CHAPTER 2

Literature Review

2.1 Introduction

Flowerdew (2002) notes that with the great expansion in the international use of English, there has been a parallel growth in the preparation of non-native speakers for study in English through English for academic purposes (EAP). In parallel to the development of EAP programmes over the last four decades or so, is the considerable amount of activity in the description of academic discourse in English, in view of it providing insights and frameworks for EAP pedagogy. Academic discourse analysis is said to basically operate on four different research paradigms - contrastive rhetoric, corpus linguistics, ethnographically influenced methods, and genre analysis - the four paradigms which are probably the most used in academic discourse analysis and which have had the most direct pedagogic application at the tertiary level.

Pertinent to this study is the genre paradigm to academic discourse analysis. Pertinent because the incredible growth of academic disciplines has caused a growth in genre development and modifications, and it is clearly known that the way one discipline uses a genre is not the same as the way a different uses a similar genre. (e.g. Samraj, 2002, Ozturk, 2006). Furthermore, knowledge is becoming more fragmented and specialized, especially in the realms of science, academia and business (Bhatia, 2002). Each field, each discipline and each area of specialty has its acknowledged experts and special organizations that are the gatekeepers and guardians of their special interests. With all the areas of specialty that exist and with the different types of specialized discourses that are around we need to draw better more accurate maps and genre analysis appears

to me as a viable alternative, given the numerous studies that are being published, to map the genre of the RAs in educational psychology, environmental psychology and economic psychology.

In this chapter I will therefore review some relevant material related to the genre paradigm, with a specific focus on the ESP tradition to genre analysis. I then review some relevant studies related to abstracts and the various sections of the genre of the RA. I will after that review two studies related to the selected linguistic features, namely, titles and new knowledge claims. I close this chapter with some information regarding the three disciplines selected for this study.

2.2 Major Theoretical Orientations and Definitions

Genre theory as a whole appears to have developed in three significantly different schools and/or traditions, which "are seen as complementary, rather than competing approaches" (Ruiying & Allison, 2004: 265): (a) North American New Rhetoric studies, (b) Australian Systemic Functional Linguistics (SFL) and (c) English for Specific Purposes (ESP).

The New Rhetoric school is concerned with composition studies and professional writing in an LI context. This school also places emphasis on the social purposes that genres fulfill in certain situational contexts and as Bazerman (1998) notes, knowledge of social context surrounding social context is essential for helping writers select rhetoric that is appropriate for a particular writing situation and that it is not sufficient just to give students the formal properties of genre that they are interested in. Scholars within this school therefore view genres as dynamic, social texts which are not static but ongoing processes of discourse production and reception shaped and influenced by

other related texts and utterances of the sociocultural context. (Flowerdew, 2004). The emphasis on the sociocultural aspects of the genre has resulted in ethnographic rather than linguistic or rhetorical methods.

Australian theories of genre have developed roughly during the same time as those in North America, they have emerged out of a different set of scholarly traditions – centred in the field of linguistics, specifically the Hallidayan systemic functional school of linguistics. Within this tradition, the focus is on the social function of language rather than just its forms and genre includes the whole range of both spoken and written language activity that is culturally recognizable as different social events. The specific functions, goals conventions and rituals of a highly conventionlised social situation are seen as having influenced the nature of texts that arise from the situation. The texts produced in this manner are called 'genres' and like the social occasions that give rise to them, they are highly conventionalized in that they have specific forms and convey specific meanings (Mohd Faiz, 1998). These meanings derive from and encode the functions, purposes, and meanings of the social events that they represent providing thereby " a precise index and catalogue of the relevant social occasions of a community at a given time" (Kress,1989: 19 cited in Mohd Faiz,1998) and some examples of genre in this sense are interview, essay, conversation, sale, tutorial, sports commentary, office memo, novel, political speech, editorial, sermon joke and instruction (Kress, 1989, cited in Mohd Faiz, 1998).

SFL has deep roots in movements for educational equity and social change, particularly in the context of providing access to the "genres of power" to disadvantaged immigrant and aboriginal populations in the Australian context. It begins with the idea that form and function of language must always be considered together in a theoretically complete

formulation, especially one with pretensions to be applicable to real world use and social interaction. SFL finds inspiration not in isolated sentences made up by grammarians but in studies of how people actually use text to do things in the world (Halliday, 1974; Halliday and Hassan, 1976, cited in Hyon,1995) and thus takes context as a constitutive element of both grammar and meaning.

Therefore, both structural and contextual notions have been combined in Australian theoretical definitions. It is concerned with the way language functions within social settings. Language is thought of as a social semiotic (Halliday, 1978), a system of signs which take on meaning through the way they function in social contexts. The unit of analysis within this theory is the text, a functional rather than formal entity, which refers to any passage, spoken or written, that forms a 'unified whole" and fulfills a meaningful social purpose" (Halliday & Hasan, 1976: 293 cited in Hyon, 1995). Halliday has been concerned with the way texts interact with the 'context of situation' to describe the environment in which "language comes to life" (Halliday, 1978: 28-29). According to him the important aspect to consider about language is the way that it functions in these situational contexts and "any account of language which fails to build in the situation as an essential ingredient is likely to be artificial and unrewarding" (Halliday, 1978: 28-29).

As this study is planted within the ESP tradition to genre theory, partly because a focus on text organization remains very useful pedagogically**,** the following section, will discuss this framework more, drawing substantially from the work of Hyon (1995, 1996).

2.2.1 The ESP framework for genre analysis

The English Language Teaching discipline, over the last forty decades or so has seen the emergence of ESP and over the last three decades EAP, which emerged in response to the need to examine the kind of language abilities required by non-native learners and users of English in occupational and academic settings respectively. Since its pre-genre beginnings in the 1960s it has been concerned with describing the language features used in specific contexts focusing particularly on structural characteristics of general scientific Register (Swales, 1972, cited in Hyon, 1995). During the 1970s an American group of researchers informally known as the Washington Group published several papers focusing on the connections between grammar in scientific language and larger textual structure and Henry Widdowson's (1974) focus on the need to teach rhetorical functions which contribute to coherence of textual discourse "held the door open to rhetorical explaination"(Swales, 1988: 59 in Hyon 1995: 15) in the sense that it began to consider formal elements of larger units of texts. Within this paradigm, genre has generally been approached as relating to oral or written text types on the basis of the texts formal properties as well as its communicative purpose within the related social context, which later, over the decades, has drawn the attention of various researchers, such as, to name a few, Hopkins and Dudley Evans (1988); Nwogu (1991); Bhatia,(1993); Flowerdew (1993) and Samraj (2000), with the intention of deriving applications for analyzing and teaching the spoken and written language.

It is widely acknowledged that Swales' seminal work (1981, 1990) and Bhatia's (1993) book length studies, which put forward models for genre analysis saw the intensification of research efforts in this area of discourse analysis. Swales' Aspects of Article Introductions (1981) extended ESP's earlier formal analysis - micro-level grammatical

features – to a more global text structure. The focus of this work was on describing the schematic sequence of the introduction of what he called the genre "of the research article". His move analysis was more focused on the formal elements of genre rather than with the factors shaping its communicative purpose or with the participants in the genre (Hyon, 1995). With the emergence of his *Genre Analysis* (1990) a text which became obligatory citation in much genre and discourse community literature (Johns, 1993:90), and with the latest, *Research Genres* (2004), he sets the standard for a formalistic approach to genre analysis of academic discourse studies**.** His position related to both the form and social functions of genres, which he describes is:

> "A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognised by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constraints choice of content and style. Communicative purpose is both a privileged criterion and one that operates to keep the scope of a genre as narrowly focused on comparable rhetorical action. In addition to purpose, exemplars of a genre exhibit various patterns of similarity, in terms of structure, style, content and intended audience. If all high probability expectations are realized, the exemplar will be viewed as a prototypical by the parent discourse community. The genre names inherited and produced by discourse communities and imported by others constitute valuable ethnographic communication but typically need further validation"
>
> (Swales 1990:58)

This definition points to four important criteria for defining a target genre. These are: communicative purposes, choice of contents, schematic structure and linguistic style (Kwan, 2005). The schematic structure dimension has been a major concern of various studies such as grant proposals (Connor & Mauranen, 1999), job advertisements (Bhatia, 1993) application letters (Henry & Roseberry, 2001) and genre parts such as introductions in RAs (Swales,1981, 1990; Samraj, 2002). The linguistic aspect too has gained the attention of genre researchers (Peterlin, 2005; Duenas, 2007; Hyland, 2008,

2002). It is this schematic and linguistic dimension to a particular genre- the RA - that I am concerned about in this study.

The communicative purpose of discourse, shaped by the discourse community participants, is also at the heart of Swales' concept of genre. In other words, it is this purpose related rationale which gives rise to the conventions of a genre (Mavor & Trayner, 2001). Askehave and Swales (2001) have argued that, communicative purpose is often a criterion for identifying a genre but it is not always clear what the communicative purpose of a text is. As they argue, the communicative purpose for a set of texts can be too general to be useful for genre categorization. In addition, Askehave and Swales have also argued that texts can also have "complexly layered" communicative purposes, only a few of which are officially acknowledged and recognized. Beyond the more obvious general communicative purpose of the text analysed, there can be other more specific ones that are elusive of the writing researcher (cited in Samraj, 2004) as Samraj had discovered in her work that in Conservation Biology, other than synthesizing research on a particular environmental issue, another communicative purpose appears to be identifying an environmental problem and providing a solution. In Wildlife Behaviour, on the other hand, a communicative purpose is to evaluate the research already conducted in an area and to suggest future research (Samraj, 2004).

Swales' position towards genre appears to be one that embraces an eclectic approach, focusing on both form and social function. Not to be misconstrued, he emphasizes that the essence of genre and its communicative significance do not reside in the text alone: "it is not only the text that we need to understand", he says, "but the roles texts have in their environments; the values, congruent and conflictive, place on them by occupational, professional and disciplinary memberships; and the expectations those

members have of the patternings of the genres they participate in" (Swales,1985: 219 in Mohd Faiz, 1998: 41).

In his 2004 work, Swales, appears to reluctantly propose a new understanding of genre in a suite of six metaphors, mostly borrowed or adopted from others. These six , he claims, cumulatively combine to give an adequately rich, multifaceted perspective on genre and is shown below.

Metaphors		**Variable outcomes**
Frames of Social Action	--------	Guiding principles
Language standards	--------	Conventional expectations
Biological species	--------	Complex historicity
Families and prototypes	--------	Variable links to the centre
Institutions	--------	Shaping contexts:Roles
Speech Acts	--------	Directed discourses

In theory, it is expected that, ESP genre analysis with its emphasis on applied pedagogical concerns should focus on both the social aspects as well as the formal aspects of texts. However, in practice, many ESP scholars have, in the early years, concentrated more on describing the formal characteristics of genre while paying less attention to the specialized functions of texts and their surrounding social settings (Hyon, 1996: 695). This preoccupation with formal text analysis might be understandable, especially among ESP practitioners who "are amateurs in ethnography, but experts in such areas as discourse, course design and programme evaluation" and an ethnographic shift "might actually lead … to some qualitative decline in ESP research standards" and lead to detachment from ESPs" traditional anchor in linguistics"(Swales 1993: 100-1, cited in Mohd Faiz, 1998: 43) Much as Swales would want to

contextualize genre research, he cautions that, too heavy an emphasis on ethnographic studies into target discourse communities will mean going overboard, as this would necessitate considerable specialist knowledge and skill on the part of the researcher, as he expresses this concern:

> Contextualization as a pragmatic methodology explores the singular and the particular. It places the instance before the model, and the concrete before the abstract. However this is not the only possible way proceeding. There may be times when it is more enlightening (and more comfortable for us) to place the model before the instance, and the abstract before the concrete. We need both of course, but not necessarily in a fixed order which requires all our starting point to be grounded in ethnography
>
> (Swales, 1993:101 in Mohd Faiz,1998: 43)

However, scholars have started to go beyond merely text analysis. Swales himself has adopted ethnographic methods to text analysis. He now advocates that genre analysts go beyond structural and stylistic examination and engage in "extratextual excursions" in order to fully understand institutional environments shaping texts. In his work "Other floors, other voices: a textography of a small university building" (Swales,1998), in pursuing an excursion into the building in which he works, where each of the three floors are argued to represent a different discourse community and a set of genres, he has utilized in addition to text analysis, a variety of fieldwork methods, including interviews, photographic work and historical investigation of the building. Hyland (2000), another prominent genre analyst, also uses multiple sources of evidence and a combination of techniques to analyse his texts. In addition to a corpus of representative texts, interview transcripts from disciplinary informants obtained through a series of wide ranging and relatively unstructured interviews, are used to provide an understanding of how insiders view their literary practices and how they see their participation in their disciplines. In addition to that expert self-reports concentrating on particular texts and text features are also used to provide greater understanding of how

the actual users of the genres see and respond to the target features. This tradition is gaining strength, and a recent study that I noticed employing a similar approach is that of Flowerdew and Wan (2010) in which the authors look at linguistic and contextual elements of the genre of the company audit report.

The importance of genre knowledge in helping language learners to understand and master academic, professional of educational discourse has been widely acknowledged for more than a decade (Ruiying & Allison, 2004). The key benefit of a genre driven pedagogy is that of getting student-apprentices to explore, reflect upon and better articulate the ethos of their particular discourse communities (Swales, 1990: 12). A genre approach to language teaching attempts "to teach learners the main parts, 'moves' of a genre and the most common linguistic features associated with the moves. The rationale behind a form – purpose - explanation analyses like in the move analysis is the genre based educational potential of such theories and these have resulted among others, in teaching approaches in ESP and EAP and in the publication of ELT course books" (Henry & Roseberry, 2001: 156). In addition, EAP instruction and materials development have to a large extent been affected by the results of analyses of both oral and written discourses that students need to learn to produce and comprehend, and our understanding of textual norms in different disciplines enables us to provide instruction that better prepares students for the disciplinary communities in which they are seeking membership (Samraj, 2002).

In this regard, Swales' (1991) model, for instance, has had a major influence on research and the teaching of writing in EAP. The advantage is that the moves and steps seem to reflect a reality in text and in the way in which writers approach the task of writing up their research article. From a pedagogic point of view it is possible to convert

the analysis very readily into teaching material that provides a way into both the organization of writing and the relevant language forms (Dudley- Evans & St. John, 1998). For instance, Nwogu's (1997) findings can be used to enhance writers' understanding of the organization of discourse and at the same time, demonstrate how the overall move analysis can give insights into the shape of texts. Further, Badger's (2003) study of law reports suggests that teachers need to make their students aware of the communicative purpose for which they might read law reports and how achieving this purpose can be aided by an understanding of some features of the text structure and lexico- grammar of law reports.

Caveats have however been leveled against using genre-based exercises as a teaching tool. The most common is that although prototypical structures do exist, generic structures should not be considered as rigid and prescriptive models for students to emulate blindly (Swales, 1990; Kay & Dudley-Evans, 1998, cited in Flowerdew, 2000). Rather, genre as a concept should allow for variations in the prototypical structure as well as the linguistic forms, due to cultural and idealogical factors, and the communicative purpose of the discourse community in which it is embedded (Flowerdew, 2000).

2.2.2 Discourse Community

Canagarajah (2002) explains that it is now well recognized that simply teaching the linguistic/textual grammar or the cognitive processes of writing are insufficient to make a student competent in academic writing. We have moved, he says, beyond the product and process paradigms to situate these pedagogical activities in specific discourse communities (DC) one is writing in/for. The emphasis on the need to understand the values, conventions and practices accompanying the rules of communication as opposed

to an emphasis on the abstract rules tells us that students need an understanding of the cultural assumptions and social practices of disciplinary communities in order to communicate effectively to this audience. Therefore, to develop communicative competence one has to engage with the community in question and become familiar with the nuances of its cultural practices and linguistic usage. It is this realization that has encouraged schools like EAP and genre analysis to study the more specific registers and conventions accompanying text construction in different disciplinary communities.

This construct basically attempts to show that "individual writers compose not in isolation but as members of communities whose discursive practices constrain the way they structure meaning" (Nystrand, Green & Wiemlt, 1993: 289, cited in Hyon, 1995). This notion of a DC thus locates writers in particular contexts to identify how their rhetorical strategies are dependant on the purposes, setting and audience of writing. Discourse communities are not monolithic and unitary. They are composed of individuals with diverse experiences, expertise, commitments and influence. The notion of community does foreground what is an important influence on social interaction. It draws attention to the fact that discourse is socially situated and helps to illuminate something of what writers and readers bring to a text, emphasizing that composition and interpretation both depend on assumptions about the other (Hyland, 2000). In other words, the discourse community provides a set of norms or conventions concerning textual forms, roles and acts. Writers internalize these norms and draw on them and on their readers' awareness of them, in producing texts, and readers draw on these norms, and writers' awareness of them, in interpreting texts. When they do this, the text reproduces the norms in the discourse community (Myers, 1999).

By discourse community Swales refers to “socio-rhetorical networks that form in order to work towards sets of common goals” (1990: 9) and his generally accepted six defining characteristics of a discourse community are:

1. Common goals – discourse communities share common purposes, “the communicative needs of the goals tend to predominate in the devlopment and maintenance of its discoursal characteristics (Swales, 1990).
2. Participatory mechanisms- discourse communities also have participatory mechanisms through which members interact. This aspect of having participatory mechanisms reinforces the interrelated importance of practice with communication (Mavor and Trayner, 2001).
3. Information exchange - discourse communities are involved in information exchange which according to Swales implies “the uptake of informational opportunities” (Swales, 1990: 26) It is this interactive quality of the ‘uptake’ that leads to negotiations of meanings and joint learning through the exchange of information, ideas, and concepts.
4. A highly specialized terminology - discourse communities have specific terminology and lexis. It is not only the “the semantic meaning of the words” which counts, but the fact that the words “are schematically connected to form conceptualizations of reality which define the culture of the discourse community” (Swales, 1990).
5. A high general level of expertise- discourse communities have a high level of expertise in terms of changing memberships in which newcomers aspire to show themselves as credible members of the community through appropriate mastery of the discourse and practices.
6. Community specific genres- discourse communities have community specific genres.

It was established earlier that a DC establishes a number of norms and expectations. These "may involve appropriacy of topics, the form, function, and the positioning of discourse elements" (Swales,1990: 26) Members of a DC should not only possess knowledge of the relevant content, but they should also acquire suitable discoursal expertise and adhere to the guidelines of the community regarding preferred communicative styles; otherwise they may not be successful participants (Fakhri, 2004) as according to Swales (1990), the schematic structure of a particular genre is the result of the conventions of a specific DC. Swales (1990), also posits that, a study of a specific genre entails an extensive examination of the DC that originated the discourse in question. Thus, the origins of a text are not viewed as stemming from the creative reservoir of the writers mind but from the DC that initiated and uses the genre.

Further, Bazerman views genre as evolving parts of the ongoing activity of a DC (Bazerman 1988: 155, in Faiz 1998), a view that obviously suggests that it is essential to understand the DC in order to understand the contextual influences on its discourse. There is some kind of dynamic interaction between a DC and its genres and vice versa, at least as far as academic and professional communities are concerned for the discourse that one group of like minded people use defines the community and its product as well (Berkenkotter et.al, 1991: 191-2; cited in Faiz, 1998).

However, defining boundaries of any sort for a DC is problematic since such groups are "messy, ill defined and unstable" (Porter, 1998: 4 , cited in Hyon,1995) and also because, as Swales suggests, that communities may not have "material demographic or geographic substance but represent abstract collections of shared interests" (Swales,1993: 223-239). Matters are compounded by the fact that there are difficulties in identifying and characterizing communities in the context of postmodern discourses

and cultural/economic globalization (Canagarajah, 2002). Communities are more often imagined than physically constituted. This means that we may not always find a DC that is rooted in specific spatial or temporal setting. Membership may be enjoyed by individuals working in diverse settings who are still connected by their work on a common project and the information that flows between them. Communities have become *deterritorialized* - i.e., unmoored from specific locations (Canagarajah, 2002). Also, communities may be hybrid, characterized by a heterogeneous set of values and discourses. Thus one community may not be separated from another according to unique unchanging values. Members could hold diverse values and ideologies, enjoying membership in multiple communities. Therefore, it may be difficult to pin down the identity of a person as belonging exclusively to one community or as characterized by homogenous values In this age of globalization, when "we shuttle between communities and enjoy multiple memberships, it is hard to pin down any person or community as characterized by an immutable set of values" (Canagarajah, 2002: 35).

Hyland and Hamp–Lyons (2002) also caution against framing discourse communities as static, autonomous and predictable. The discursive practices of a discipline, they argue, can be influenced by a broad spectrum of participants. For example, DCs can include vocationally oriented participants such as school teachers as well as academics involved primarily in research. Furthermore, participant engagement within the DC can vary considerably as can duration of participation. Undergraduate Education students studying to be teachers, for example, may only briefly experience the discipline of Education as a field of study, a discipline which in itself includes other disciplinary strands such as Sociology, Psychology and the Philosophy of Education (Woodward-Kron, 2004).

Within the realms of academic discourse, academic disciplines are frequently described as discourse communities. The term Discourse Community foregrounds the linguistic and contextual dimensions of disciplinary knowledge. Members of discourse communities are seen to share certain language using practices, canonical knowledge and approaches to interpreting experience (Bizzell,1992 in Woodward-Kron, 2004). So, it is now a generally recognized view that academic knowledge is a social accomplishment, constituted by agreement between a writer and a potentially skeptical discourse community (Berkenkotter and Huckin, 1995; Hyland, 2000; Myers, 1990; cited in ESP 20, 2001: 305-308) This means that writers have to ensure their texts display a careful balance of factual information and social interaction, and any success they have largely hinges on an ability to strategically manipulate various rhetorical and interactive features. Readers must be drawn in, influenced and persuaded by a text that sees the world in similar ways to them. Writers therefore seek to shape their actions to these presumed understandings by employing generic structures in recognizably acceptable ways. In short, participant relationships are the core of academic discourses and such considerations of audience and purpose help distinguish both disciplines and their genres. The heart of academic writing is not some privileged representation of reality, but conversations between community-situated individuals (ESP 20, 2001: 305-308). As such, in this study I will attempt to see how the members of a specific discourse community of writers of RAs in EdP, EnP and EcP accomplish their writing task in meeting the requirements of their discourse community as a whole.

2.2.3 Genre analysis

The concept of genre has emerged as a useful framework for analyzing rhetoric, linguistics, composition studies, technical communication, and ESP, with “particular focus on the potential of genre analysis as a pedagogical tool to develop among non-

native speakers of English an ability to use it for more effective communication and as a practical tool in education especially in writing instruction" (Hyon,1995: 1). Genre as a framework for analysing non-literary texts and genre analysis as a tool for developing educational strategies is now used widely, and is seen as "a concept that has found its time" (Candlin, 1993:ix).

To write well enough to be accepted for publication, one must take into account the matrix of social and rhetorical complexities that influence researchers when constructing discourse features. The study of such features has been the focus of genre analysis. It takes into account the context and discourse community as important factors that affect how writing is measured (Swales, 1990). It explores discourse features in the broad context of the communicative event and attempts to provide the rationale of the discourse features in terms of authors' publicly retrievable intentions and institutional conventions (RuiYing & Allison, 2004). In genre analysis one argues, first of all, that, attention to writing for specific purposes is crucial, since particular tasks require additional strategies beyond general writing abilities. Furthermore, knowing the situation, context, and stimulus is important since these may elicit different types of language based on cultural differences in interpreting purpose and genre by native and non-native speakers of the language alike (Upton & Connar, 2001).

Genre analysis of texts can operate at many levels. For example, at a macro level it can analyse the overall structures of different genres and at a micro level, it can indicate the way certain grammatical features, like verb tense or voice, are used in different genres in writing, and in different places within the same genre. This study looks at both the macro and micro and levels of textual genre analysis: generic moves and steps and selected grammatical features.

This move analytic tradition has been used by many researchers in the academic setting; focusing on the academic genres such as the grant proposal (Connor and Mauranan, 1999; Connor,2000), discussion section of RAs (Holmes, 1977) abstracts (Hyland, 2000), dissertation acknowledgements (Hyland, 2003) academic book reviews(Motta-Roth, 1995), Ph.D. dissertations(Bunton, 1999). Commonly known as Swalesian genre analysis, it has as its primary goal, the analysis of the text - spoken or written (Flowerdew, 2002). It involves the making explicit of underlying principles of academic and professional discourse, some of which are general to the whole academic and professional communities and others of which are specific to a particular discourse community (Swales, 1990). It also involves the presentation and practice of certain regular patterns of text, usually referred to as moves and the practice of language realizations of these moves and other linguistic features that are characteristic of texts. This approach basically gives students the communicative ability to express their ideas in the ways assumed by their discipline (Dudley-Evans, 1997).

Generally, it is useful to think of a genre as consisting of a series of moves (Swales, 1981, 1990). A move can be thought of as part of a text, written or spoken, which achieves a particular purpose within the text. The move contributes in some way to fulfilling the overall purpose of the genre (Henry & Roseberry, 2001).A ‘move’ is a unit that relates both to the writer’s purpose and to the content that s/he wishes to communicate. For example, the move “Facilities and Activities” of a brief tourist information text describes in an interesting way what a visitor to a particular place might do. This contributes to the overall purpose of the genre; to persuade tourists to visit the site (Henry & Roseberry, 2001). A ‘Move’ can also be viewed as a functional term that refers to a defined and bounded communicative act that is designed to contribute to one main communicative objective, that of the whole text (Henry &

Roseberry, 2001). A Move is a semantic unit relevant to the writer's purpose (Mckinley, 1983 in Ruiying and Allison, 2003). Nwogu defines a 'Move' "as a text segment made up of a bundle of linguistic features (lexical meanings, propositional meanings, illocutionary forces, etc.) which [gives] the segment a uniform orientation and signal the content of discourse in it" (1997:114). Each Move is taken to embody a number of constituent elements which combine in identifiable ways to constitute information (Nwogu, 1997). Moves can vary in size, but normally contain at least one proposition. In addition they typically exhibit some internal coherence (Mauranen, 1993, cited in Connor and Mauranen, 1999). Holmes defines a 'move' as a "segment of text that is shaped and constrained by a particular communicative function" (Holmes, 1997: 325). This corresponds to Bhatia's distinction which suggests that generic or 'cognitive' structure shows the moves the writer makes in a text in order to achieve his/her communicative purpose in the genre (Bhatia, 1993: 30). These definitions indicate that the unit of Move has the advantage of capturing the function of a particular part of a text under examination. In other words, "it enables the categorization of chunks of texts in terms of their particular communicative intentions" (Ruiying & Allison, 2003: 370). In reconsidering the status of this concept, Swales (2004) makes the observation that a "move in genre analysis is a discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse. Although it has sometimes been aligned with a grammatical unit such as a sentence, utterance or paragraph, it is better seen as flexible in terms of its linguistic realization. At one extreme, it can be realized by a clause; at the other by several sentences. It is a functional not a formal unit" (pp. 228-229).

A 'step' is a lower level text unit than the move that provides a detailed perspective on the options open to the writer in setting out the moves in the direction. Bhatia (1993: 30-

31) calls this, 'strategy' and it refers to how the writer or speaker chooses to realise or execute the move. For example, the writer of the central idea in an essay introduction may choose from a variety of rhetorical options how to interest the reader, for instance, by asking a question, or by stating a fact (Henry & Roseberry, 2001). A Move can be realized by either one Step or a combination of Steps. This two-layer analysis in terms of Move and Step is considered a robust method of genre analysis. The concept of Move captures the function and purpose of a segment of text at a more general level, while a Step spells out more specifically the rhetorical means of realizing the function of a Move. The set of Steps for a Move is the set of rhetorical choices most commonly available to authors to realize a certain purpose. The order of Steps presented in each Move only shows a preferred sequence for the choices to occur when in combination (Ruiying & Allison, 2003: 370).

2.3. Move Analysis of RAs

Publishing a research paper is a "rite of passage" in a professional career (Swales, 1984, cited in Arvay Tanko, 2004) and an English language publication in a prestigious journal is the ultimate proof that a researcher has been accepted by the international academic discourse community and in order to be approved for publication, it has to conform to established norms that prescribe content, style and rhetorical structure (Arvay & Tanko, 2004). The RA is, in essence, a codification of disciplinary knowledge, where writers seek to persuade their communities to accept their claims and certify them as recognized and legitimate knowledge (Hyland, 2000). Because of its status as the pre-eminent academic genre- in terms of its role as a vehicle for the generation of knowledge, on the one hand, and because of its gate-keeping function, as an indicator of academic achievement and professional success on the other hand - the RA, as Fowerdew (2002) notes, has commanded the greatest amount of attention among

academic discourse analysts, genre analysts in particular (e.g.Bazerman,1998; Berkenkotter & Huckin, 1995; Brett, 1994; Holmes, 1997; Hopkins & Dudley-Evans, 1988; Swales, 1981, 1990; Hyland 2000, 2002). A number of studies have been conducted on various aspects of the research article genre, utilizing some kind of 'move analysis' (e.g. Hopkins and Dudley-Evans, 1988; Nwogu, 1997), providing valuable insights into the rhetorical structure of individual sections of RAs in various disciplines. In spite of some limitations, Swales' analytical framework and other researcher's work in move analysis have been essential in popularizing the importance of understanding how RAs are constructed.

2.4 Studies on Research Article Abstracts

Prior studies on abstracts have focused on both rhetorical moves and linguistic features found in this genre both within and across disciplines and cultures. An important study of abstracts in specific disciplines is that of Salager-Meyer (1990) on the rhetorical structure of medical English abstracts. In this study, the IMRD structure is used to evaluate the quality of Medical English abstract. This study, which sets the groundwork for moves analysis of journal abstracts examined the moves of 77 medical English abstracts written from 1986-1989 taken from 37 different medical journals and were from three types of texts: research papers, case reports, and review articles. The study was conducted to find out what organization practices differentiate well-structured abstracts from ill-structured ones.

The first factor that makes an abstract well structured is to have all the obligatory moves with the IMRD pattern. The second factor was sequential order as a way to define a well-structured abstract. For example, abstracts in which the Results move was given

before the Methods move were noted as being poorly constructed because this was assumed to be an illogical step, disturbing the normal progression of content. The third factor that caused an abstract to be well constructed was paragraph unity. It was posited that a poorly structured abstract was one that did not contain one or more of the three factors that produce a quality abstract. Their results show that the number one cause of a poorly structured abstract was the absence of a move. Also essential in the rhetorical structure of abstracts is the paragraph where no conceptual overlapping should be observed from one paragraph to another (Salager-Meyer, 1990). The author believes that the discoursal flaws of the poorly structured abstracts hinder comprehension.

Bhatia (1993) states that abstracts provide a summary of the RA and uses the overall organization of the RA to arrive at the rhetorical moves found in abstracts: introduction (purpose), method, results and conclusion.

Move 1 Introducing Purpose: This move gives a precise indication of the author's intention, thesis or hypothesis which forms the basis of the research being reported. It may also include the goals or objectives of research or the problem that the author wishes to tackle.

Move 2 Describing Methodology: In this move the author gives a good indication of the research design, including information on the data, procedures or method used and , if necessary on the scope of the research being conducted.

Move 3 Summarising Results: This is an important aspect of abstracts where the author mentions his observations and findings and also suggests solutions to the problem, if any, posed in the first move.

Move 4 Conclusion: This move is meant to interpret results and draw inferences. It typically includes some indication of the implications and applications of the findings.

Hyland (2000), examined 800 abstracts from the 1997 issues of ten journals from eight disciplines using the Introduction-Purpose-Method-Product-Conclusion framework. The results indicate that virtually all papers included a Product statement which foregrounded the main argument or findings. The most frequent move structures in the corpus were the sequences Purpose-Method-Product, and Introduction-Purpose-Product. While these were the dominant sequences using these four moves, there was some generic variation, principally with Purpose following Method in the first pattern and preceding the Introduction in the second. Some longer abstracts, mainly in the sciences, also recycled moves throughout the abstract, often in order to highlight a series of results by presenting them as outcomes of different purposes or methods. There were also a high number of two - move abstracts, most often where writers presented their purpose and product only, presupposing the background to be recoverable by an informed audience.

Hyland found considerable disciplinary variations in move structuring in the corpus. There was a general preference for the Purpose-Method-Product pattern among the physicists and engineers and the Introduction-Purpose-Product model among the humanities/social science writers. Biologists fall between the two groups. This differences, as Hyland says, “indicate that writers in the soft knowledge domains saw a greater need to situate their discourse with an Introduction, while writers in the hard knowledge fields tended to omit this move in favour of a description of the Method” (Hyland 2000:70).

Hyland also notes that writers in the hard sciences draw on the anticipation that readers will be able to determine the value of the research, the productivity of the procedures, the theoretical rationale of the study, and its significance to the incremental development of knowledge. So, by opening the abstract with a Purpose move, or occasionally a Method statement, a writer can explicitly signal these assumptions, pointing not only to the shared knowledge required to unpack the text, but also to shared membership of a community. The presence of lengthy Introductions in the abstracts of the soft sciences demonstrates attempts both to accommodate and engage explicitly with the reader. So, because research in the humanities and social sciences tends to be more diverse and have more permeable boundaries, statements which function to provide a general context were more common.

In the science and engineering disciplines the Method move occurred most frequently after the Product and Purpose moves and sometimes dominated the hard knowledge abstracts. In cases where what was done was seen as more important than what was found, it replaced the Product move altogether. But more often, Method was handled briefly and occasionally merged with the Purpose move. Method sections were also evident in the more empirical social science studies. Method moves were rare in philosophy abstracts. Setting the scene for readers is a far more significant rhetorical act in philosophy and Introductions occurred in about 80% of papers often with only a Product move or as part of a three Introduction-Purpose-Product sequence. Finally, Conclusions seemed to be an optional extra in all disciplines principally in biology and marketing. Hyland concludes that a writer's choice of moves is more centrally based on a kind of virtual dialogue between the individual practitioner and his/her community of peers, a decision to use the same agreed upon discipline specific standards and practice of method choice, reasoning and argument that have evolved within a research tradition.

Stotesbury (2003) in analyzing abstracts from a variety of journals in the domain of humanities, social sciences and natural sciences found them to display a great deal of variation in their length, the editorial policy of the journals keeping the abstract length within a journal fairly consistent. Differences in the rhetorical organization of the abstracts were also discovered as literary abstracts usually showed a different rhetorical structure. In her study most literary abstracts seemed to be organized in terms of topic, argument and conclusion.

Martin (2003) found that the four basic structural components that typically constitute an RA (I-M-R-C) were all present to some degree in the 80 English abstracts belonging to four different journals in the field of experimental branch of social sciences, specifically, experimental phonetics and experimental psychology in English that were analysed. The Introduction unit was the most frequent and is an obligatory element. Also found was that most of the English abstracts presented the four units at the same time. It was also observed that the linear sequence which these structural elements follow had the sequence: Introduction + Methods + Results + Conclusion except in two cases which had the I+M+C+R sequence.

In this analysis it was found that all the English abstracts were constituted by one paragraph except on three occasions in which the abstracts were made up of two paragraphs and on one occasion by three paragraphs. In none of the examples analysed was conceptual overlapping observed from one paragraph to the other.

Lores (2004) analysed 36 abstracts taken from four prestigious publications in the field of linguistics - *Journal of Linguistics, Applied Linguistics, Linguistics and Journal of Pragmatics* revealed three different types of structure:

1. **The IMRD structure**

   Section 1: (Introduction)

   Section 2: (Methods)

   Section 3: (Results)

   Section 4: (Discussion)

2. **The CARS structure** which matches the indicative type of abstract- In this structure no mention of the methodology undertaken is mentioned. First, a general indication of the context in which the research was carried out is given (e.g. previous research or the scope within which the present study has to be contextualized). Then reference may be made to any lacunae in the knowledge of the question or indeed some kind of counter claim may be made against it. The final section usually announces the principal findings or the way in which the research is going to fill the gap found or answer the research questions. This type of abstract then indicates the scope of the paper and outlines some general findings thus fulfilling the function of the indicative abstract thus mirroring the structure, not of the whole RA, but of the introduction section in RAs, which Swales (1990, p141) described as the CARS model .

3. **Combinatory Structure** - This type of abstract did not match ether of the two structures indicated above. It starts with a CARS type of structure in which an IMRD model is embedded. Section 1 corresponds to the CARS move of "establishing a territory", where previous research is reviewed; section 2 corresponds to the "establishing a niche" move, where a general assumption is disputed and Section 3 corresponds to the "occupying a niche" section but abandons the indicative type and moves on to the information type. Thus the author

differentiates three subsections, this time mapping on to the IMRD structure quite closely: in Section 1 the general purpose of the paper is stated(Introduction); in Section 2 the methodology is briefly explained(Methods) and in Section 3, the findings are summarized. This, the author says, corresponds to the mixed type of informative-indicative abstracts.

Although the majority of the abstracts analysed, displayed the rhetorical structure commonly accepted to be the canonical global organization of abstracts, one which mirrors the organization of the RA, a significant percentage display a different structure, one which matches the organization of the Introduction section of RAs – the CARS structure. Moreover, an analysis of the moves indicates the existence of a minor rhetorical organization which mixes both types which she calls the "combinatory type. The three types fulfill three different functions, generally acknowledged for the RA abstract: the informative, the indicative, and the informative-indicative function and this fact that there seem to be distinct features fulfilling different functions may explain why previous studies did not agree on what rhetorical organization of abstracts is and described it in very flexible terms (Lores, 2004)

Samraj (2002) in fulfilling the need for cross disciplinary RA abstract research analyses abstracts using the *Situating the research-Purpose-Methods-Results-Conclusion* framework, from two related fields, Conservation Biology and Wildlife Behaviour, both components of the overarching, inter-discipline, Environmental Science. Abstracts from the two disciplines do not appear very dissimilar in terms of the rhetorical moves that characterize them. However, though the same five moves are found in both sets of texts, there are subtle differences in the constituent parts of some moves, in the frequency with which certain moves appear, and the textual space they occupy.

Disciplinary affiliation does not affect the frequency with which some moves appear in this genre. *Results* appear consistently in the abstracts and this move is obviously obligatory for this genre in these disciplines as it is the most important contribution to the ongoing disciplinary discourse. The statement of the goal of the paper is equally important in the conservation Biology abstracts, but this is not the case with the Wildlife Behaviour abstracts. The methods move is equally unimportant in the abstracts from both disciplines.

The most striking disciplinary variation in this genre is the importance attributed to the situating-the-research move. Though this move is commonly found in the Conservation Biology abstracts, it is found in fewer than half of the Wildlife Behaviour abstracts. Very little attempt is made in the first move of the Wildlife Behaviour abstracts to explicitly persuade readers about the value and interest of the research being reported. In contrast a large amount of rhetorical work is performed in the Conservation Biology abstracts to enhance the importance of the research being reported. This is most commonly achieved by portraying the dire state of affairs of certain species and their habitats. The abstracts fulfill their persuasive function by highlighting a problem in the world. Not only do Conservation Biology abstracts provide background information relevant to the study being reported before stating the goal of the study, this background information is also highly negative. The crisis nature of the situation described seems to provide a justification for the study. The background information provided in the Wildlife Behaviour abstracts, on the other hand, seems to mostly situate the study within the relevant context of animal behaviour and theoretical considerations.

Both sets of abstracts have a concluding move and have subtle differences across disciplines. In the Wildlife Behaviour abstracts, the conclusions are generally

implications of the result reported. The conclusion extends the scope of the results obtained in a particular study by relating the specific results to what is already known in the field. Explanations for the results obtained may also be provided in the conclusion. Implications are also found in the concluding move of the Conservation Biology abstracts. The concluding move presents recommendations for management actions. These recommendations are in fact a certain type of implication of the results. In Conservation Biology, delineating actions to be pursued is a worthwhile implication of the study. In Wildlife Behaviour, recommendations concerning either the real world or world of research do not appear in the conclusion. In a few Conservation Biology abstracts, a generalization based on the results is coupled with a recommendation for future conservation action.

Though abstracts from both disciplines contain the same types of moves, the Wildlife Behaviour abstracts contain a smaller number of moves. It was found that the results move is the most important part of the abstract. The results also show the method move as the least important to the structure of the abstract and the abstracts do not necessarily provide a simple synopsis of the RA they accompany. Even texts from closely related disciplines vary in their generic structure. The most important disciplinary differences are in the *situating the research* move and conclusion moves. The Conservation Biology abstract provides more explicit persuasion in the situating move by problematising the real and research worlds within which the new research is situated. In Wildlife Behaviour there is less of an attempt to situate the research being presented and, if textual space is devoted to situating the research within a larger context, it is often the context of accepted knowledge of animal behaviour and previous research. It is noteworthy that it is the applied discipline which performs more justification for the research, particularly in terms of relevance to real world conditions. In the conclusion

move, the applied discipline makes a connection to the world of conservation by presenting management recommendations. The first and last moves (situating the research and conclusion) result in a problem solution framework within which the new study is placed. In contrast there is no problem- solution framework in the Wildlife Behaviour study.

2.5 Studies on Research Article Introductions

The function of Introductions is to contextualize a research study being presented in the relevant literature, claim its novelty and present the main features of the study (Swales, 1990) and: "The opening paragraphs require the writer to make some decisions about the amount and type of background knowledge to be included, an authoritative versus a sincere stance, … the appropriateness of the appeal to the readership, and the directness of the approach" (Swales, 1990: 137).

Swales, in *Aspects of Article Introductions* (1981), examined the discourse structure of a corpus of 48 introductions from three different disciplines and separated the introduction into the following four major sequenced moves and various sub-moves.

Move 1: Establishing the field: (Showing centrality; stating current knowledge; and ascribing key characteristics)

Move 2: Summarising previous research

Move 3: Preparing for present research by: Indicating a gap; question raising/extending a finding

Move 4: Introducing present research by stating the purpose and describing present research

This work was significant in that it offered an elegant model for analysing texts according to a global structure (Hyon, 1995). This analysis has been highly influential in shaping subsequent approaches in text analysis in ESP. However, following observations on the difficulty in demarcating moves 1 and 2 in Swales Model (Bley-Vroman & Selinker, 1984; Crookes,1986, cited in Nwogu, 1997), Swales, in his later work (1990) conflated the two Moves into one thus binging the number of Moves in the Introduction section to three. It is in this work, that Swales created the 'Create a Research Space (CARS)' model. In it, he distinguishes three types of moves, each containing a given number of steps" (Swales, 1990:141):

Move 1 Establishing a Territory (establishing the topic/announcing the importance of the field: asserts the importance of the topic of study)

Step 1 Claiming centrality and/or(assures that the article developed on the topic is worth investigating and the field is well established
Step 2 Making topic generalizations and/or (gives overviews about the subject of the study
Step 3 Reviewing items of previous research (reports previous research deemed to be relevant to the topic being discussed)

Move 2 Establishing a Niche (justifying /preparing for the present study: draws attention to weakness in the existing literature and asserts that a particular research question requires an answer)

Step1A Counter –claiming or
Step 1B Indicating a gap (stating that previous work suffers from limitations) or
Step 1C Question raising
Step 1D Continuing a tradition (weaker challenge to the previous research)

Move 3 Occupying the Niche (describing/ introducing the present study**)**

Step 1A Outlining purposes (indication of main purpose(s) or
Step 1B Announcing present research (describe the main features of research)
Step 2 Announcing principal findings(summarizing announcement of principal findings, stating that disciplinary divergence was observed)
Step 3 Indicating research article structure (indicating the structure and occasionally the content of the remainder of the RA)

Nwogu (1997), in identifying the complete rhetorical structure of medical RAs through the use of Swales' model found the following moves in the introductions:

Move 1: *Presenting background information*. This is an initiation move. It provides background information which explains the topic of discourse either by presenting knowledge which is regarded as having been true for a long period of time or by highlighting the main research problem or both. The information contained in move 1 can be persuasive (Swales 1981,). It could also be anecdotal and didactic, presenting sequential account of events.

Move 2: *Reviewing related research*, contributes to the development of discourse in the experimental research paper by providing information against which the research being reported can be evaluated. It does this by placing the new research within the context of ongoing research in the field. The aim is to indicate that the research derives from a lively tradition of established works in the field, some of which have left gaps in understanding. Therefore, Move 2 contains two units of information, thus: reference to previous research and reference to limitations of previous research.

Move 3: *Presenting new research* functions primarily to introduce the new research, mainly by stating research purpose. In addition to that the move may also present information which indicates the primary methods of investigation adopted in the study. In some cases, reference may also be made to sample data on which the study is based. However, the dominant constituent element or sub - move in Move 3 is 'reference to research purpose'.

Posteguillo (1999) in analyzing a corpus of 40 different RAs using Swales' CARS model selected from three different academic journals in computing found the following moves in the introductions section.

Move 1 step 1(*appeals to the discourse community whereby members are asked to accept the research about to be reported is part of a lively, significant or well-researched area)*

Step 2 within the same Move 1 (*making topic generalizations*) is frequently used by authors of computer science RAs and frequently represents the opening remarks in these papers.

Move 2 Step 1A, in Move 2 (*counter claiming*) seems to be systematically avoided by authors in this field. Counter claiming is not regarded as a proper way to introduce the problem which motivates the research in question. Instead, Step 1 B (*indicating a gap*), appears as the preferred means of presenting the need for the work. Steps 1C (*question raising*) and 1D (*continuing a tradition*) are also used, although less frequently. An important distinctive feature of Move 2 is its cyclical nature, that is, it is normal to find this move repeated in a series of instances throughout the same introduction, usually alternating with steps in Move 1. This cyclical pattern of Move 2 is clearly typical of introductions in RAs in computer science where 75% of the corpus show a cyclical pattern for Move 2.

Move 3 Step 1A (*outlining purpose*) .However the most frequently used opening of Move 3 is Step 1B (*announcing present research*). Step 2 in move 3 is also quite widespread in its use among academic writing in computer science.

Posteguillo (1999), also notes the following regarding the application of the *review of previous research* move (Move 1, step 3 in the CARS model). Swales considers the first two other steps in Move 1 (*claiming centrality* and *making topic generalization)* as optional, but the third step, *review of previous research*, he defines as obligatory. All authors in all areas of investigation have to comment on past research work before describing their own. Computer RA introductions do use the claiming centrality and making topic generalization steps on an optional basis. But the review of previous research step is not always used as Swales contends it should be. Another point related to the *review of previous research*, is that the less frequent appearance of this rhetorical shift implies a proportional reduction in the use of the *counter claiming move.*

Arvay and Tanko (2004) in comparing theoretical RAs in English and Hungarian analysed 20 RAs from the *Journal of Linguistics*, *Linguistic Inquiry* and *Natural Language and Linguistic Theory* published between 1995 and 2000. The authors used a modified version of the CARS model as it failed to account for two recurring features in the initial analysis of the corpus. The authors argue that, Move 1 and 3 were found to be more complex than what Swales' specification suggests. Consequently, the model was modified with the addition of one step to each of these moves so as to describe more accurately the rhetorical acts within the introductions. The two steps added are M1 S2B *Examples* and M3 S1C *Analytical detail.*

Three move types described by the CARS model were found to be unevenly represented in the corpus. Move 3 (*Occupying a niche*) was present in all the introductions, in one introduction no Move 1 (*Establishing a territory*) was found and in another seven no Move 2 (*Establishing a niche*) was identified. Move 3 is the most common type of move, followed by Move 1 and Move 2. The communicative purpose considered most

important by the authors are the detailed description of their own research and the presentation of the field to which their findings bear relevance.

Kanoksilapatham (2005), in identifying the complete rhetorical structure of biochemistry RAs through the use of Swales' move analysis found the following moves in the introductions:

Move 1 : Announcing the importance of the field

By Step 1: Claiming the centrality of the topic (assures that the article developed on the topic is worth investigating and the field is well established)

By Step 2: Making topic generalizations (gives overviews about the subject of the study)

By Step 3: Reviewing previous research (reports previous research deemed to be relevant to the topic being discussed)

The researcher also found that of all variations of Move 1, Step 3 is invariably present and considerably recognized throughout the biochemistry introductions, resulting in the "cyclical" or "recursive" occurrence of this move and reflecting the richness of current literature in biochemistry. In contrast, she says, introductions in computer science do not always have Move 1 Step 3, most likely due to the relatively short history and heavy commercial involvement of computer science. The contrastive findings about the use of Move 1, Step 3 suggest that disciplinary variation is discernable.

Move 2: Preparing for present study draws scientists attention to weakness in the existing literature and asserts that a particular research question requires an answer. The data also showed that Move 2 had 2 variations: Step 1: Indicating a gap and Step 2:

Raising a question. Move 2, step 1 was found to be pervasive in the corpus while Move 2 Step 2 was not frequently used as Move 2, Step 1. Similar to Move 1, the cyclical patterning of Move 2 was common suggesting that the study being presented is complex, accounting for various gaps of previous research.

Move 3: Introducing the present study consists of three steps: Step 1: Stating purposes (is characterized by a statement of purpose(s) of the study or by a explicitly stated research question). Step 2: Describing procedures (focuses on the main features of the study being reported) and Step 3: Presenting findings (announces the principal findings of the study)

Move 3 Step 3 was frequent in biochemistry introduction indicating that announcing the important results of the experiments is not withheld until the Results and Discussion sections. However, even though the principal finding is announced, the information concerning the finings is kept to a minimum, consisting of only a brief and specific statement of principal findings. Move 3: Step 3, which serves as a preview of the entire findings in the introduction section is probably used as an attention-catcher device, motivating the readers to read further to understand how the researcher(s) arrived at the finding.

On salient feature of move structures in texts is the pattern of cyclical configuration of the moves. In this study, it was noted that the introduction section generally conformed to the Swales' rhetorical model in terms of the presence of the moves and to their sequence. There was however a departure from Swales' model in "the patterns of cyclical configuration between Moves 1, 2 and 3. That is, each move can recur in

introductions a number of times depending on the complexity of the study being presented" (Kanoksilapatham , 2005: 286).

Another feature is the absence or frequent use of a particular move and/or step. In this regard it was found that some of the articles in the corpus did not include Move 2 Step 2 of the 1990 model. A probable explanation according to the author is that, if the study continues established research, Move 2 might not be used because the scientists assume that the readers understand that the work presented is conducted in the same manner as previous studies. Meanwhile the frequent use of Move 2, Step1: Indicating a gap in the corpus, indicates the scientists' preference to move the field forward by filling gaps in previous research. Also, Move 3 in biochemistry RAs displays another distinct departure from the 1990 model, in that no explicit outline of the structure of the RA was found. The writer concludes that disciplinary variation was discernible and therefore modifications to Swales' model of Introductions are vital to make the model proposed appropriate for the specific discourse of biochemistry.

Samraj (2002) in looking at differences in RA introductions across disciplines, namely, *Conservation Biology* and *Wildlife Behaviour,* employed the move analysis procedure using the CARS model on twelve Conservation Biology and Wildlife Behaviour articles and discovered the following:

Move 1

Six Wildlife Behaviour introductions included centrality claims and half of these assert the centrality of the topic by maintaining the topic's importance for animal behaviour and the other half by referring to research activity in the area. The centrality claims were mostly found at the beginning of Move 1 which mainly comes at the start of the

introductions. She also found explicit rhetorical work performed in the beginning of Conservation Biology Introductions. Almost all the introductions include at least one instance of the step centrality claim. Ten of the 11 introductions with centralitry claims assert the worthwhileness of the broad research area in terms of the importance of the topic in relation to the real world. Six introductions established the centrality of the research being reported by referring to current research in the area. Only one of these establishes centrality of the topic solely in terms of research in the field. All five others that do refer to research activity in the area also connect the study to be reported to important environmental concerns. This is mainly carried out by pointing to problematic aspects of the environment, current conservation practices and models and methods being used in conservation management. Centrality claims can also specify what is important for conservationists to be concerned about given the negative condition of the environment. As far as the centrality claim is concerned Conservation Biology tends to assert the importance of the research being reported more in terms of the phenomenal world than the epistemic world. One reason for this, she says, could be its merging status, since *Conservation Biology* does not have a substantial body of established research to draw on as new work is conducted and established. In this field, according to her, it is not previous research with its inadequacies and gaps that is propelling new research. Rather, it is a need in the real world that is influencing the choice of area of research.

The researcher also found difficulty in distinguishing steps 2 and 3 of Move 1, a problem not alluded to in previous research. There appears to be no clear basis for distinguishing topic generalizations from reviews of previous research. Should topic generalizations be distinguished from literature reviews through level of specificity in the discussion? If so, what level of specificity should distinguish the two steps? Or

should the presence of citations be used as a determining factor?, she asks, and posits that this is not a satisfactory criterion since what appears to b a topic generalization may or may not be followed by citations. Since topic generalizations and reviews of previous research seem to have comparable functions and their main difference seems to lie in their levels of specificity, she did not make an attempt to distinguish these two steps in the analysis. Moreover, topic generalizations without a citation were quite uncommon in both the Conservation Biology and Wildlife Behaviour introductions. Topic generalizations and literature reviews form the crux of the first move and were found in all 24 RAs analysed.

The analysis has also indicated that discussion of previous research is often undertaken for a particular purpose, such as to provide support for the topic generalization or centrality claim being made or to justify the gap created. Moreover the review of literature is not just limited to Move 1 and, in fact, can be found in all the three moves, serving very different rhetorical functions in each. Though this cyclical pattern was found in some of the *Conservation Biology* and *Wildlife Behaviour* introductions, a number of introductions contain a hierarchical structure where the discussion of previous research is embedded within one of the steps in Move 2.This discussion appears after one of the steps belonging to Move 2, such as specifying a gap and it provides support for the claim of a gap or even gives a partial answer to a question raised. Literature reviews can be said to be part of the step indicating a gap even when they appear before the gap when their sole purpose is that of establishing the niche. In such cases, this step appears to belong rhetorically to the move of establishing a niche and not the first move of establishing a territory. Positing a cyclical structure of literature review and a step in Move 2, such as indicating a gap implies equal stature for both steps. In her analysis, she found the literature review subordinated to the goal of a

step from Move 2. In fact, in the *Wildlife Behaviour* introductions there are a significant number of instances where a review of literature follows a statement that establishes a niche for the author(s) to fill. It seems that the literature review or discussion of previous research can function as the realization of a number of steps such as topic generalization and gap indication. Literature review also plays a significant role in the third move, especially in the *Wildlife Behaviour* introductions. Referring to previous research then does not have the sole function of a plain review of literature. This is a step that functions not just as a realization of Move 1.”establishing territory”, but can also be subordinated and be a realization of one of the constituent steps in another move., she opines.

Move 2

Move 2 is clearly present in *Wildlife Behaviour* introductions. Ten of the introductions create a niche for the research being reported by pointing out a gap in earlier research. This gap in research can also be established by the author(s) highlighting the contradictions among the findings from earlier studies. In addition to indicating a gap in earlier research in terms of untested assumptions, or lack of knowledge about a certain wildlife behaviour, writers of *Wildlife Behaviour* RAs also maintain the need for their research through what she calls ‘positive justification’; where writers explicitly provide positive reasons for conducting the study. In two of the *Wildlife Behaviour* introductions, the writers directly state the value of the project reported on. In another three introductions, the authors assert the merits of their choice of species for studying a particular animal behaviour. Though these positive justifications are not very common in these introductions and do not appear without the more common gap indication, they appear to represent an additional way of establishing a niche in the research arena. This step, positive justification, appeared in Move 2 in both texts analysed in this study.

The “indicating a gap” step is also most often used in the *Conservation Biology* introductions. Half the introductions indicate a gap in existing research in order to justify the research being reported. A number of other introductions, however, justify the author’s research by stressing the nature of environmental problems in the real world. Authors may also use what is needed to alleviate an environmental problem as a way of justifying the research to be reported. In nine out of 12 introductions, the research is justified in terms of problematic environmental situations and what needs to be one in terms of management. The researcher believes, that these introductions justify the research by creating a gap in real world conservation practices and thus are quite different from the *Wildlife Behaviour* introductions which create the niche in terms of gaps in research. Several introductions include justifications for the studies both in terms of the real world and the research world. In fact, only two introductions justify the current research solely through a gap in previous research.

Move 3

Step 1 of Move 3, *outlining purposes or announcing present research* is present in all *Wildlife Behaviour* introductions and is generally elaborated. In announcing the research being reported, *Wildlife Behaviour* authors on numerous occasions include the predictions their studies intend to test. The realization of Step 1 is clearly discipline dependent, since *Wildlife Behaviour* is concerned with hypothesis testing and observed animal behaviour is interpreted in terms of previously postulated hypotheses or is the basis for modifications of older hypothesis. In addition, Step 1 of Move 3 may also include specific questions being addressed by the studies or even the goal of each experiment conducted.

Not all the steps that belong to this third move are commonly found in the *Wildlife Behaviour* introductions. Report of principal findings is only found in one of the 12 introductions. Predictions being tested by the study reported are only found in introductions where results are absent. The centrality of hypothesis testing in this discipline and the resulting textual manifestation of its importance in RA introductions can perhaps be offered as a preliminary explanation for the general absence of the third step of Move 3. However, it was also noted that in five of the introductions both predictions and results were missing.

Though steps 2 and 3 are not prominent in *Wildlife Behaviour introductions*, the third move is well developed. However, the author notes that the introductions include a feature that has not been noted in earlier studies on this genre. In eight of the 12 introductions, there is an extended discussion of the species that is the focus of the study. Most of the extended discussion of the species is found in the third move. Move 3 begins with a general statement of the aims of the study and may even include some results. However, after the discussion of the species, a more detailed specification of the aims of the study is presented. Move 3s in a number of *Wildlife Behaviour* introductions have a general to specific development with the sub-move on the background of a species facilitating this development. A question raised by the identification of this species background description is its place in Move 3. Could this be an additional optional step found in Move 3 in Wildlife Behaviour introductions?, she asks. However this description of a species does not directly achieve the rhetorical function of "Occupying the niche" ascribed to Move 3. Instead, this background information appears to be embedded in Step 1 since it enables a realization of this step in more specific terms.

A further complicating feature noted about species descriptions is that they do not always appear within Move 3. In three of the eight introductions the background description appears elsewhere. In two cases it appears before Move 2 and could be considered part of the literature in Move 1, and in one case it appears between Move 2 and Move 3. It appears that this statement of background information does not really have a prominent function in any of the moves. Perhaps, this background description could be analysed as a separate move but one which could also be subordinated within Step 1 of Move 3. It can perhaps be concluded that RAs from some field based disciplines such as Wildlife Behaviour and Geology have an additional introductory move.

This description of the species that is used in experiments or is the object of observational studies draws on previous research. The literature reviewed is not just limited to Move 1. The review of literature in Wildlife Behaviour introductions has the rhetorical function of providing background information, which then enables a further specification of the aims of the research being reported.

Move 3 of *Conservation Biology* introductions is characterised mostly by the presence of the first step where the purpose of the study is given. In contrast to the Wildlife Behaviour introductions, there is a general absence of a list of hypotheses to be verified in the introduction. A number of *Conservation Biology* RAs do not report on empirical studies. Though some sort of results are reported in six introductions, two of these are not empirical because of the nature of the papers. Also, the background move found in Wildlife Behaviour introductions is generally absent in the *Conservation Biology* introductions. Only one *Conservation Biology* introduction includes a description of a site that is the focus of the study. This background description is found, as in the

Wildlife Behaviour introductions, in Move 3 and enables a more specific statement of the purpose and nature of the study.

In conclusion, Samraj states that the variation in hierarchical status (move or sub-step) and linear position (Move 1,2A or 3) of this rhetorical function even with introductions in one discipline illustrates the difficulty of postulating a single organizational framework for a particular genre. This problem indicates that some discoursal aspects of a genre may exhibit a greater degree of flexibility in their position within the overall organization of that genre. Some rhetorical functions may have rather stable roles in the overall organization while others may be more unstable. The structure postulated for a genre hence has to incorporate within it various degrees of flexibility.

Ozturk (2006) analyses 20 research article introductions *Studies in Second Language Acquisition* (SSLA) and the *Journal of Second Language Writing* (JSLW) and shows that variations exists in structural organisation of RA introductions in second language acquisition research and second language writing research, two subdisciplines of applied linguistics thus pointing out the existence of variability within a single discipline.

The author detects the existence of five different patterns of move structure in the SSLA corpus. Of these, M1-M2-M3 was the predominant pattern. RA introductions in the corpus contained the three moves and the moves were arranged in the order predicted by the CARS model. With respect to the results concerning the move structure of RA introductions in the JSLW corpus, the findings indicate that there is a greater deviation from the move structure proposed by the CARS model. Five different patterns of move structure emerge. Only 1 out of 10 RA introductions in the corpus fitted the CARS

model. Forty percent of the introductions in the JSLW corpus had the move structure M1-M2-M1-M3. In this group of RA introductions there was an intervening M1 between M2 and M3 where the authors made topic generalisations and/or cited some work from the literature. Were the intervening Move 1 absent, these introductions would accord with the CARS model.

In comparing the results the author shows that the move structure M1-M2-M3 occurs in both corpora, but the frequency of occurrence is 60% in the former, and 10% in the latter. In the SSLA corpus the remaining three patterns of move structure were used only once. On the other hand, in the JSLW corpus two patterns of move structure accounted for 70% of the corpus. These were M1-M2-M1-M3 (40%) and M1-M3 (30%). The remaining two patterns were used only once. In view of the results, the author tentatively suggests that there are differences in the structural organisation of RA introductions in second language acquisition research and second language writing research, two sub-disciplines of applied linguistics. This appears to be an important finding in that it is between the sub-disciplines of a particular field where one would expect the least variability in the structural organisation of RA introductions.

In view of the shortcomings observed in the CARS model, Swales (2004) reformulates the model for RA introductions and this is how it appears:

Move 1: Establishing a territory (citations obligatory)

Topic generalization of increasing specificity

Move 2: Establishing a niche (citations possible)

Step 1A Indicating a gap

or

Step 1B Adding to what is known

Step 2 (optional) Presenting positive justification

Move 3 : Presenting the present work (citations possible)

Step 1 (obligatory) Announcing present research descriptively and/or purposively

Step 2 (optional) Presenting RQs and hypothesis

Step 3 (optional) Definitional clarifications

Step 4 ((optional) Summarizing methods

Step 5 (PISF) Announcing principal outcomes

Step6 (PISF) Stating the value of the present research

Step 7 (PISF) Outlining the structure of the paper

- *PISF: Possible in some fields*

In this study this revised model will be used to analyse the introductions because, to my knowledge, it has not been used to analyse the rhetorical structure of RA introductions in specific disciplines and both across disciplines and cultures and reported in the mainstream genre literature as extensively as the previous model has been. Also of interest is to address Swales' (2004) concern if the Introductions in the corpus selected for this study:

a) Have a straight short or recycled pattern?

b) Have a clear gap indication?

c) Announce their principal findings?

d) Provide positive justification of the proposed research?

e) Outline the article structure?

2.6 Studies on Methods Sections of RAs

Lim (2006) notes that investigations into the Method section are important as this section often functions as a thread that binds a particular research method with previous research procedures, or the section itself with other key sections, especially the Introduction and Results. Without a sound Method section, writers will not be able to convince the readership of the validity of the means employed to obtain the findings that are reported. However, less attention has been given to Method sections probably due to its highly specialized and heavily content oriented nature (Weissburg & Bucker,1990) and also the absence of this section in RAs in certain disciplines like computer science (Posteguillo, 1999). Moreover, as Swales observes, "a Methods section per se may not exist at all in a number of humanities areas, especially in those that maintain an essayist tradition" (2004: 219). Therefore, research into this section in RAs in the soft sciences appears very limited as most research to date on this section has been confined to the hard sciences.

Studies related to Methods in the hard sciences include that of Wood (1982) who analysed 10 methods section in chemistry journals. Although this study was based on a small corpus, it is noteworthy that, it was a first attempt to determine the rhetorical structure of the Methods section adopting Swales' model for Introductions. This study revealed that the section can be further divided into subsections. The analysis revealed that in Chemistry the Methods section consists of three rhetorical moves: Describing the sample, Describing apparatus, and Describing experimental procedures (cited in Kanoksilapatham, 2003). Ngowu (1997) identified three distinct moves in Methods sections of medical articles: Data collection, Experiment, and Data analysis. Each move contained certain steps. Kanoksilapatham (2004) identified 4 moves in her biochemistry

corpus, two of which are conventional and the other two optional. The conventional moves are: Describing materials containing 2 steps and Describing experimental procedures consisting of three steps. The optional moves are: Detailing equipment and Describing statistical procedures.

Relevant to this study is Lim's (2006) analysis of 20 Methods section in Management RAs. Most Method sections in the corpus contain three major moves: 'Describing data collection procedures', 'Delineating procedures for measuring variables' (i.e., describing them in detail), and 'Elucidating data analysis procedures'. Following below are the moves and steps identified in the corpus.

Move 1: Describing data collection procedure/s

Step 1: Describing the sample

(a) Describing the location of the sample

(b) Describing the size of the sample/population

(c) Describing the characteristics of the sample

(d) Describing the sampling technique or criterion

Step 2: Recounting steps in data collection

Step 3: Justifying the data collection procedure/s

(a) Highlighting advantages of using the sample

(b) Showing representativity of the sample

Move 2: Delineating procedure/s for measuring variables

Step 1: Presenting an overview of the design

Step 2: Explaining method/s of measuring variables

(a) Specifying items in questionnaires/databases

(b) Defining variables

(c) Describing methods of measuring variables

Step 3: Justifying the method/s of measuring variables

(a) Citing previous research method/s

(b) Highlighting acceptability of the method/s

Move 3: Elucidating data analysis procedure/s

Step 1: Relating (or 'recounting') data analysis procedure/s

Step 2: Justifying the data analysis procedure/s

Step 3: Previewing results

This framework will be used to aid the analysis of the Methods sections in the RAs across these three disciplines. Further, Swales (2004), proposes a cline with heavily clipped texts at one extreme and highly elaborated ones at the other with intermediate Methods occupying the middle. He makes the assumption that the Methods section(s) would be clipped in areas such as physics, chemistry, biology and medicine; elaborated in education and psychology; and intermediate in areas like language sciences, public health and health sciences. He also shows evidence that many papers in social psychology had highly elaborated Methods sections especially in multi experiment articles in which each version of the experimental procedure seemed to have been described in repetitive detail (Swales & Luebs, 2002, cited in Swales, 2004). Brett (1994), in analyzing Methods in sociology RAs had observed the greater length of Methods sections in sociology compared to the hard sciences may be due to sociology lacking unanimity as to methodological practice (cited in Swales, 2004). This brief review results in 2 main issues to be addressed. The first is to determine the rhetorical structure of the Methods sections within these three disciplines and the second, to determine if the texts appear clipped or elaborated.

2.7 Studies on Results sections of RAs

Generally, studies related to the Results section either focus exclusively on this section such as that of Thompson (1993) in biochemistry and Williams (1999) in medicine and Brett (1994) in sociology, or focus on a combination of sections including the Results section such as Ruiying and Allison (2003) in Applied Linguistics, Nwogu (1997) in Medical Research papers, Posteguillo (1999) in Computer Science and Kanoksilapatham (2004) in Biochemistry.

In analyzing 20 RAs in Sociology, Brett (1994), identified 16 rhetorical moves and grouped them into three main communicative categories - Metatext, Presentation and Comment. Metatext guides readers to parts of the written text and therefore does not contain authors' viewpoints. The Presentation category functions to report the findings in an objective manner. The comment category carries writers' subjective interpretation of data. Each of these categories contain a number of rhetorical moves. The Metatextual category includes the Pointer and the Structure of Section. The Presentation category includes: Procedural statements, Hypotheses, Statement of finding, Substantiation of finding, and Non Validation of finding. The Comment Category includes: Explanation of finding, Comparison of finding with literature, Evaluation of finding, Further questions raised by finding, Implication of finding and finally, Sumarising. Bret further notes that only three elements appeared in all the articles: Pointer, Statement of Finding, and Substantiation of Finding. Therefore, writers in sociology showed an inclination to comment and to persuade the reader, going beyond mere presentation of data, to make meaningful statements drawn from the data.

Posteguillo (1999) in analyzing 22 RAs in Computer Science using Brett's model revealed that the Results sections in Computer Science were similar to that of Sociology. There were three types of communicative categories or a total of 10 communicative moves (2 metatext moves, 3 presentation moves, and 5 comment moves). The Moves in the Metatext category are pointer and structure of section. The moves in the Presentation category are Procedural, Hypothesis Restated and Statement of Data. The moves in the Comment category are Comparison of finding with literature, Evaluation, Further research suggested, Implications, and Summarising. Although similarities were detected with Brett's model in terms of move sequence and the cyclical nature of moves Posteguillo discovered that RAs in Computer Science include a procedural move which is used in place of the Methods section of RAs in Computer Science.

Williams (1999) in employing Brett's model on 8 Medical RAs found the model to be inadequate in describing this section. The statement of results move occurred at a high frequency in Medical RAs both in linear and cyclical patterns. Williams identified 2 Metatext moves, 4 Presentation moves and 4 Comment moves. The moves include: Pointer, Structure of section, Procedural, Statement of finding/result, Substantiation of finding, Non –validation of finding, Explanation of finding, Comparison of finding with literature, Evaluation of finding and Interpretation of Finding. The Results sections were less prone to expand on the findings. Very little substantiations of findings and commentaries, such as, comparisons and interpretations were found. A further finding is the division of the Result section into subsections.

Ngowu (1997) analyses 30 Medical Results sections and reports that the move structure of the medical corpus that he analysed did not appear to be as complex as that of

Williams (1999). He identifies two general moves- Consistent observation and Non-Consistent observation. The Consistent observation move highlights overall observations, indicates specific observations and accounts for such observations. The Non-Consistent observation move reports results which do not conform with expected outcomes. This move was considered optional due to its low occurrence in the corpus.

Thompson(1993) in analyzing RAs in Biochemistry identifies 6 rhetorical moves in the Results sections : Justifications for methodological selections, Interpretations of experimental results, Evaluative comments on experimental data, Statements citing agreement with pre-established studies, Statements disclosing experimental discrepancies and Statements admitting interpretive perplexities. The Methodological justification move was consistently found in these RAs. Thompson found that this section does not only report results but also states the results in ways that justify the methods and interpret the data. Interestingly, writers in this discipline explicitly evaluate and argue for the validity of their experimental data and defend their choice of methods in contrast to writers of medical RAs as noted in Williams (1999).

Kanoksilapatham (2004) in analysing 60 RAs in Biochemistry identifies 4 conventional moves in the Results section. These are: Stating Procedures containing 4 steps, Justifying Procedures or methodology containing 2 steps, Stating results containing 2 steps, and Stating comments on the results containing 4 steps. The Results section in this corpus showed that in biochemistry RAs writers not only report data but also comment on them. The integration of comments in this section thus suggests that "scientific findings are of relatively limited value unless they are situated in a wider context" (Kanoksilapatham, 2003, pp. 15). Also noted is that the four Results move are not rigidly fixed which allows for a number of possible variations in move recycling.

In analyzing the Results Discussion and Conclusion sections of 40 articles in applied linguistics, Ruiying and Allison (2003) found three dominant Moves (Moves 1–3) and three other Moves (Moves 4-6) in the Results sections. Move 1 - 'Preparatory information' - functions as a reminder and connector between sections, as it provides relevant information for the presentation of results. Move 1, 'Preparatory information', is not obligatory because there are Results sections that do not have this Move. That is to say, it may occur more than once in some Results sections, but may not occur at all in others. Move 2 - 'Reporting results'- is the Move in which the results of a study are presented, normally with relevant evidence such as statistics and examples. Move 3 - 'Commenting on results' - serves the purpose of establishing the meaning and significance of the research results in relation to the relevant field. This Move includes information and interpretations that go beyond the "objective" results. Their analysis found that both Move 2, 'Reporting results', and Move 3, 'Commenting on results', as obligatory Moves. Move 4, 'Summarizing results', is an optional element. Move 5 and Move 6 (where authors extend beyond the results, for example by pointing out a line of further study or offering pedagogic implications) are occasional elements in the Results sections. This section was also found to be highly cyclical. In terms of the sequence of Moves and Steps if Move 1 is absent, then Move 2 is the initial element in a cycle, followed by Move 3.

This review has shown evidence of disciplinary variations in the Results section. Therefore, the issues that arise and that need to be addressed are: (1) disciplinary variations in the Results section as suggested by these studies and if writers in the three disciplines write the Results section similar to these disciplines or differently and (2) as Swales (2004), citing Thompson (1993) Williams (1999) and Brett (1994) highlights,

whether or not the statement of findings is followed by a comment move and if so of what kind?

2.8 Studies on Discussion sections of RAs

Belanger (1982, cited in Swales 1990) in a pioneering study of this section, analysed ten discussion sections in neuroscience and found nine moves: Introduction, Summarizing results, Conclusion, What results suggest, Further question, Possible answers to further questions, Reference to previous research, Reference to present research and Summary/Conclusion. These moves were cyclical in that it consisted of statements summarizing results, comparing them to mainstream research, and interpreting and extending the results into speculations.

Peng's (1987) study on 10 chemical engineering Discussion sections found eleven moves in this section: Background information, Statement of result, Observation, Comparison, (Un)expected outcome, Explanation, Deduction, Hypothesis, Justification, Validation, and Recommendation. Also noted was 2 cyclical patterns: a cycle involving a research question and a cycle involving the author's comments regarding findings. Certain moves such as the (Un)expected outcome move were highly infrequent (cited in Kanoksilapatham 2003).

Based on Peng (1987) and Hopkins and Dudley-Evans (1988), Swales (1990), identifies eight common moves. These are: Background information, Statement of Result, (Un)expected Results, Reference to previous research, Explanation, Exemplification, Deduction and hypothesis and Recommendation.

Holmes (1997) in analyzing 30 RAs ten each from History, Political Science and Sociology, found that the discussion section began with a 'Background information' move, and proceeded to Statement of Result' and 'Outlining of subsequent or Parallel Developments' and concluded with the 'Provision of further information'. No move was found to be completely obligatory. The most common moves were the Generalization and Statement of Results Moves. Other moves that were identified are 'Reference to previous research', 'Recommendations', '(Un) expected outcome', 'Explanation of (Un)satisfactory Result', 'Outlining Parallel or Subsequent Developments'. Disciplinary variations were observed with regard to 'Background information', 'Reference to previous research' and 'Recommendations'. The 'Statement of result' move was the most frequent opening move in this section followed by 'Background information' and 'Generalization'. The closing moves were 'Recommendations and Generalizations'. A few of the sections had a straight forward linear structure in which the discussion proceeded from one move to another without recursion. Many texts did not proceed in a linear fashion and were characterized by a recurrence of one or more moves.

Ngowu's (1997) study on medical RAs shows a 3 move rhetorical structure for Discussion sections which are: highlighting overall research outcome, Explaining specific research outcome, and stating research conclusions. No cyclical patterning was observed. Posteguillo (1999) identifies 8 moves in computer science RAs. These moves are: Background information, Statement of finding, (Un)expected results, Reference to previous research, Explanation, Exemplification, Deduction and hypothesis, and Recomndation for further research. The cyclical nature of the Discussion section was also noted in these RAs. The Statement of Findings move was an obligatory move and the moves such as Recommendation for further research, Reference to previous

research,(un)expected outcome, Deduction and hypothesis and Exemplification, Explanation and Background information occurred less frequently.

Peacock (2002) examined 252 published RAs, 36 from each of seven disciplines. The four most widespread moves overall were *claim, finding, reference to previous research, and recommendation.* The least widespread was *explanation*. There was no move that appeared in all 252 RAs and therefore "must occur". Three moves seemed to be virtually obligatory: *claim, finding,* and *reference to previous research. Recommendation* was also very common. The author proposes that Discussion sections have a three-part framework involving a series of move cycles combining two or more of these eight moves: *information move, finding, expected or unexpected outcome, reference to previous research, explanation, claim, limitation* and *recommendation.*

Ruiying and Allison (2003) in studying RAs in Applied Linguistics found 'Commenting on results' as the most frequent and obligatory Move, and can occur repeatedly in a Discussion section, while 'Reporting results' and 'Summarizing results' together occur less often. 'Reporting results' is considered as quasi-obligatory. These Moves match the corresponding Moves in the Results sections except for the position of 'Summarizing results'. Together with the similarity in the respective initial Moves, the analysis indicated that there are substantial overlapping elements between the Results and Discussion sections.

Nevertheless, the two main overlapping Moves occur with notably different frequency. Within the Results section, 'Reporting results' greatly outnumbers 'Commenting on results'. In the Discussion section, in contrast, the latter outnumbers the former. Therefore 'Commenting on results' is relatively more frequent in Discussion sections

than in Results sections. This maybe due to the fact that in the Discussion section the communicative focus is on 'Commenting on results', whereas in the Results section the focus is on 'Reporting results'. In sum, even though the Discussion and Results sections do have these important Moves in common, the two sections differ, in terms of communicative focus.

Three other Moves identified in Discussion sections are 'Summarizing the study', 'Evaluating the study' and 'Deductions from the research'. They are optional, although the Step 'Recommending further research' appears to be of high frequency due to recurrence. The appearance of these Moves in a Discussion is often influenced by whether there is a subsequent Conclusion or Pedagogic Implications section. For example, 'Summarizing the study' occurs in three Discussions, all of them final RA sections in ESP, but does not occur in Discussion sections that are followed by a Conclusion or a Pedagogic Implications section. Similarly, the element 'Drawing pedagogic implications' (when present at all) only occurs in the Discussion section when this is the final section. Otherwise, it may be present in the Conclusion or Pedagogic Implications sections. The study found that the Move 'Reporting results' is quasi-obligatory, and that 'Commenting on results' as an obligatory Move in Discussion sections.

Kanoksilapatham (2004) identifies 4 moves in her biochemistry corpus. The first move, 'Contextualizing the study' contains 2 steps, the second 'Consolidating results' contains 6 steps and the third 'Stating limitations of the study' contains 3 steps. These three moves are obligatory. The final move which is optional is 'Suggesting further research'. The discussion section displays a cyclical organization. The cycle usually involves the 'Contextualizing the study' and the 'Consolidating results moves'.

This brief review of the Discussion section indicates the presence of move recycling in the Discussion section. Also observed are disciplinary variations in terms of move sequences and the presence or absence of particular moves. These are issues that need to be addressed in the analysis of the Discussion sections of these disciplines. Also of interest are, as Swales (2004) had mentioned, the presence or absence of subsections, whether the section opens with the main finding or with a broader introduction, and if it includes self advocacy and closes with implications and research recommendations.

2.9 Conclusion sections of RAs

To my knowledge the only recent study, specifically on conclusion sections, is that of Ruiying and Allison (2003) in which they identified three Moves: 'Summarizing the study', 'Evaluating the study' and 'Deductions from the research'. 'Summarizing the study' is the most frequent element, and it is sometimes reiterated. Most Conclusion sections have a linear structure. The two sections differ in terms of the existence of Moves and this in turn reflects differences in overall functional weightings of each section. The Discussion focuses more on commenting on specific results, while the Conclusion concentrates more on highlighting overall results and evaluating the study.

In sum, this study revealed that the Results, Discussion and Conclusion sections of applied linguistics RAs differ in terms of primary communicative purposes. The Results section focuses on 'Reporting results', the Discussion on 'Commenting on results' by interpreting, accounting for, evaluating or comparing with previous work. The main purpose of a Conclusion is to summarize the research by highlighting the findings, evaluating and pointing out possible lines of future research as well as suggesting implications for teaching and learning.

2.10 Linguistic Analysis

2.10.1 Titles in RAs

Swales (1990) points out that "Titles consists of only a few words, but they are serious stuff " (p:224) and titles are "indeed texts in miniature" and "must add to the reader's mental representation of the world by informing him that the paper he sees printed underneath the title he is currently reading deals with something or other (Haggan, 2004: 313). In analyzing research paper titles in literature, linguistics and science she noticed that titles in literature and linguistics are about the same length averaging around nine words and titles in science to be nearly half as long averaging almost fourteen words per title. She further noted that titles were written in the form of a full sentence, as compound titles, and some other subtypes which will be elaborated below.

Out of the 307 science titles that she analysed only 26 were written in full sentences and given below are two of her examples.

1. *Biphasic kinetics of Zn2+ removal from Zn metallothionein by nitrilotriacetate are associated with differential reactivity of the two metal clusters*
2. *Barstar has a highly dynamic hydrophobic core: evidence from molecular dynamics simulations and nuclear magnetic resonance relaxation data*

The noun phrases employed in the titles indicate the area within which the researcher is working while the sentence as a whole represents the general findings of the study. These titles were found to be made confidently, as unqualified assertions and presented as statements of fact without being hedged to show reservation. All were written in

complete sentence forms using the simple present tense. Scientists, she notes, attract people in the field to read the article by packing in information about what has been found in the research study.

Full sentence title in linguistics **(**e.g**.** *Theories are buildings revisited; Why are some verbs learned before other verbs? Effects of input frequency and structure on children's early verb use*) do not make assertions about the results of the study that the paper reports. They writers attempt to attract the attention of the reader by presenting a clever arresting title which catches the attention of the reader. The use of the question form (*Who's next? The Melodic …….*) is another device used to attract readers' attention. Even in titles where there is a narrowing of focus by a subsequent noun phrase, the answer is not divulged. The reader must read the paper to find out its contents unlike full sentence titles in science where researchers take pains to present the results.

In literature, titles usually begin with a quotation in the form of full sentence usually from the work that is being realized or presenting s sample of what is to be analysed. *("I fought the Law …. ": Hip-hop in the mainstream; "Forget those damnfool realists!"*……). Other forms include imperatives *('Virgins all beware'….; "Forget those damnfool realists!"*…..) and full sentences which are not quotations and are not supported by any noun phrase coming after (*Was Spenser a Republican?; Time's up*). The titles are written in such a way that it may lead the reader to new insights and appreciation of works being studied. These titles have aesthetic merit that adds to the readers' appreciation of the paper. In sum, Haggan notes that, full sentence titles in science are very bare presentations of facts while those in literature tend to be aimed at the aesthetic sensibility of the reader. The linguist, within the full sentence title, is more likely to play with the language. Full sentence titles constitute a very small percentage

of titles within these disciplines with over 90% of the titles being incomplete syntactic units.

Compound Titles

Compound titles, where two noun phrases are juxtaposed on either side of a colon, a full stop or a dash, was a commonly used form in science, linguistics and literature. Among these fields, the science papers appeared to use this form the least compared to writers in literature. Linguists fall between these two groups but are closer to scientists on this parameter. Given below are three examples from across the three areas.

(1) *Genome sequencing and informatics: New tools for biochemical discoveries*

(2) *Circling the spheres: A dialogue*

(3) *Noun incorporation: New evidence from Athapaskan*

Generally, it was also found that in the science compound titles the first noun phrase indicates the area of research while the second indicates the application of that research or provides some information to help locate what was worked on either in a geographic sense or from within the discipline. There is a narrowing down, focusing on where the study has come from or on where it might point to which is useful to the reader. In linguistics, the internal information structures are similar to compound science titles. The titles begin with a phrase indicating a general topic followed by another phrase indicating the status (a preliminary report.) or nature (e.g. an introduction) of the research reported or a particular approach used or area targeted. They follow the scientific pattern, with the first element most commonly presenting the known sub-area, and the second, indicating the new contribution presented by the research.

Other subtypes

Haggan further notes titles with a basic structure involving a noun phrase with one or more post modifying prepositional phrases as the overall title pattern of choice amongst scientists as in the example below.

Identification of a calcineuron-independent pathway required for sodium ion stress response in Saccharomyces cerevisiae

The presence of post modifying prepositional phrases is a distinguishing feature of titles in the sciences as the scientists need to inform the reader about the specific focus of the study as quickly as possible The most common preposition used by scientists is *of* as in *'Regulation **of** the Heat Shock response'*. The next most frequently used preposition is *in* which in some cases is used to indicate the geographical focus of the research. In other cases it is used to introduce the species or area being targeted within a wider field. A common practice among scientist is to pile up the title with multiple prepositional phrases to indicate the very precise nature of the research. There are a few titles made up of an independent noun phrase.

In linguistics the same degree of piling up of prepositional phrases was not noted and therefore pinpoint specification of the research focus is absent in the titles. The prepositions *of* and *in* occur almost equally in the linguistics material. More commonly the noun phrase is followed merely by an *of* phrase alone or by an *in* phrase alone. Apart from the heavy use of *of* and *in* there are occasional use of other prepositions such as *on, for, by, among,* and *to* but no significant trend was observed. Finally, titles in the form of prepositional phrases were also observed in linguistics.

2.10.2 New knowledge claims

Swales (2004) notes that there are opportunities for writers of research papers to show the the value of their research towards the end of their introductions and that "early positive evaluations, early justifications, and early clarifications can work to both impress and reassure the reader that the paper is worth pursuing further" (pp:232). In an attempt to identify how new knowledge claims are structured in RA introductions in economics and linguistics, Dahl (2008), discovered the following structures in economics:

(1) *Preview sentence – Metadiscursive sentence – Claim 1 – Claim 1.1*

(2) *Preview sentence – Claim 1—Claim –1.1*

In linguistics, the new knowledge claim structures were found to be more complex as in the following.

(3) *Preview sentence 1, including Claim 1 – Preview sentence 2 – Claim 1.1 – Claim 1.1.1*

(4) *Preview sentence, including Claim 1 –Support for Claim 1 – Claim 1.1 – Claim 2*

Metadiscursive elements

Dahl also noted that some claim sequences also incorporate metadiscursive pointers to claims and research contributions either in the form of full sentences or as metadiscursive elements within a sentence. It was a noticeable feature in economics. Some examples are:

The methodological contribution of the paper …..…

Our paper provides the first empirical results ….

The key message is that ….

Our principal finding is that……

In linguistics the following metadiscursive elements were noted

This understanding of the notion ……. *and it is the central claim of this paper that …..*

Our analyses enable us to reach *three basic conclusions.*

Hedged or unhedged statements of claims

Dahl (2008) further noticed that new knowledge claims were hedged and unhedged in both his economics and linguistics corpora as in the following examples. The first four are unhedged and the others hedged

(1) *The nominal rigidities structure* ***captures ……***

(2) *Our findings* ***show***

(3) *I adopt….. and* ***I claim***

(4) In this paper…. and **conclude**

(5) *The empirical evidence* ***suggests*** ….

(6) *We then* ***suggest*** *that …*

(7) *I conclude from such data ….. should* ***at least in part*** *be ..*

(8) *I* ***attempt*** *to show….*

Dahl observed that the linguistics material contained lexical verbs such as *suggest* and *indicate;* modals such as *may* and *could* and adverbs such as *possibly*, *at least in part.* In economics the typical hedge appeared to be a lexical verb such as *suggest*. Further, the verbs *argue* and *claim* were not common in economics and when present is presented in unhedged fom (*Specifically* we *argue*…., *We argue*…). in sum Dahl had noted that,

generally, in terms of hedging the claims, the majority of new knowledge claims in both disciplines appear to be unhedged and this he attributes to the competition for attention in the research world where “overt marking of originality and strong position-taking is encouraged by gatekeepers such as journal editors and referees” (Dahl,2008:pp 1199).

2.11 The three disciplines

educational psychology is the study of how humans learn in educational settings, the effectiveness of educational interventions, the psychology of teaching, and the social psychology of schools as organizations. educational psychology is concerned with how students learn and develop, often focusing on subgroups such as gifted children and those subject to specific disabilities. educational psychology can in part be understood through its relationship with other disciplines. It is informed primarily by psychology, bearing a relationship to that discipline analogous to the relationship between medicine and biology. educational psychology in turn informs a wide range of specialities within educational studies, including instructional design, educational technology, curriculum development, organizational learning, special education and classroom management. educational psychology both draws from and contributes to cognitive science and the learning sciences. In universities, departments of educational psychology are usually housed within faculties of education, possibly accounting for the lack of representation of educational psychology content in introductory psychology textbooks (http://en.wikipedia.org/wiki/Educational_psychology).

Environmental psychology is an interdisciplinary field focused on the interplay between humans and their surroundings. The field defines the term environment broadly,

encompassing natural environments, social settings, built environments, learning environments, and informational environments. Since its conception, the field has been committed to the development of a discipline that is both value oriented and problem oriented, prioritizing research aiming at solving complex environmental problems in the pursuit of individual well-being within a larger society. When solving problems involving human-environment interactions, whether global or local, one must have a model of human nature that predicts the environmental conditions under which humans will behave in a decent and creative manner. With such a model one can design, manage, protect and/or restore environments that enhance reasonable behavior, predict what the likely outcome will be when these conditions are not met, and diagnose problem situations. The field develops such a model of human nature while retaining a broad and inherently multidisciplinary focus. It explores such dissimilar issues as common property resource management, wayfinding in complex settings, the effect of environmental stress on human performance, the characteristics of restorative environments, human information processing, and the promotion of durable conservation behavior. This multidisciplinary paradigm has not only characterized the dynamic for which environmental psychology is expected to develop, but it has been the catalyst in attracting other schools of knowledge in its pursuit as well aside from research psychologists. Geographers, economists, geographers, policy-makers, sociologists, anthropologists, educators, and product developers all have discovered and participated in this field. Although "environmental psychology" is arguably the best-known and most comprehensive description of the field, it is also known as human factors science, cognitive ergonomics, environmental social sciences, architectural psychology, socio-architecture, ecological psychology, behavioral geography, environment-behavior studies, person-environment studies, environmental sociology,

social ecology, and environmental design research. It is the link between the person and the built environment (http://en.wikipedia.org/wiki/Environmental_psychology).

Economic psychology as a discipline studies the psychological mechanisms that underlie consumption and other economic behavior. It deals with preferences, choices, decisions, and factors influencing these, as well as the consequences of decisions and choices with respect to the satisfaction of needs. This includes the impact of external economic phenomena upon human behavior and well-being. Studies in economic psychology may relate to different levels of aggregation, from the household and the individual consumer to the macro level of whole nations. Economic behavior in connection with inflation, unemployment, taxation, economic development, as well as consumer information and economic behavior in the market place are thus the major fields of interest (http://www.elsevier.com).

2.12 Conclusion

In the preceding sections, I reviewed the relevant material related to the genre paradigm, with a specific focus on the ESP tradition to genre analysis. I then reviewed some relevant studies related to abstracts and the various sections of the genre of the RA. I then reviewed two recent studies related to titles and new knowledge claims before ending with some information regarding the three disciplines. With the insights gained I went on to read and analyse the RAs in the three disciplines. The manner by which the analyses was conducted is the subject of my next chapter.