating.

Yet another study might focus on the rationale behind non-native academic writers' from different rhetorical traditions preferences and/or overuse of particular modal verbs over others. More specifically, a study could investigate non-native English speaking academic writers' (Turk) preference of, for example, 'can' to express possibility over 'could' and 'might'.

Finally, the relationship between global and local discourse community, cultural and educational background, and the impact of writers' personality on their stance could also be investigated.

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Appendices

Appendix A1: Research articles by non-native English speaking academic writers (TAWs) used in this dissertation (in alphabetical).

Balkıs, M., & Işıker, G., B. (2005).The Relationship between Thinking Styles and Personality Types. *Social Behavior and Personality*, *2005, 33 (3), 283-294.*

Bildik, T., Tamar, M., Vesek, S., Bukusoğlu, N., & Aydın, C. (2005). The Mental Health of Young Workers: A Pilot Study. *Social Behavior and Personality, 2005, 33 (3), 295-306.*

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Appendix A2: Research articles by native English speaking academic writers (AAWs) used in this dissertation (in alphabetical order).

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Christensen, L. & Piper-Terr, M. (2004). Comparison of Psychometric Measures of Fatigue. *Social Behavior and Personality, 2004, 32 (3), 227-234.*

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Appendix A3: Research articles by non-native English speaker academic writers (SAWs) used in this dissertation (in alphabetical order).

Aluja, A. & Garcia, L. F. (2004). Relationship between Big Five Personality Factors and Values. *Social Behavior and Personality 2004, 32(7), 619-626.*

Barrio, V. D. & Aluja, A., Garcia, L.F. (2004). Relationship between Empathy and the Big Five Personality Traits in a Sample of Spanish Adolescents. *Social Behavior and Personality 2004, 32(7), 677-682.*

Braza, F. & Jose C. S. (2001). Influence of Maternal Reproductive Characteristics on the Body Traits of Preschool Children. *Social Behavior and Personality 2001, 29(5), 417-426.*

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Diaz, F. & Rodriguez, A. (2003). Locus of Control and Values of Community Entrepreneurs. *Social Behavior and Personality 2003, 31(8), 739-748.*

Fernandez, M. L. &Castro, Y. R. (2003). The Big Five and Sexual Attitudes in Spanish Students. *Social Behavior and Personality 2003, 31(4), 357-362.*

Gracia, E. & Herrero, J. (2004). Personal and Situational Determinants of Relationship Specific Perceptions of Social Support. *Social Behavior and Personality 2004, 32(5), 459-476.*

Lila, M., Garcia, F. & Gracia, E. (2007). Perceived Paternal and Maternal Acceptance and Children's Outcomes in Columbia. *Social Behavior and Personality 2007, 35(1), 115-124.*

Oviedo-Garcia, M. A. (2007). Internal Validation of a Biodata Extraversion Scale for Salespeople. *Social Behavior and Personality 2007, 35(5), 675-692.*

Sanchez, M. M., Rejand, I., & Rodriguez, Y. T. (2001). Personality and Academic Productivity in the University Student. *Social Behavior and Personality 2001, 29(3), 299-306.*

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Appendix B: The results of Spearman Correlation Coefficient test

Modal verbs	Inter-rater Reliability (%)
can	85
could	89
may	90
might	92
will	89
would	90
should	96
must	98
The mean score of inter-rater reliability	**91.1**

Appendix C: The Results of Varbrul test illustrating similarities and differences in the use of modal verbs by the groups

	can	could	may	might	will	would	should	must
TAWs	0.594	0.564	0.559	0.429	0.434	0.376	0.530	0.397
SAWs	0.591	0.655	0.363	0.389	0.544	0.467	0.597	0.484
AAWs	0.355	0.332	0.552	0.641	0.526	0.631	0.402	0.601
Varbrul weight	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Significance	**0.001**	**0.001**	**0.001**	**0.001**	**0.214**	**0.001**	**0.008**	**0.248**

Appendix D: Overall distribution of modal verb use by the groups across the different rhetorical sections of their research articles

		can		could		may		might		will		would		should		must		total	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
TAW	Abst.	1	**25**	1	**25**	0	**0**	0	**0**	0	**0**	0	**0**	2	**50**	0	**0**	4	**1**
	Int.	29	**23**	11	**9**	38	**30**	7	**6**	20	**16**	14	**11**	5	**4**	2	**2**	126	**36**
	Meth.	11	**50**	2	**9**	2	**9**	0	**0**	0	**0**	5	**23**	1	**5**	1	**5**	22	**6**
	Res.	4	**29**	3	**21**	1	**7**	0	**0**	0	**0**	4	**29**	2	**14**	0	**0**	14	**4**
	Conc.	36	**20**	21	**12**	68	**37**	11	**6**	6	**3**	9	**5**	29	**16**	2	**1**	182	**52**
	Tot.	81	**23**	38	**11**	109	**31**	18	**5**	26	**7**	32	**9**	39	**11**	5	**1**	348	
SAW	Abst.	0	**0**	1	**100**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	1	
	Int.	27	**23**	15	**13**	23	**20**	0	**0**	18	**16**	12	**10**	16	**14**	4	**3**	115	**39**
	Meth.	8	**30**	8	**30**	2	**7**	0	**0**	1	**4**	6	**22**	2	**7**	0	**0**	27	**9**
	Res.	12	**52**	1	**4**	2	**9**	1	**4**	0	**0**	6	**26**	1	**4**	0	**0**	23	**8**
	Conc.	21	**16**	20	**16**	23	**18**	12	**9**	14	**11**	14	**11**	23	**18**	2	**0**	129	**44**
	Tot.	68	**23**	45	**15**	50	**17**	13	**4**	33	**11**	38	**13**	42	**14**	2	**0**	295	
AAW	Abst.	0	**0**	0	**0**	2	**25**	0	**0**	0	**0**	2	**25**	2	**25**	2	**25**	8	**2**
	Int.	21	**12**	4	**2**	61	**35**	18	**10**	30	**17**	29	**17**	9	**5**	2	**1**	174	**43**
	Meth.	0	**0**	5	**15**	6	**18**	2	**6**	5	**15**	13	**39**	2	**6**	0	**0**	33	**8**
	Res.	2	**11**	1	**6**	3	**17**	0	**0**	0	**0**	8	**44**	3	**17**	1	**6**	18	**4**
	Conc.	18	**11**	8	**5**	51	**30**	26	**15**	7	**4**	38	**23**	12	**7**	8	**5**	168	**42**
	Tot.	41	**10**	18	**4**	123	**31**	46	**11**	42	**10**	90	**22**	28	**7**	13	**3**	401	

Appendix E: Overall distribution of modal verb use by the groups across the moves in the "Abstract" sections of their research articles

		can		could		may		might		will		would		should		must		Tot.
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
TAW	Int. Purpose	0	0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	1
	Desc. Meth.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sum. Res.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pres. Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Back. Info. *	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Suggestions *	0	0	0	0	0	0	0	0	0	0	0	0	2	100	0	0	2
	Total	1	25	1	25	0	0	0	0	0	0	0	0	2	50	0	0	**4**
SAW	Int. Purpose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Desc. Meth.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sum. Res.	0	0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	1
	Pres. Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Back. Info. *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Suggestions *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	**1**
AAW	Int. Purpose	0	0	0	0	0	0	0	0	0	0	0	0	1	33	2	67	3
	Desc. Meth.	0	0	0	0	0	0	0	0	0	0	2	100	0	0	0	0	2
	Sum. Res.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pres. Conc	0	0	2	100	0	0	0	0	0	0	0	0	0	0	0	0	2
	Back. Info. *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Suggestions *	0	0	0	0	0	0	0	0	0	0	0	0	1	100	0	0	1
	Total	0	0	2	25	0	0	0	0	0	0	2	25	2	25	2	25	**8**

Appendix F: Overall modal verb use by the groups across the moves and sub-moves in the "Introduction" sections of their research articles

			can		could		may		might		will		would		should		must		Total	
			n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
TAWs	Establishing a territory	Claiming cent.	1	20	0	0	1	20	1	20	2	40	0	0	0	0	0	0	5	
		Making topic gen.	0	0	0	0	4	48	0	0	0	0	1	20	0	0	0	0	5	
		Review. prev. res	27	27	11	11	31	31	6	6	15	15	3	3	5	5	2	2	100	
	Establishing a niche	Counter claim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Indicating a gap	0	0	0	0	0	0	0	0	1	100	0	0	0	0	0	0	1	
		Question raising	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Cont. tr./e.f.	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
	Occupying the niche	Outlining/g. purp.	0	0	0	0	0	0	0	0	0	0	9	100	0	0	0	0	9	
		Describing pr. r	0	0	0	0	1	25	0	0	2	50	1	25	0	0	0	0	4	
		Announcing pr.f.	0	0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	1	
		Indicating RA st.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SAWs	Establishing a territory	Claiming cent.	0	0	0	0	1	50	0	0	0	0	1	50	0	0	0	0	2	
		Making topic gen.	1	25	1	25	2	50	0	0	0	0	0	0	0	0	0	0	4	
		Review. prev. res	19		13		18		11	0	6		7		11		3		88	
	Establishing a niche	Counter claim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Indicating a gap	1	33	1	33	0	0	0	0	0	0	0	0	1	33	0	0	3	
		Question raising	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Cont. tr./e.f.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Occupying the niche	Outlining/g. purp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Describing pr. r	1	20	0	0	2	40	0	0	0	0	2	40	0	0	0	0	5	
		Announcing pr.f.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Indicating RA st.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AAWs	Establishing a territory	Claiming cent.	5	62	0	0	1	12	0	0	1	12	0	0	0	0	1	12	15	
		Making topic gen.	0	0	0	0	3	100	0	0	0	0	0	0	0	0	0	0	3	
		Review. prev. res	15	13	2	2	53	47	14	12	11	10	12	11	5	4	0	0	112	
	Establishing a niche	Counter claim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Indicating a gap	0	0	0	0	1	50	0	0	0	0	1	50	0	0	0	0	2	
		Question raising	0	0	0	0	0	0	1	100	0	0	0	0	0	0	0	0	1	
		Cont. tr./e.f.	0	0	0	0	0	0	1	50	0	0	1	50	0	0	0	0	2	
	Occupying the niche	Outlining/g. purp	1	2	2	5	2	5	2	5	18	45	11	28	4	10	0	0	40	
		Describing pr. r	0	0	0	0	1	17	0	0	0	0	4	67	0	0	1	17	6	
		Announcing pr.f.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Indicating RA st.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Appendix G: Overall modal verb use by the groups across the moves in the "Conclusion" sections of their research articles

		can		could		may		might		will		would		should		must		total	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
TAWs	Points to consolidate	27	**23**	13	**11**	57	**48**	9	**8**	2	**2**	3	**3**	7	**6**	0	**0**	118	**65**
	Limitations	0	**0**	1	**12**	1	**12**	1	**12**	2	**25**	0	**0**	2	**25**	1	**12**	8	**4**
	Suggestions	9	**16**	7	**12**	10	**18**	1	**2**	2	**4**	6	**11**	20	**36**	1	**2**	56	**31**
	Total	36		21		68		11		6		9		29		2		**182**	
SAWs	Points to consolidate	20	**19**	18	**17**	23	**21**	11	**10**	8	**7**	14	**13**	12	**11**	1	**1**	107	**73**
	Limitations	4	**40**	2	**20**	0	**0**	0	**0**	0	**0**	0	**0**	4	**40**	0	**0**	8	**5**
	Suggestions	2	**6**	7	**22**	2	**6**	1	**3**	6	**19**	5	**16**	8	**25**	1	**3**	32	**22**
	Total	26		27		25		12		14		19		24		2		**147**	
AAWs	Points to consolidate	15	**12**	7	**6**	36	**30**	19	**16**	5	**4**	27	**22**	5	**4**	6	**5**	120	**71**
	Limitations	1	**10**	0	**0**	5	**50**	0	**0**	0	**0**	2	**20**	1	**10**	1	**10**	10	**6**
	Suggestions	2	**5**	1	**3**	10	**26**	7	**18**	2	**5**	9	**24**	9	**16**	1	**3**	38	**23**
	Total	17		8		51		26		7		38		15		8		**168**	

Appendix H: Overall distribution of overall modal verb use by the groups across the 'sub-moves' in the "Conclusion" sections of their research articles

		can		could		may		might		will		would		should		must		total	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
TAWs	Background info.	0	0	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1	0
	Statement of res.	2	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
	(Un)expected out.	0	0	0	0	1	25	1	25	0	0	2	50	0	0	0	0	4	2
	Reference to p. r.	3	30	0	0	3	30	2	20	1	10	0	0	1	10	0	0	10	5
	Explanation	18	20	13	14	49	54	5	5	1	1	0	0	5	5	0	0	91	50
	Exemplification	0	0	0	0	0	0	0	0	0	0	0	0	1	100	0	0	1	1
	Deduction/Hypot.	5	50	0	0	2	20	1	10	0	0	1	10	1	10	0	0	10	5
	Limitation	0	0	1	12	1	12	1	12	2	25	0	0	2	25	1	12	8	4
	Sug. for f. res.	3	12	5	21	6	25	0	0	1	4	3	12	6	25	0	0	24	13
	Pragmatic sug.	6	19	2	6	4	13	1	3	1	3	3	10	13	42	1	3	31	17
Total		37	20	21	12	67	37	11	6	6	3	9	5	29	16	2	01	182	
SAWs	Background info.	0	0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	1	05
	Statement of res.	2	29	0	0	2	29	2	29	0	0	0	0	1	14	0	0	7	5
	(Un)expected out.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reference to p. r.	1	12	0	0	3	38	2	25	0	0	0	0	2	25	0	0	8	5
	Explanation	15	19	15	19	17	21	7	9	5	6	12	15	9	11	1	1	81	54
	Exemplification	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Deduction/Hypot.	2	15	3	23	2	15	0	0	3	23	3	23	0	0	0	0	13	9
	Limitation	4	40	2	20	0	0	0	0	0	0	0	0	4	40	0	0	10	7
	Sug. for f. res.	1	4	6	25	1	4	1	4	5	21	3	12	6	25	1	4	24	16
	Pragmatic sug.	1	20	0	0	0	0	0	0	1	20	1	20	2	40	0	0	5	3
Total		26	17	27	18	25	14	17	8	14	9	19	13	24	16	2		149	
AAWs	Background info.	0	0	0	0	2	40	1	20	0	0	2	40	0	0	0	0	5	3
	Statement of res.	5	38	0	0	2	15	0	0	0	0	5	38	1	8	0	0	13	8
	(Un)expected out.	1	50	0	0	1	50	0	0	0	0	0	0	0	0	0	0	2	1
	Reference to p. r.	1	50	0	0	0	0	0	0	0	0	1	50	0	0	0	0	2	1
	Explanation	5	5	7	8	31	33	18	19	3	3	19	20	4	4	6	6	83	55
	Exemplification	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Deduction/Hypot.	3	50	0	0	0	0	0	0	2	33	0	0	0	0	1	17	6	4
	Limitation	1	10	0	0	5	50	0	0	0	0	2	20	1	10	1	10	10	6
	Sug. for f. res.	2	6	1	3	9	26	7	21	2	6	8	24	5	15	0	0	34	20
	Pragmatic sug.	0	0	0	0	1	33	0	0	0	0	1	33	1	33	0	0	3	2
Total		18	11	8	5	51	30	26	15	7	4	38	23	12	7	8	5	168	

Appendix I: Sub-move realization of TAWs across their research articles

	Moves	Articles	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	
Abstract	Introducing purpose		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Describing Methodology		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Summarizing Results			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		12	85
	Presenting Conclusions		✓	✓			✓			✓		✓						5	33
	Introduction/ Background							✓						✓				2	13
	Pragmatic suggestions				✓									✓				2	13
	Suggestions for further research																	---	
	Total																	51	
Introduction	Establishing a territory	Claiming	✓			✓	✓	✓	✓	✓	✓			✓				8	53
		Making topic generalization		✓	✓		✓						✓		✓	✓	✓	7	47
		Reviewing literature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Establishing a niche	Counter claiming																---	
		Indicating a gap						✓		✓	✓		✓	✓				5	33
		Question raising		✓		✓		✓	✓					✓	✓	✓		7	47
		Continuing a tradition																---	
	Occupying the niche	Giving purpose		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	13	87
		Describing present research																---	
		Announcing present findings								✓			✓					2	13
		Indicating R.A. structure																---	
	Total																	57	
Conclusion	Background information		✓		✓	✓	✓	✓		✓			✓	✓	✓		✓	10	67
	Statement of Results		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	(Un)expected outcomes							✓										1	7
	Reference to previous literature for com.			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	12	85
	Explanation		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Exemplification																	---	---
	Deduction/Hypothesis			✓	✓			✓		✓		✓		✓		✓		6	43
	Limitation						✓	✓		✓			✓	✓		✓		6	43
	Suggestions for further research			✓		✓	✓	✓	✓	✓			✓	✓	✓	✓		10	67
	Pedagogical suggestions			✓	✓	✓	✓					✓		✓		✓		7	47
	Total																	82	190

Appendix J: Sub-move realization of SAWs across their research articles

		Articles	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	
Abstract		Introducing purpose	✓		✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	12	80
		Describing Methodology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
		Summarizing Results	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
		Presenting Conclusions				✓			✓				✓	✓	✓	✓	✓	7	46
		Introduction/ Background		✓			✓				✓		✓		✓			5	33
		Pragmatic suggestions																--	
		Suggestions for further research																--	
		Total																54	
Introduction	Establishing a territory	Claiming centrality		✓		✓	✓	✓	✓			✓	✓	✓				8	53
		Making topic generalization	✓		✓				✓		✓				✓	✓	✓	7	46
		Reviewing literature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Establishing a niche	Counter claiming						✓										1	7
		Indicating a gap	✓	✓			✓				✓	✓				✓	✓	7	46
		Question raising		✓			✓							✓				3	20
		Continuing a tradition																--	
	Occupying the niche	Giving purpose	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	13	87
		Describing present research		✓								✓		✓	✓	✓	✓	6	40
		Announcing present findings																--	
		Indicating R.A. structure																--	
		Total																60	
Conclusion		Background information					✓	✓		✓	✓		✓			✓		6	40
		Statement of Results	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
		(Un)expected outcomes		✓								✓				✓		3	20
		Reference to previous literature for com.			✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	10	67
		Explanation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
		Exemplification																--	
		Deduction/Hypothesis					✓						✓	✓			✓	4	27
		Limitation		✓									✓					2	13
		Suggestions for further research		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	13	87
		Pedagogical suggestions		✓		✓	✓			✓			✓			✓		6	40
		Total																68	182

Appendix K: Sub-move realization of AAWs across their research articles

|	Moves	Articles	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	
Abstract	Introducing purpose		✓		✓	✓	✓			✓	✓	✓			✓	✓	✓	10	67
	Describing Methodology		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14	93
	Summarizing Results		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Presenting Conclusions			✓								✓		✓	✓		✓	5	33
	Introduction/ Background				✓		✓	✓				✓	✓			✓		6	43
	Pragmatic suggestions																	---	
	Suggestions for further research									✓								1	7
	Total																	50	
Introduction	Establishing a territory	Claiming centrality	✓	✓			✓	✓			✓	✓			✓	✓	✓	9	64
		Making topic generalization			✓			✓	✓				✓		✓			5	33
		Reviewing literature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	Establishing a niche	Counter claiming					✓		✓									2	13
		Indicating a gap	✓	✓		✓		✓		✓		✓	✓		✓			8	53
		Question raising	✓	✓		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	12	85
		Continuing a tradition										✓				✓		2	13
	Occupying the niche	Giving purpose	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	13	87
		Describing present research		✓		✓		✓	✓						✓			5	33
		Announcing present findings					✓	✓			✓	✓						4	27
		Indicating R.A. structure																---	
	Total																	75	
Conclusion	Background information		✓		✓		✓	✓	✓	✓		✓			✓	✓	✓	10	67
	Statement of Results		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	100
	(Un)expected outcomes												✓					1	7
	Reference to previous literature for com.		✓	✓		✓			✓	✓			✓	✓		✓	✓	9	60
	Explanation		✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	13	87
	Exemplification																	---	---
	Deduction/Hypothesis			✓					✓				✓	✓			✓	5	33
	Limitation							✓	✓	✓			✓				✓	5	33
	Suggestions for further research		✓	✓		✓		✓		✓	✓	✓	✓		✓	✓		10	67
	Pedagogical suggestions																	---	---
	Total																	68	193

Appendix L: The percentages (%) of overall distribution of modal verb use by TAWs across the "sub-moves" in the "Introduction" of their research articles
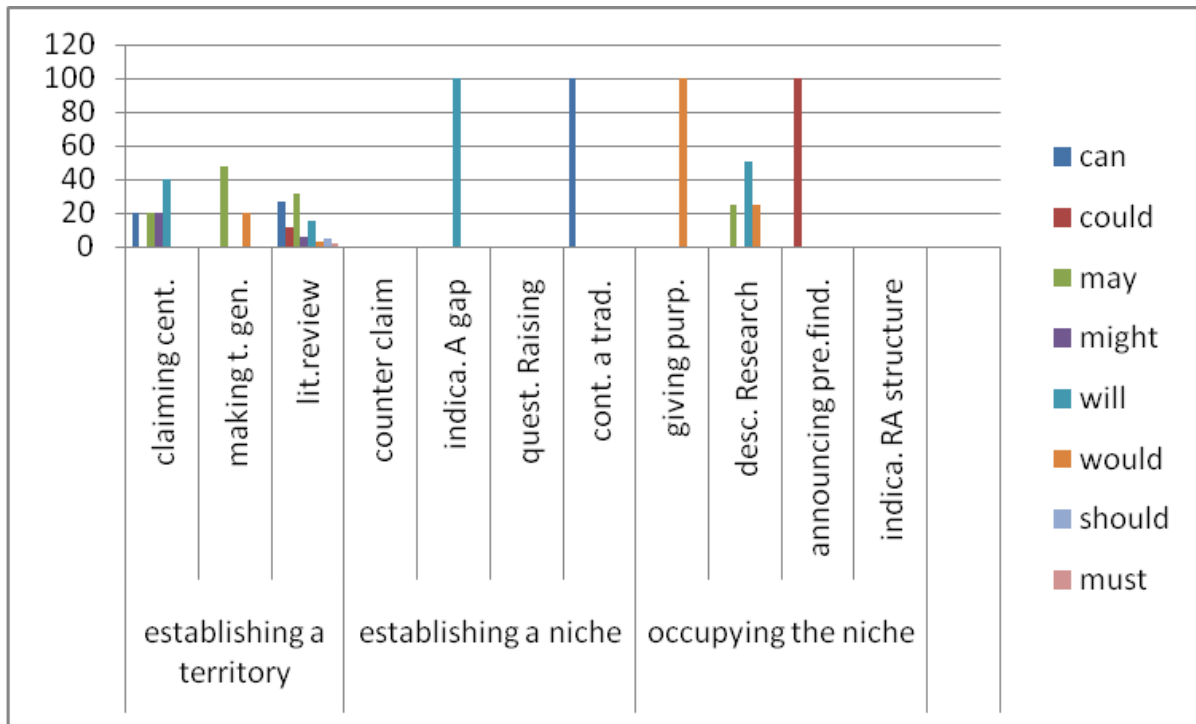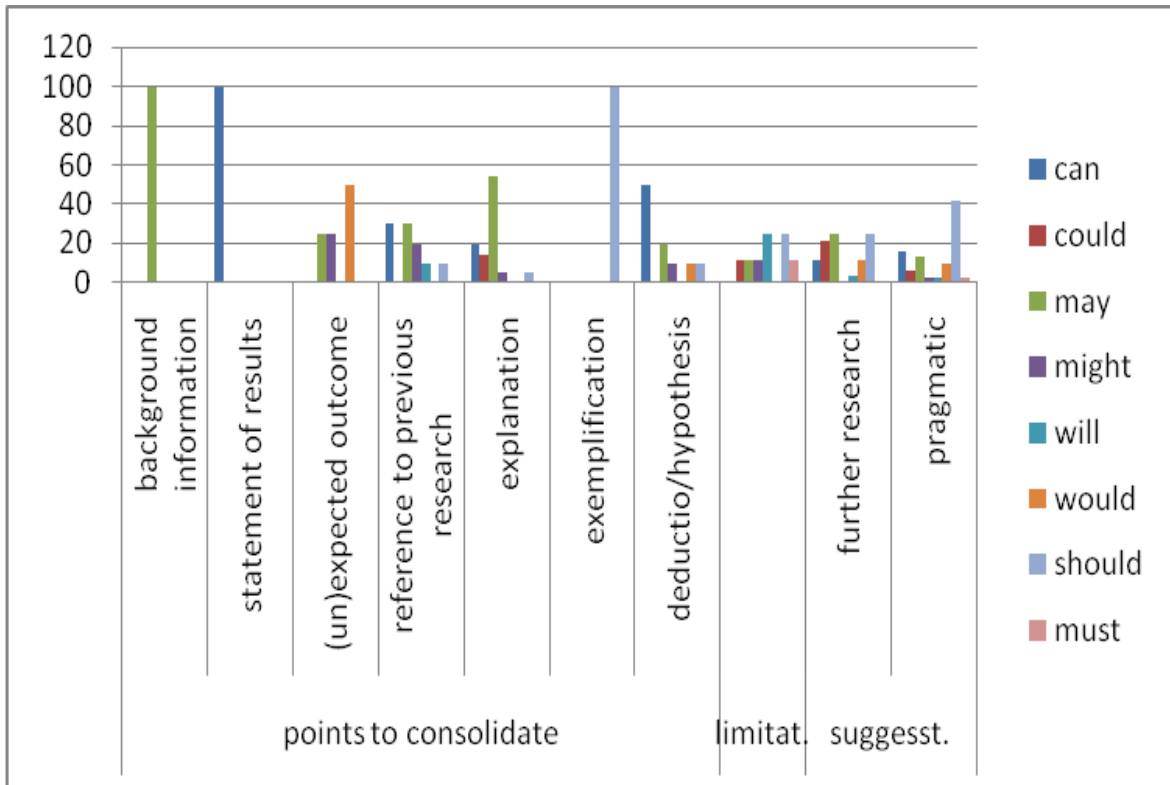

Appendix M: The percentages (%) of the overall distribution of modal verb use by SAWs across the "sub-moves" in the "Introduction" sections of their research articles
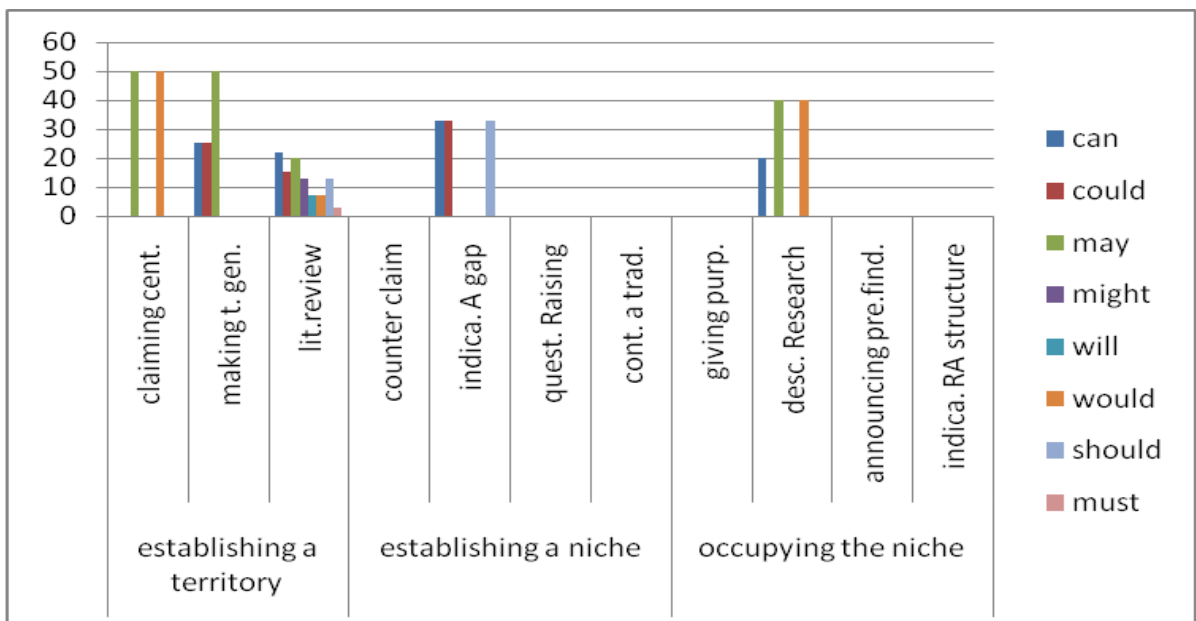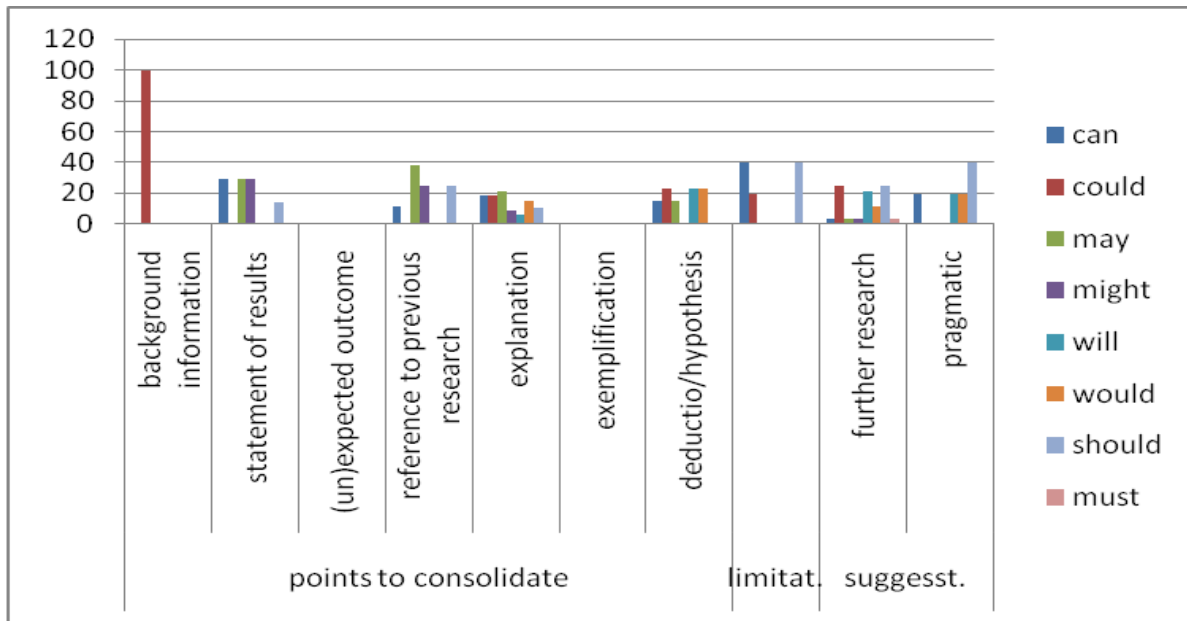
Appendix N: The percentages (%) of the overall distribution of modal verb use by AAWs across the "sub-moves" in the "Introduction" sections of their research articles
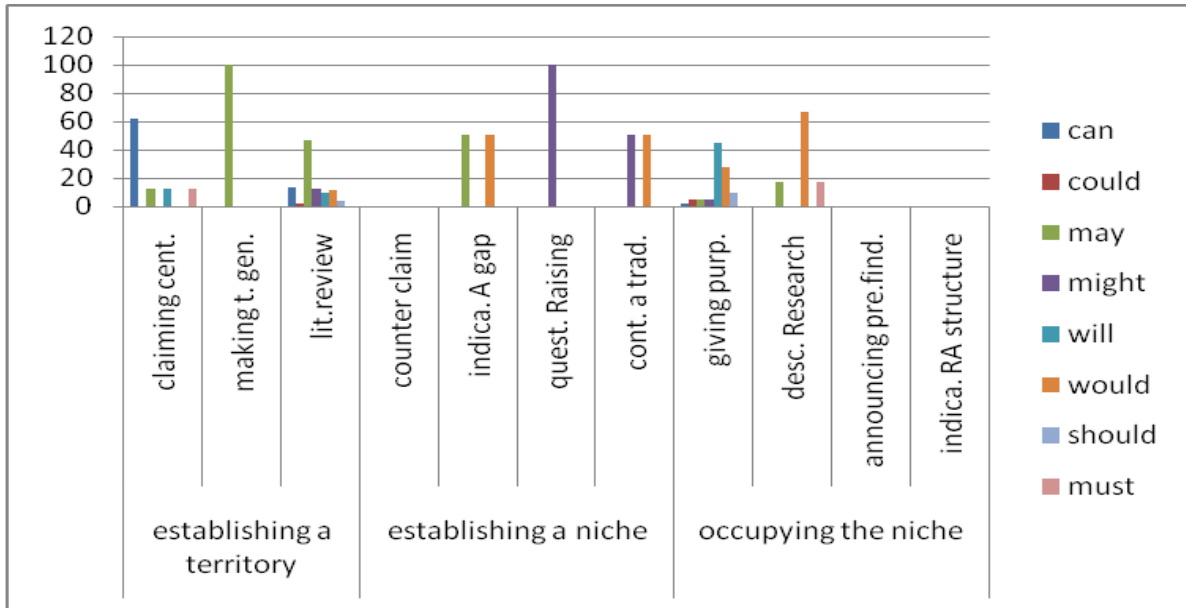
Appendix O: The percentages (%) of the overall distribution of modal verb use by TAWs across the "sub-moves" in the "Conclusion" sections of their research articles

Appendix P: The percentages (%) of the overall distribution of modal verb use by SAWs across the "sub-moves" in the "Conclusion" sections of their research articles

Appendix Q: The percentages (%) of the overall distribution of modal verb use by AAWs across the "sub-moves" in the "Conclusion" sections of their research articles