Supporting the PhD: Genre and Moves in engineering theses introductions

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Abstract

Genre Moves and Steps in engineering PhD thesis introductions were investigated with a view to developing teaching and learning materials for thesis writing workshops in the Faculty of Engineering (FOE) at the University of New South Wales (UNSW). Rhetorical structures based on Bunton's analyses of journal articles and theses were used as a basis for the research. After an initial analysis of general features of 11 thesis introductions from four engineering schools at the UNSW, three theses were chosen for a preliminary case study on rhetorical structures. Preliminary observations revealed interesting variations in the selection, sequence, weighting and cycles of Moves and Steps in the three thesis introductions. While these variations appear to be specific to each school and may suggest that thesis writers are using past theses as models, it is not conclusive if the current small sample is indicative of school styles. Thus decisions on whether and how to use the model in the classroom requires further research and reflection. Nevertheless, Bunton's model of thesis introductions provides a useful tool for discussions with thesis writers seeking clarification on how to structure the thesis introduction.

Introduction

Helping students who are writing a PhD thesis is a challenge for any learning advisor. There are two main reasons for this challenge. First, while a thesis is a large and complex text, learning advisors have limited time to provide support to students. Second, models of thesis organisation are still being developed and debated within the *English for Academic Purposes* (*EAP*) field. One of the key challenges is to develop models that provide discourse generalisations (Swales, 1990, 2004) while still being amenable to the discipline-specific exceptions, variations and emerging hybridity that occur in theses. In particular, models that reveal how writers can structure thesis chapters are needed.

According to Swales and Feak (2000), thesis writers often find writing the introduction chapter a difficult task. For example, writing the introduction requires making decisions about: how much background the writer needs to give, how the writer can appeal to the reader and how direct or indirect the writer should be. In addition to these concerns, common questions raised in thesis writing workshops at UNSW include chapter length, placement of the aim, placement of the issue or problem, when to use definitions, and whether findings can be included in the introduction. Furthermore, anecdotal feedback from four engineering supervisors has revealed that while advice is usually given for chapters on literature review, methodology, findings and discussion, these four supervisors do not provide advice on writing introduction or conclusion chapters.

In our thesis writing workshops we require that students bring a recommended thesis from their school. The UNSW's Library does not allow theses to be borrowed for our workshops. However,

each school has its own thesis library and research students are able to borrow these theses. Asking for a recommended thesis encourages the research student to liaise with their supervisor and helps ensure that we (the Learning Advisors and the class participants) will be reviewing texts of a high standard. Analysing a thesis that has been recommended as a good model can also provide insights into what is required and what is valued in a particular discipline. In some cases the supervisor has also lent the student a poor example to be analysed in the class, which is also useful. But generally from our experience, students prefer to analyse and discuss good theses and will only briefly look at poor examples.

We then use concepts and models from textual genre analysis to explore the organising principles and conventions of the theses brought to the workshop. The models are very useful in that they provide Learning Advisors, research writers and supervisors with a common language and a range of categories with which to talk about the texts. Our aims are to raise student awareness of the choices and intentions available to thesis writers, to have students compare and discuss the theses' structures and conventions, and to encourage students to reflect on their own writing.

Over the past six years, thesis writing workshops for research students offered to students in the Faculty of Engineering have used Swales' (1990) well known *Create A Research Space* (CARS) model and Murison and Webb's (1991) model for writing introductions as a springboard to discuss the rhetorical structure of the recommended theses that students bring to the workshops. However, in some cases, introductions in the theses contain structures and elements that do not seem to match the recommended Steps. Also, the range of variation in length and structure of thesis introductions appears at times to be school-specific while at other times individualistic. These aspects raised questions about the applicability of the models we were using in the workshops.

Our current research project aims to develop deeper insights into the structures of engineering thesis introductions and conclusions and is anticipated to continue for a few years. However this paper only presents observations from preliminary textual analysis of a small sample of thesis introductions from the Faculty of Engineering at UNSW.

Theoretical background

The CARS model for research article introductions was originally developed by Swales in the late 1980s and has been widely discussed in the EAP field in both academic journals and textbooks. The model categorises the rhetorical patterns of introductions in research writing into three Moves (see Table 1). Swales and Feak (2000) define Move as "… a functional term that refers to a defined and bounded communicative act that is designed to achieve one main communicative act" (p. 35). Swales considers a Move to be a function that is realised semantically. Thus a Move can be realised by a finite clause or any number of sequential clauses or sentences. A Step can be understood as an element within a Move that is used to achieve the communicative act of the Move. A Step can also be a finite clause or any number of sequential clauses or sentences.

Table 1. *Textual analysis categories for thesis introductions*

Moves and Steps	
Move 1: Establishing a territory	
1a	Claiming Centrality
1b	Making topic generalisations, including background information or introducing the field/topic
1c	Defining terms
1d	Research parameters
1e	Reviewing items of previous research

Move 2: Establishing a niche	
2a	Indicating a gap in the previous research
2b	Question raising
2c	Counter-claiming
2d	Continuing a tradition or indicating a possible extension of previous research
2e	Indicating a problem

Move 3: Occupying the niche or introducing the present research	
3a	Outlining purposes
3b	Taking a theoretical position/making claims or predictions
3c	Accounting present research in general terms or describing briefly the work carried out
3d	Introducing research parameters
3e	Research questions
3f	Defining terms
3g	Materials/subjects of research
3h	Method of present research
3i	Announcing principal findings
3j	Significance/Justification of the research
3k	Indicating (thesis) structure

(Adapted from Bunton, 1998, pp.169 – 170)

Notes: Move 1 can be realised by Steps 1a to 1e; Move 2 can be realised by Steps 2a to 2e; Move 3 can be realised by Steps 3a to 3k.

Bunton's (1998) PhD research on the rhetorical structures of thesis introductions is an extension of CARS models developed by Swales, Dudley-Evans and Mauranen (cited in Bunton, 1998). Bunton is one of a few educationalists to publish extensive research on thesis writing which focuses on thesis introductions and conclusions. Bunton's Modified CARS Model is the initial textual analysis tool chosen for this research (Table 1).

Bunton's research combined Dudley-Evans' (1986, cited in Bunton, 1998) 6-Move model for thesis introductions with Swales' CARS 3-Move model (1990, cited in Bunton, 1998). Bunton then developed two modified CARS Models: one for Science and Technology thesis introductions and one for Humanities and Social Science thesis introductions. The Models retain Swales' three Moves as the major communicative acts in a thesis introduction, include all the Steps from Swales' and Dudley Evans' models, and also include new Steps identified from Bunton's Hong Kong corpus. The combination resulted in a greater number of possibilities within each Move that can be identified in the thesis introductions. Identifying the Moves and Steps in a chapter is useful as it divides a longer text into sections, thus revealing the key organising principles that the author has chosen and the author's intentions.

Some engineering students and their supervisors have commented that they prefer a text that clearly and quickly states the problem, the aim, and how the thesis is organised. These are usually categorised as Steps in Move 2 and Move 3. It would seem that for some readers and writers, the background and literature review, usually categorised as Steps in Move 1, are not an important focus of a thesis introduction. Therefore other models that may be relevant to our analysis include Zappens' (1983, cited in Bunton, 1998, p. 148) "*Goal ^ Current capacity^ Problem^ Solution^ Criteria of evaluation*" structure and Evans and Gruba's (2002, p. 68) "*Problem statement^Aim^Scope^ Overview of the study*". These models are based on engineering writing and appear to enable the writer to present the niche (Move 2) more quickly (or faster) than Dudley-Evans' and Swales' models. This focus on Move 2 possibly functions to emphasise the newsworthiness of the research (Swales, 2004).

There has been debate about the literature review in the introduction being considered a Move in its own right or a Step within Move 1 (Bunton, 2002; Lewin, Fine, & Young, 2001) and the difficulty of separating Move 1 and 2 (Swales, 1990). These grey areas are in part due to references to the literature often being placed throughout the introduction, possibly fulfilling a number of purposes, for example, to give a brief definition as part of Move 1, or to elaborate the problem statement as part of Move 2. A lengthy literature review, as part of a thesis introduction or as a separate chapter, would usually be structured to achieve a number of communicative acts; for example, to summarise relevant theory, critically analyse the research to date, or highlight gaps and open problems in the field. It could be argued that a literature review aims to not only show that previous work is known and understood, but also to evaluate that work and to present an argument for the current work, thus containing Steps from Moves 1 and 2. In these cases, the literature review could be considered as a Move in its own right in an introduction, particularly if it is lengthy.

While the Modified CARS Model appears to show a straightforward and clear structure for a thesis introduction, the reality of the texts that thesis writers produce is much more complex. Moves can occur in a finite clause or be realised in any number of sequential clauses. Furthermore multiple Moves can be realised within a complex sentence. In addition, Moves cannot always be identified by location; for example, Move 1 is not always the initial Move in an introduction. Also, writers can employ a number of sequences of Moves; some sequences may contain all three Moves, but some may contain only two Moves. These sequences of Moves are known as cycles and have been reported in longer introductions, including theses. It appears that these cycles can be highly individualistic (Bunton, 1998) and a writer may omit one or more Moves within a cycle. The variations that are possible (Bunton's Modified CARS Model has 21 Steps) may help the writer to structure the introduction as recursive Moves that build specificity and complexity in layers throughout the introduction. Some types of research, such as work drawing on related topics or employing separate approaches, and possibly multidisciplinary research, may be better explained in the introduction chapter through a series of *Move-Cycles* rather than a single sequence of *Move1^ Move 2^ Move 3*.

While research has found that thesis writers' introductions vary in their use of sequences of Moves, cycles of Moves, and Steps selected within Moves, there appears to be no research published on the weighting of Moves in thesis introductions. Bunton (2002) argues that if the writer is to meet the doctorate award criteria of making an original contribution to the field, then showing the relevance of the research to previous work is crucial in the introduction. While this implies that all three Moves are important for a cohesive and convincing introduction, it is not known if thesis introductions tend to have an equal weighting for the three Moves or whether some Moves in the introductions have a higher weighting, and thus are given more emphasis. Textual analysis can investigate the frequency and weighting of Moves to identify what a writer chooses to include or omit and may further assist in revealing the disciplinary practices and expectations in engineering theses.

This paper presents preliminary observations from textual genre analysis of 11 engineering PhD thesis introductions and a small case study of three thesis introductions that reveals the cycles and weighting of Moves and Steps.

Approach

Sample and methods
The 11 PhD theses analysed were written for four of the ten schools in the Faculty of Engineering at UNSW. We initially analysed the 11 thesis introductions for typical features such as: length of introduction, number of citations, generic headings, and number of tables and graphs. The thesis introductions are from the schools of: Chemical Engineering and Industrial Chemistry (two samples), Civil and Environmental Engineering (four samples), Computer Science Engineering (two Samples) and Electrical Engineering and Telecommunications (three samples). The theses introductions were then coded for Moves and Steps based on Bunton's modified CARS model (1998). We then analysed the cycles and weighting of Moves and Steps in three thesis introductions.

In his research, Bunton analysed PhD theses to identify language problems rather than accept them as representative of the genre. However, while we have drawn on Bunton's model for its specificity and comprehensive categorisation of Moves and Steps, for the purposes of this research, we have initially taken the view that the theses offered by the academic staff represent the language norms and conventions of their genre and disciplinary culture. It was also assumed that the theses offered to us by the academic staff were adequate models for analysis in order to reveal the expectations of the faculty and to provide us with questions for future research into genre studies.

Bunton's 1998 modified CARS Model for thesis introductions was chosen as the textual analysis tool because it is the most comprehensive model of thesis introductions available at this time. The authors decided to include all the Steps from both of Bunton's Modified CARS Models for Science and Technology thesis introductions and Humanities and Social Science thesis introductions (Table 1). Given the individualistic nature of theses, this decision to combine the two models was intended to reduce the chance of excluding or misinterpreting any Steps.

Features and rhetorical structures of thesis introductions
First, section headings, number of citations, number of tables and graphs, and length of introductions were categorised and compared. The authors then completed an independent preliminary analysis of the Moves and Steps in all 11 of the introductions. Following this independent review and analysis, each researcher's coding was re-analysed and compared numerous times for consistency and reliability. Throughout the analysis of the theses, each sequence of Moves and Steps was noted in tables indicating the sequence and weight of each Move or Step. In total, 164 pages were examined with a total of 42,951 words.

This approach enabled the researchers to clarify with each other what counts as a Move and what Move or Step was being realised in the texts. According to Lewin et al., (2001), the boundaries of Move and Step "do not co-occur with the boundaries of grammatical elements such as sentences or paragraphs" (p. 34). Furthermore, lexical clues (such as grammatical reference, conjunction, clause theme etc.) are not always effective as any number of clues can perform the same function as one Move. Identifying Moves and Steps was made even more challenging as each researcher was confronted with sections of text that were difficult to code due to unfamiliarity with the subject matter or a lack of lexical clues to signal the writer's intention. In some cases, the lexical clues appeared to be misleading and thus had to be discounted during coding.

Results

This section presents our observations of key features of introduction chapters. These include chapter length, the number of citations, the placement of the aim and the function of headings in thesis introductions. We also present a small case study of weighing and cycles of Moves in three thesis introductions.

Length, citations and reference lists
While the average length of the introductions is nine pages, there is clearly variation from school to school (Table 2). Electrical Engineering and Telecommunications (EE) introductions appear to be consistently longer. Introductions from Civil and Environmental Engineering (CIV) contained the fewest number of pages, two of the introductions being only two pages in length and one nine pages in length. Chemical Engineering and Industrial Chemistry (CE) also have reasonably short introductions, while the Computer Science Engineering (CSE) introductions were examples of both a short and long introduction.

Table 2. *Summary of key features of thesis introductions*

Schools	EE	CE	CIV	CSE

Length (pages)	14	16	17	5	6	2	2	9	13	7	19
Headings	12	12	4	1	1	2	2	3	5	14	9
Citations	44	214	97	0	1	0	16	22	31	4[b]	40
Figures	0	0	0	1	0	0	0	0	2	3	11
Reference list	4[a]	no	no	0	1	0	0	6[b]	0	0	0

[a] List of 4 publications as co-author
[b] All references are authors' previous publications

The number of citations ranged from none to 214, and the number of headings and subheadings ranged from one to 14. In general it was observed that the longer the introduction, the greater the number of citations and headings used. Some interesting variations on individual use of in-text citations, reference lists and figures include the following:

- One author had only one in-text citation in the introduction and chose to present this as a reference list entry at the end of the introduction.
- One author chose to only include in-text citations that were the author's previous publications.
- In two introductions (EE and CIV) the authors chose to include a reference list of publications that arose from the research. This may indicate research by publication but is not known at this point.
- None of the EE introductions included any figures.
- One CSE introduction had 11 figures throughout its 19 pages.

Placement of the aim

Placement of the aim or intention of the thesis is often of particular concern to PhD students. It is not clear if the placement of the aim (Move 3, Step 3a) is dependent on the length of the introduction, the field, or in which cycle of Moves is likely to occur. For example, longer introductions (such as EE and CSE) placed the aim later in the introduction, usually after 10 or more pages (or over two thirds into the introduction). Shorter introductions (such as CIV and CHEM) placed the aim early, usually within the first two pages (about one third to half way into the introduction). However even the long CIV introduction (13 pages) still presented the problem statement and the aim within the first two pages (about one sixth into the introduction). It would appear that CIV and CE introductions are structured similarly to those recommended by Evans and Gruba (2002):

> …you should start by outlining the problem you intend to investigate, state the aim of the research, limit the scope of your investigation and then provide an overview of what lies ahead. Three to five pages are enough for this (p. 12).

However, further analysis of the data is required to clarify whether the aim is usually placed in a specific cycle and whether its placement is field dependent.

Headings

Headings can be categorised as generic or topic-based (Bazerman & Prior, 2004). Generic headings can apply to any research and serve more to indicate the function of the section, some examples being: background, problem statement, and thesis outline. Topic-based headings are more specific to the research and do not always signal the function of a section. The CE and CIV introductions, which are generally shorter, have more generic headings on average than EE and CSE. The EE introductions and one CSE introduction were among the longest introductions in our sample. It is probably not

surprising then that these introductions use topic-based headings to manage the greater amount of specificity and complexity and cycles of Moves that would be included in a long introduction.

Section headings and preceding and following text were also analysed for cohesion in order to confirm the function and Move coding of the headings. We considered cataphoric (i.e., cohesive linguistic unit that precedes the linguistic referent) and anaphoric (i.e., cohesive linguistic unit that follows the linguistic referent) reference (Halliday & Hasan, 1985). The examination of section headings led to further questions concerning whether or not headings are indicative of a Move and whether a Move can be embedded within another Move to function as a supporting element. For example, one introduction with a section heading, "Statement of the Problem" (Move 2 - Step 2e), then has following text which is reviewing items of previous research (Move 1 – Step 1e). It is not clear from Bunton's modified CARS model how to decide what the key Move is in this case. Evans and Gruba (2002), while dissuading writers from putting too much literature in the introduction, acknowledge that the problem statement would require some brief inclusion of the literature to help account for the worthwhile nature of the research.

Analysis of Moves and Steps – three case studies

This section presents our analysis and observations of three thesis introductions. The three thesis introductions are from Civil Engineering (CIV), Chemical Engineering (CE) and Electrical Engineering (EE). We are particularly interested in the weighting of Moves and Steps as this may reveal what is considered essential or optional in thesis introductions. In this paper weighting of Moves is based on the number of lines (and part thereof) that a Move occupies, which is then calculated as a percentage of the total number of lines in the introduction. The following textual analysis of three thesis introductions aims to determine the sequences of Moves that writers use, and the amount of text allocated for the Moves and their Steps.

Table 3 presents the individual Steps throughout each introduction to show the weighting of the Steps. The CIV introduction is the shortest and contains a series of eight short Steps, with Steps ranging from one to 14 lines. The CE introduction is also composed of a series of short Steps with the exception of two Steps: reviewing items of previous research (1e -35 lines) and indicating thesis structure (3k-30 lines). As would be expected, the longest thesis introduction, from EE, has some fairly long Steps. These longer Steps occur after a series of initial shorter Step sequences and function to: explain the significance of the research (3j -101 lines); review the literature (1e- 214 lines); and indicate the thesis structure (3k- 60 lines).

Table 3. *Step coding and number of lines per Step for 3 thesis introductions*

Steps	CIV Step code	CIV n lines	EE Step code	EE n lines	CE Step code	CE n lines
Step 1	3c	2	1c	14	1b	8
Step 2	1b	1	1b	13	1c	1
Step 3	1e	5	2e	15	1b	35
Step 4	2a	14	3j	4	3a	3
Step 5	2b	1	3b	2	3d	4
Step 6	3a	1	1b	13	3j	3
Step 7	3c	8	3j	101	2e	2
Step 8	3b	1	1e	214	3k	2
Step 9			2a	2	3c	3

Step 10		3k	60	3k	30

Of the 28 Steps in the three thesis introductions, nine Steps are elements of Move 1 – Establishing the Territory; five Steps are elements of Move 2 – Establishing the Niche; and 14 Steps are elements of Move 3 – Occupying the Niche. It would appear that elements from Move 3 occur more frequently as writers seek to explain the thesis and the significance of their research. Interestingly, these writers chose to use the fewest elements from Move 2 – Establishing the Niche with the most common element chosen being 'indicating a problem'. This confirms Bunton's (2002) finding that Step 2e 'indicating a problem' is more likely to occur in engineering theses.

We next considered the cycle and weighting of the Moves in each introduction to further analyse how writers structured the introductions and reveal what Move they chose to emphasise (see Table 4). While all three introductions appeared to use cycles of Moves, each introduction employed a different sequence of Moves. In agreement with Swales (2004) and Bunton (1998, 2002), we found that the longer the introduction, the more cycles were used. While two introductions appear to give most weight to Move 1 and Move 3, the CIV thesis has most weighting for Move 2.

Analysis of the cycles and weight of Moves and Steps in the three theses confirms that introductions are highly individualised (Swales, 2004). However, further analysis of theses is required to confirm whether individual school styles exist for thesis introductions within the Faculty of Engineering at UNSW.

Table 4. *Cycle and weight of Moves in three thesis introductions*

Cycle	Civil Engineering (2 pages)		Chemical Engineering (4.5 pages)		Electrical Engineering (17 pages)	
	Move	n lines	Move	n lines	Move	n lines
1	O	1.5	T	38.5	T	25
			N	2	N	15
			O	8	O	5
2	T	1.5	N	1	T	13
	N	22.5	+ 1/2 Page Diagram		N	5
	O	10	O	35	O	96
3					T	211.5
					N	2
					O	68
Total % weight per Move	T	4.2%	T	45.5%	T	56.6%
	N	63.4%	N	3.5%	N	5.0%
	O	32.4%	O	51.0%	O	38.4%

Key: T - Establishing a territory (Move 1)
          N - Establishing a niche (Move 2)
          O - Announcing present research/occupying the niche (Move 3)

Discussion and conclusions

This paper has presented a preliminary analysis of the structure of thesis introductions in a small sample of Faculty of Engineering PhD theses published by UNSW. Our research project aim is to eventually develop teaching and learning materials on writing thesis introductions and conclusions for thesis writing workshops offered in the Faculty of Engineering at UNSW. To achieve this, a deeper understanding of thesis introductions and conclusions is required. Using genre textual analysis as our

main approach at this point in the project, we have applied Bunton's 1998 modified CARS models to reveal the cycles and weighting of Moves and Steps in three sample thesis introductions.

Our observations agree with the literature on the individual nature of thesis introductions (Bunton, 1998, 2002; Swales, 2004; Swales & Feak, 2000). The introductions in our sample are also highly individualistic showing variation in length, number of citations, headings used, and the sequence, cycles and weighting of Moves and Steps. For some students who initially want a recipe for writing their introduction, the individuality that is revealed in the theses could be challenging and confusing. These students may need assistance to see the value in having choices as opposed to rules for writing thesis introductions. Other students may respond more positively to the range of choices as they may already prefer not to be constrained by a rigid set of Moves.

For the sequence of Moves and Steps some interesting variations were observed. In the case study Electrical Engineering sample, the literature review was a major section that came after the significance/justification of the research and could be considered a Move in its own right. Other introductions gave Move 2 (Establishing a niche) more emphasis as was revealed in the case study of the short sample Civil Engineering introduction. Further detailed analysis of the remaining introductions is needed to identify the Steps and patterns of organisation, and to assess if school-specific styles exist for structuring thesis introductions.

It may also be useful to consider whether the research is an individual project or part of a larger research project. At UNSW many researchers work in research centres, which are funded by public and private institutions, who may be local and/or international. The researchers at these centres often work as part of a team on one or more aspects of a major long-term investigation. Discussions with faculty supervisors are planned to clarify the influence of socio-historical factors, to identify additional factors and to consider the pedagogical implications of this research.

Despite the individualistic nature of the thesis introductions, some commonality was observed and this may indicate a school style or field-specific norms. Longer theses obviously had longer Moves and more Steps. Even though there was room for more details, longer introductions seem to focus on Move 1 and Move 3, rather than giving equal weight to all three Moves. Thus a long introduction was likely to have a more detailed review of the literature and a more detailed thesis outline, which often contained details of methodology, findings and their significance. Longer introductions were more likely to occur in EE, and possibly CSE. On the other hand, shorter introductions seemed to focus on Move 2 or Move 3, with more space likely to be given to describing the nature of the problem, justifying the methodology or outlining the thesis structure. Shorter introductions were more likely to occur in CIV and CHEM. As students often refer to previous theses for ideas on formatting and structure, there could be a particular school style that is influencing the structures and features of thesis introductions. Supervisor preference and choice of thesis to recommend can also have an important influence on how writers ultimately choose to organise their thesis introduction. Nevertheless, the corpus needs to be increased to assess the validity of these observations.

The limitations of our findings arise from the research approach. The problems in identifying and coding linguistic rhetorical structures have been thoroughly discussed in Lewin et al. (2001). First, it is difficult to compare our results confidently with previous research because the criteria for realisation of a Move or Step are not rigidly defined and hence do not guarantee objectivity. Furthermore, previous studies have all used different methods to measure Moves (Lewin et al., 2001). Second, given that lexical clues are not always good indicators of the writer's intention, coding for Move and Step can be difficult, at times subjective, and thus open to debate. To overcome these limitations, there is a need to consult with specialists familiar with the field that the text occupies to assess if our coding is accurate.

Future research will involve ongoing textual analysis of the sample theses introductions and conclusions. Additional sample theses will be included to assist in determining if school styles exist

and what impact the nature of the research and socio-historical aspects have on weighting of Moves in thesis introductions. Interviews and workshops with faculty staff will be conducted to share our observations and further explore how to interpret the analyses. The researchers also will seek permission to view the examiners' reports to see if any comments about the introductions and conclusions exist and what these may reveal about examiners' expectations.

To conclude, Bunton's modified CARS model for thesis introductions is a useful tool for textual analysis. The CARS model and its subsequent variations have been well received by students in academic literacy classes and programs for over ten years (Bunton, 2002; Swales, 2004). While the CARS model is still undergoing refinement, it is a useful tool for providing a common language with which to discuss the nature and structure of thesis introductions with supervisors and research students.

Note

This research had ethics approval from the Human Research Ethics Committee, UNSW, reference number 08/04/18.

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