Introduction Chapter of Traditional and Article-based Theses: A Comparison of Rhetorical Structures and Linguistic Realisations

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ABSTRACT

Article-based thesis is an alternative thesis format which requires postgraduate students to write and publish articles as a fulfilment of a postgraduate degree. Therefore, knowledge of the rhetorical structure (moves and steps) of article-based thesis (AT) is crucial for the successful completion of a thesis. This study then seeks to compare the rhetorical structures and linguistic realisations of thesis introduction chapter found in the Traditional (TT) and Article-based (AT) theses. To realise the objectives, 12 purposive selected PhD thesis introductions were analysed based on Bunton's (2002) move model. Using content analysis, the moves and steps in the introduction chapters were quantified for their frequency of use and then examined qualitatively for their linguistic realisations. The data revealed that both types of theses had obligatory and optional moves and steps. It was also found that the steps of move 3 in the article-based theses were slightly different from that in the traditional theses. For the linguistic realisations, it was shown that there were variations in the different moves and steps in TT and AT. Words such as paper and article were found in move 3 in AT but were absent in TT. The results have several pedagogical implications. They provide informed input on the structures of the two types of thesis to the writing instructors and writing curriculum writers. More importantly, the findings provide knowledge to student writers on the genre of AT, specifically its rhetorical structures and linguistic realisations.

Keywords: Thesis introduction; rhetorical structure; traditional thesis; article-based thesis; linguistic realisations

INTRODUCTION

A PhD thesis as a genre of writing is a communicative event that maintains its own rhetorical structure and organisation. However, move analysis researchers (Dudley-Evans, 1999; Thompson, 1999; Dong, 1998) are in agreement that within the genre of PhD thesis, the

rhetorical organizations may differ significantly depending on its communicative goals. As such, PhD theses could be classified into different types of rhetorical organization depending on their communicative goals. Within the PhD genre, there are variations in their rhetorical organizations. These variations in the PhD genre are the traditional PhD thesis, the topic-based PhD thesis and PhD thesis with compilation of research articles (article-based thesis). According to Paltridge (2002), traditional PhD thesis (henceforth TT) has IMRD (Introduction, Method, Results, Discussion) structure while a topic-based thesis has an introductory chapter followed by chapters based on sub-topics of the topic under investigation (Topic-based: Introduction, Topic 1, Topic 2, Topic 3, etc. Conclusions). On the other hand, article-based thesis (henceforth AT) consists of an introduction chapter followed by a series of discrete but related research articles, and ends with a concluding chapter. Each research article stands as an individual chapter in an AT. In this study, only the introduction chapter of the TT and AT was examined for its rhetorical moves and steps and its linguistic realisations.

Writing a TT or AT thesis involves knowledge of the thesis genre. Although both types of theses are different in their overall rhetorical organization, one aspect that is similar between them is that these two types of theses have an introduction chapter. The introduction chapter is pivotal for the success of the whole thesis as it primarily sets the scene of the study and convinces the reader about the importance of the study (Loan & Pramoolsosk, 2014; Carbonell-Olivares, Gil-Salom & Soler-Monreal, 2009; Swales, 2004). Therefore, it is important for academic writers to know the rhetorical structure of the introduction chapter of a thesis

In the past few decades, research on the introduction chapter in the thesis writing has captured the interest of researchers in studies on writing. The pioneer in the research of the PhD thesis is Bunton (1998) and in 2002, he was the first researcher to introduce a comprehensive PhD introduction move model which was adapted from Swales' (1990) and Dudley-Evans' (1986) models. Since then many researchers have been motivated to research on different academic texts such as the introduction chapter in theses and research articles. In 2011, Soler-Monreal, Carbonell-Olivares and Gil-Salom compared the rhetorical structures of English and Spanish PhD thesis introductions. Findings of Soler-Monreal et al.'s (2011) study revealed some differences between the two corpora. In both corpora, Move 1 (establishing a territory) and Move 3 (occupying the niche) were found in both corpora. However, Move 2 (establishing a niche) was found in all of the English corpora but not in two introduction chapters of the Spanish corpora. Additionally, Choe and Hwang's (2014) comparative study on the introduction section in three different registers (master, PhD theses and research articles) revealed that most of the PhD dissertations did not follow Swales'(1990) model (Move 1-Move 2-Move 3) and only 6 dissertations displayed the sequence of Move 1, Move 2 and Move 3. In contrast, Asuncion and Querol's (2013) study on master theses revealed that all the thesis introductions followed the three main moves. Moreover, the most common step observed in their thesis introductions was making topic generalisations (step 2) in Move 1 while the least used step was claiming centrality (step 1) in Move 1. Besides interest in examining the rhetorical moves in different academic genres. researchers were also interested in investigating the cultural and disciplinary differences of the rhetorical moves in the introduction chapter of theses. For instance, Loan and Pramoolsosk (2014) analysed master theses written by Vietnamese students. Based on Bunton's (2002) model, they found three moves in the introduction chapter. However, their study differs from previous studies in which a new step was identified in Move 3. The new step was chapter summary. Kawase (2018), on the other hand, analysed the rhetorical structure of traditional PhD theses' introduction in the field of applied linguistics (AL). He found that AL writers preferred to state the objectives of their studies in the first part of their

introduction chapters.

It is evident that the primary focus of the research mentioned so far was mainly about the rhetorical moves of the introduction chapter in the traditional theses; but research on the article-based theses is still lacking. Since research on traditional theses abounds, there is a need to fill the gap by adding to the existing literature of PhD genres, the rhetorical structure of AT. Additionally, the linguistic realisations of the rhetorical structures need to be examined to lend a more holistic view of the rhetorical structures of the introduction chapter of AT. As such, the objectives of this comparative study were two-fold. One, it sought to compare the moves (macro levels) and steps (micro level) of TT and AT and second, it attempted to compare the linguistic realisations of the moves and steps in both types of theses.

Such a study is warranted as it has been noted that AT placed a high demand on PhD candidates in terms of their ability to produce articles that are worthy of publication. For this, the candidates need to possess a 'stronger than average' motivation and language ability (https://www.massey.ac.nz/massey). Therefore, it is hoped that the findings from this study may assist aspiring student writers of AT to be aware of the rhetorical moves and linguistic realisations which may differ from the traditional ones.

METHODOLOGY

This study employed a mixed method approach which involved quantitative and qualitative analysis of the data. The quantitative analysis involved a simple descriptive statistics of frequency counts of moves and steps in the introduction chapter of both TT and AT. The frequency of moves and steps follows the classification of obligatory and optional moves and steps as propounded by Kanoksilapatham (2005). As defined by Kanoksilapatham (2005), an obligatory move or step is defined as a move or step having a frequency of above 60% while an optional move or step is classified as a move or step having a frequency of below 60%. To illustrate, the step *counter claiming* in move

1 had a frequency of 83%. It was then classified as an obligatory step while the step *defining term* (50%) in move 1 was categorised as optional. As this study compared the rhetorical moves between TT and AT, the frequency of occurrences of the moves and steps was then compared and contrasted.

In the qualitative analysis, the linguistic realisations in the moves and steps were identified based on the communicative intent of the moves and steps. For example, the communicative intent of move 3 is stating the purpose (following Bunton's (2002) model). Therefore, words such as *the objectives* and *the aim*, were identified as linguistic realisation of move 3. In this study, a glossary list of linguistic realisations based on Swales' (1990) model served as an initial list (see appendix A) for the analysis of linguistic realisations. The linguistic realisations were then compared and contrasted between the two types of theses.

SAMPLES

12 online PhD theses (6 *traditional* and 6 *article-based* theses) were selected purposively. The sample size was small because it was a pilot study to establish the rhetorical moves and steps and their linguistic realisations of TT and AT. The field of the study was not the scope of this small study. As such, only online theses that have IMRD format were classified as TT while theses with an introduction chapter followed by discrete articles were classified as AT. The theses were then randomly coded as TT1 to TT6 (TT to refer to traditional thesis) and AT1 to AT6 (AT to refer to article-based thesis) for the ease of reference and documentation (see Table 1).

Often present

TABLE 1.Coding of theses

	Traditional		Article-based
TT1	traditional thesis 1	AT1	article-based thesis 1
TT2	traditional thesis 2	AT2	article-based thesis 2
TT3	traditional thesis 3	AT3	article-based thesis 3
TT4	traditional thesis 4	AT4	article-based thesis 4
TT5	traditional thesis 5	AT5	article-based thesis 5
TT6	traditional thesis 6	AT6	article-based thesis 6

ANALYTICAL FRAMEWORK OF RHETORICAL MOVES AND STEPS

Bunton's (2002) model was adopted as the initial analytical framework for the current study (see figure 1).

Occasionally present

Often present	Occasionany present
Move 1: Establishing a Territory	
STEPS 1. Claiming centrality 2. Making a topic generalization and giving	Research Parameters
background information	
3. Defining terms*4. Reviewing previous research	
Move 2: Establishing a Niche	
STEPS	
1A: Indicating a gap in research	
1B: Indicating a problem or need	
1C: Question-raising 1D: Continuing a tradition	Counter-claiming
Move 3: Announcing the Present Research (Occupying the Niche)	
STEPS	Chapter structure
 Purposes, aims or objectives 	Research questions/Hypothesis
2: Work carried out	Theoretical positions
3: Method	Defining terms*
4: Materials or Subjects	Parameters of research
5: Findings or Results	
6: Products of research/Model proposed	
7. Significance/Justification 8. Thesis structure	Application of product Evaluation of product
The italicized phrases are Bunton's newly identified steps	Evaluation of product
The nancized phrases are bunion's newly identified steps	

FIGURE 1. Bunton's modified model for the analysis of Ph.D. thesis introductions

Bunton's (2002) model was used for this study because it was developed specifically for the analysis of PhD theses introductions. His model was developed based on Swales's (1990) and Dudley Evans' models (1986). Like Swales's (1990) and Dudley Evans' models (1986), Bunton's (2002) model also consists of three obligatory moves. They are Establishing a territory (M1), Establishing a niche (M2), and Occupying the niche (M3) (see figure 1). Additionally, he also found steps that were similar to the steps listed in Swales and Dudley-Evans' models (e.g., Claiming centrality, Making a topic generalization, Reviewing previous research, Indicating a gap in research, Question-raising, Continuing a tradition, Counter-claiming, Purposes, Work carried out, Thesis structure, Findings or Results, Parameters of research). However, he also identified ten other new steps, which were Defining terms (in Move 1), Problem/Need (in Move 2), Chapter structure, Theoretical position, Research questions/Hypotheses, Defining terms, Method, Materials/Subjects,

Product/Model proposed, Application, and *Evaluation* (in Move 3). With this richer and more comprehensive input, Bunton's (2002) model for analysing PhD theses introductions was used in this study (see Figure 1).

In addition, reliability of the adopted model in this study was accounted for through inter-rater reliability. This was established by two experienced ESL raters in the field. Both raters had PhDs in the area of English language studies and linguistics and they were specialised in the field of genre analysis. To account for the objectivity of the findings, both raters underwent a few training sessions with the researcher to familiarize themselves to Bunton's (2002) model of classification of moves. In the training session, any discrepancies were ironed out to reach a consensus on data analysis. A reliability of 96 % accuracy between the two raters showed that Bunton's (2002) model was suitable for the analysis of the compiled thesis introductions in this study. Based on the adopted Bunton's (2002) model, the results of the study were obtained.

RESULT

In this section, the discussion commences with a report on the overall results of the rhetorical moves in the introduction chapters of TT and AT. This is then followed by a discussion on the patterns and linguistic realisations of each rhetorical moves and their related steps.

OVERALL PATTERNS AND LINGUISTIC REALISATIONS OF RHETORICAL MOVES AND STEPS

Overall, the data demonstrated that PhD thesis introductions from both the TT and AT exhibited the same number of moves (3 in total). The moves *establishing a territory (M1)*, *establishing a niche (M2)* and *occupying the niche (M3)* had a frequency token of 100% for both categories of theses. It was concluded they were obligatory moves in the introductions for the theses (see Table 2).

Using Bunton's (2002) move model, findings of the study showed a number of similar steps. These steps were claiming centrality, making topic generalization, defining term and reviewing previous research in Move 1. Steps counter claiming, indicating a gap in research, question raising and continuing a tradition were found in Move 2. Steps of purposes, aims or objectives, method, materials or subjects, findings or results, theoretical positions, hypothesis and thesis structure in Move 3. However, some steps in Bunton's (2002) model were not found in the analysis of the corpora in this study. For instance in Move 1, research parameters was absent. In Move 2, step indicating a problem or need was omitted. In Move 3, several steps were not found in the study. The missing steps were a)work carried out, b)products of research/model proposed, c)significance/justification, d)chapter structure, e)defining terms, f)research question, g)parameters of research, h)application of product and i)evaluation of product. One possibility for such occurrence could be due to the guidelines requirements of thesis writing provided by the universities. This is further affirmed by Loan and Pramoolsosk (2014) who stated that different universities have different guidelines on thesis writing. Additionally, a few new steps were found in this study. These new steps were synopsis of the research paper and claim for the novelty of research/paper which were identified as steps in Move 3 of the AT theses. The reason for the inclusion of these two new steps was obvious. As a thesis with compilation of articles, writers will need to write a short summary of each article and to lay claims to the novelty of the said article. Providing insights into each paper that have been compiled in the thesis and laying claims to the uniqueness of the research demonstrate the scholarship of the AT writers. Such

scholarship demands the writers to have a higher competency of language use to craft their evaluative and critical stance in their writing (https://www.massey.ac.nz/massey).

Moves	Traditional		Article-based	
	Freq.	Percent	Freq.	Percent
Move 1	6	100%	6	100%
Establishing a Territory				
Move 2	6	100%	6	100%
Establishing a Niche				
Move 3	6	100%	6	100%
Announcing the Present Research				
(Occupying the Niche)				

TABLE 2. Moves Found in the Traditional and Article-Based Thesis Introductions

As shown in table 2, all the three moves of the introductions were found in both categories of theses. Although the frequency of occurrence of the moves of the TT and AT was similar, the steps were varied in use. In the next section, a comparison of the frequencies and linguistic realisations of each individual move and their steps in the two categories of PhD theses is discussed in detail.

MOVE 1 AND ITS RELATED STEPS

Move 1 is the first rhetorical move in Bunton's (2002) model and it has four steps. Table 3 shows the findings of move 1 and its related steps. It was then followed by a discussion with examples of their linguistic realisations.

Moves and Steps	Traditional N=6		Article-based N=6	
	Freq.	Percent	Freq.	Percent
Move 1:	6	100%	6	100%
Establishing a territory				
M1S1:Claiming centrality	6	100%	5	83%
M1S2: Making topic generalization	5	83%	6	100%
and giving background information				
M1S3: Defining terms	3	50%	3	50%
M1S4: Reviewing previous research	6	100%	6	100%

TABLE 3. Obligatory and Optional Steps of Move 1 in the Traditional and Article-based Theses

Move 1: Establishing a territory. As shown in table 3, establishing a territory, occurred in 100% of both categories of theses and are therefore deemed as obligatory. This is in line with Bunton's (2002) findings in which he also found establishing a territory as an obligatory element in the structure of thesis introduction. Move 1 motivates reading by describing the general layout of the research through the use of four proposed steps *Claiming centrality*, *Making a topic generalisation, Defining term* and *Reviewing previous research* (see examples 1-10).

Move 1 Step 1: Claiming centrality. In *claiming centrality*, the data shows that its occurrence was 100% in all the six samples of TT while there was 83% occurrence in the AT. While there is a difference, the figure of above 60% would place this step as obligatory in the introduction chapters for both types of theses. The extracts illustrated this step. The key indicators of the associated linguistic realisation of the examples are indicated in bold. Examples (1, 2, 3)

- (1) Claiming centrality(M1S1): Macrophages are well known to **play an important role** in both the tumorigenesis of MM and the immune response to tumor growth.(TT1)
- (2) Claiming centrality(M1S1): Evidence from human and animal studies suggest, for example, that genetic factors **play a prominent role** in both substance abuse and mental disorder vulnerability. (AT2)
- (3) Overall, through the widespread distribution of receptors and extensive innervation from dopaminergic neurons throughout the brain, DA neurotransmission plays a significant role in numerous central functions and behaviours. (AT5)

The linguistic realisations, as shown in the examples 1, 2 and 3- play an important role, plays a prominent role and plays a significant role highlight the importance and worth of the investigation of the study. In TT1, the phrase play an important role, gives importance to 'Macroghages for immune response to tumor growth' while AT2 plays a prominent role is linked to the prominence of 'knowledge of genetic factors for human and animal studies'. Further analysis also reveals similarity in the choice of adjectives to highlight the claims of the study. Adjective such as important and crucial are commonly used. An interesting note is that AT writers tended to deploy a wider variety of word choice to support the centrality claim. Adjectives such as major, valued, significant and effective are also found in AT theses. AT5 illustrates the use of the adjective 'significant' in the centrality claim.

Move 1 Step 2: Making topic generalization. As for step 2, making topic generalisation, this step is dominantly found in AT introductions (100%) compared to the TT (83%). This step nonetheless, is considered an obligatory step for both theses. It was also found that writers typically began their introductions by either making statements that refer to the general topic knowledge or to complex or interesting phenomena related to the topic as attention grabbers. (see examples 4,5) Examples (4,5)

- (4) Making topic generalization (M1S2): Although viral infection **is known to** stimulate the production of a range of cytokines and chemokines, the hallmark of anti-viral immune responses is the production of type I interferons (Arvin 1980; Colonna, Krug et al. 2002; Grandvaux, tenOever et al. 2002; Le Bon, Etchart et al. 2003; Coccia, Severa et al. 2004).(TT2)
- (5) Making topic generalization (M1S2):Radiotherapy **is most commonly** delivered as external beam radiotherapy, which involves the delivery of ionising radiation (e.g. x-rays, electron beams and gamma rays) from large linear acceleratos. (AT3)

As shown in example 4, most of the writers in the TT preferred to make statements that refer to the general topic knowledge such as *is known to*. In contrast, the AT writers were more attuned to the referencing of complex or interesting phenomena related to the topic. For instance, example 5 from AT3 shows the use of the expression *most commonly* that signalled the role of radiotherapy as a phenomenon. Linguistic realisations of this step is signalled by the phrases such as *is known to* and *is most commonly*. By using these linguistic realisations, the writers attempt to relate to their readers through a bonding of general topic knowledge under study.

Move 1 Step 3: Defining term. In this study, the step *defining term* was used equally (50% occurrences) in both TT and AT. Examples (6,7)

(6) Defining term (M1S4): Cancer survival is typically defined as the percentage of patients

- who are alive at a set period of time (e.g. five years) following their initial diagnoses [20]. (AT3)
- (7) Defining term (M1S4): The procedure used to evaluate the extent of breast cancer, based on size and location, **is called** staging. (TT3)

In example 6 the writer used the expression *is typically defined* while in example 7, the phrase *is called* is used. In both cases, passive structures were used in defining terms. In this study, almost all definitions appear early in the introduction. Presumably this strategy helps in grounding a better understanding of the topic or the specific area being discussed. In Bunton's (2002) study, he found this step to occur in both Move 1 and Move 3, however in the current study, the findings revealed that it was only confined to Move 1 for both categories of theses.

Move 1 Step 4: Reviewing previous research. The next step included in Move 1, reviewing previous research was found with 100% frequency in both categories of the theses. By using this step, the writer establishes the credibility of his claim. Swales (1990) elucidates that citation to other researchers' work can be integral or non-integral. In the case of the integral citation, the researcher's name is located as part of the grammatical structure and the year of publication is provided in parenthesis (see example 8). Removing the author's name would render the sentence incomplete as the subject of the sentence is missing. On the other hand, the non-integral citation can be likened to that of an appendix whereby information on the name of the cited researcher together with the year of publication is found added in parenthesis. However, if the names of the cited researchers are removed, the grammar of the sentence structure is not affected. According to the results, there was quite a marked difference in the way in-text citation was made in the theses. The TT had the highest occurrence of in-text citation compared to the AT and *integral* citation was preferred over the non-integral citation. This finding was in contrast to that of Samraj's (2008) study on master theses in which non-integral citation was the preference. Examples (8, 9,10)

INTEGRAL CITATION

- (8) Price and Sloman (1987) **argued** that humans have similar mechanisms for responding to a loss in status, and that some cases of depression might be the result of such a mechanism. (TT6)
- (9) Kavanagh et al. (2004) also **found** that 69.8% of Australians with a psychotic disorder reported current or prior tobacco use, 27.6% had a lifetime diagnosis of an alcohol use disorder and 22.8% a lifetime diagnosis of a cannabis use disorder. (AT2)

NON-INTEGRAL CITATION

(10) Reviewing previous research(M1S3): Research from South Asian countries, India, Nepal and Bangladesh (Darmstadt et al. 2006, Dongre et al. 2008, Syed et al. 2008), has indicated that mothers lack knowledge, and therefore their health-seeking behavior for sick newborns is not appropriate.(TT1)

In examples 8 and 9 (TT6 and AT2), the writers used phrases such as *argued* and *found* as reporting verbs and other prevalent reporting verbs used were *suggested* and *identified*. In example 10 from TT1, the non-integral citation is signalled by using a string of consecutive phrases referring to authors' name and year of publication in parenthesis (*eg. Darmstadt et al. 2006, Dongre et al. 2008, Syed et al. 2008*) as the convention of in-text citation.

MOVE 2 AND ITS RELATED STEPS

The second move in Bunton's (2002) model is *Establishing a niche*. Table 4 shows the findings of move 2 and its related steps. Additionally, their linguistic realisations are highlighted in the following examples.

Moves and Steps	Traditional N=6		Article-based N=6	
	Freq.	Percent	Freq.	Percent
Move 2:	6	100%	6	100%
Establishing a niche				
M2S1: Counter claiming	5	83%	4	67%
M2S2: Indicating a gap in research	6	100%	6	100%
M2S3: Question raising	5	83%	6	100%
M2S4: Continuing a tradition	6	100%	5	83%

TABLE 4. Obligatory and Optional Steps of Move 2 in the Traditional and Article-based Theses

Move 2: Establishing a niche. Establishing a niche is also an obligatory move (100%) in the introductions of both the TT and AT. This move expresses that there are aspects of the research field which still require further investigation. Concerning Move 2, four steps out of the five proposed in Bunton's (2002) model were realised from the results of the present study, such as, counter claiming, indicating a gap, raising a question and continuing a tradition (see Table 4). Therefore, the communicative purpose of this move is accomplished through the use of these four steps, which are explained in the following sections. (See examples 11 to 18 for each identified step in Move 2). In the discussion, linguistic realisations of the steps in move 2 are highlighted.

Move 2 Step 1:Counter claiming. Counter claiming which is used to introduce an opposing viewpoint or pinpoint weaknesses in previous research occurred mostly in TT (83%) compared to the AT (67%) (See table 4).

Examples (11,12)

- (11) Counter claiming (M2S1): However, the SEIFA measure **fails to capture** those most at risk of multiple forms of disadvantage in Australia as it uses broad area level indices of disadvantage. (AT1)
- (12) Counter claiming(M2S1): However, in recent years this concept has been challenged, with several papers describing pDC ability to present antigen in humans and mice (Ochando, Homma et al. 2006; Hoeffel, Ripoche et al. 2007; Sapoznikov, Fischer et al. 2007). (TT2)

In example 11 from AT1, the writer signalled the role of step 1 in Move 2 by using the phrase *fails to capture* to establish a niche for his/her study. In the example 11, the writer referred to the weaknesses of the SEIFA measure by using the term *fails to capture*. A similar realisation was found in example 12 from TT2. In this example, the writer used the phrase *has been challenged to* show the weaknesses in previous research.

Move 2 Step 2: Indicating a gap. In comparing the theses, the prominent steps in M2 in TT was, *indicating a gap* and *continuing a tradition* with 100% occurrences, while in the AT, *indicating a gap* similar to the TT was also 100% in occurrence. This 100% frequency was also indicative for *raising a question* in Move 2. According to Stotesbury (2006), statement

of the problem generally can be indicated in two ways. The first one is by indicating a gap, which is mainly recognised through *qualifier* words, for instance, *a little, a few, limited understanding* or by using contrastive conjunctions, for instance, *however* and *despite*. The second way of indicating a problem is by giving criticism of a previous study, realised through *negative words*, for example, *there are no* and *had not been investigated*. Findings revealed that most AT writers preferred to use more *negative words* to indicate the gap of the study (see example 13) while the TT writers were more intended to use *qualifier* words such as 'less' and *contrastive conjunction* such as 'but' as shown in the example 14. Examples (13,14)

- (13) Indicating a gap (M2S2): All research informing the development of plain packaging policy was conducted with general population samples, and there is **currently no research** evaluating this measure with socioeconomically disadvantaged groups. (AT1)
- (14) Indicating a gap (M2S2): Substantial progress has been made in child survival, **but less** in newborn survival. (TT1)

In example 13, sourced from the AT, the step *indicating a gap* was signalled by the use of a negative phrase such as *currently no research* to show the gap of the study on the plain packaging policy with socioeconomically disadvantaged groups. However, in example 14 from the TT, realisation of step 2 was highlighted by using the phrase *but less*. By using the contrastive conjunctive and a qualifier, the writer had shown the gap of the study on newborn survival.

Move 2 Step 3: Question raising. Another way of establishing a niche is by raising questions or doubts about the results of a particular research in the related field. In this study, *question raising* was found more dominant in AT (100%) compared to the TT type (83%).

Examples (15,16)

- (15) Question raising (M2S3): As aforementioned, it **is also unclear how** oxytocin is interacting with DA to modulate METH- related reward and METH-seeking behaviour. (AT5)
- (16) Question raising (M2S3): Having shown that status can come in many forms, we will now turn to the **question of whether** high status in humans results in the fitness payoffs that are predicted by evolutionary theory.(TT6)

In example 15 from AT5, the writer used the descriptor *unclear* to refer to an unresolved issue from a previous research. In the example 16 from TT6, the writer used the term *question* to signal a gap in the study that needs to be answered.

Move 2 Step 4: Continuing a tradition. Continuing a tradition - the last step in Move 2 occurred more dominantly in the TT (100%) than the AT (83%), in contrast to *Question raising*.

Examples (17,18)

(17) Continuing a tradition (M2S4): Substantial progress has been made in child survival, but less in newborn survival. Thus, any future child health intervention ideally needs to focus on reducing neonatal deaths. As is discussed further in Chapter Two, research is needed to facilitate better understanding of the pros and cons of existing programs

addressing maternal and newborn health in order to develop a more effective strategy for improvement in this area.(TT1)

(18) Continuing a tradition (M2S4): As aforementioned, it is also unclear how oxytocin is interacting with DA to modulate METH- related reward and METH-seeking behaviour. As such, further investigation into oxytocin action is required. (AT5)

In example 17, sourced from TT, the step *continuing a tradition* was realised by the phrase *research is needed*. This phrase refers to an existing gap in the research. This is translated to mean that in order to have new information on newborn survival, further studies should be conducted. The gap was also stated in the earlier sentence which was realised by the phrase *but less in the newborn survival*. In this example, *continuing a tradition* was located after the mention of the gap of the study. Example 18 from AT showed the step *continuing a tradition* occurring after *raising a question*. The writer signalled *continuing a tradition* by using the phrase *further investigation into...*, since it is unclear how oxytocin is interacting.

MOVE 3 AND ITS RELATED STEPS

The final move of the Introduction chapter is Announcing present research or Occupying the niche. There are 9 steps under this move. Move 3 and its related steps are illustrated in Table 5. This is then followed by a discussion on the moves and steps and their linguistic realisations.

Moves and Steps	Traditional N=6		Article-based N=6	
	Freq.	Percent	Freq.	Percent
Move 3:	6	100%	6	100%
Occupying the niche				
M3S1: Purposes, aims or objectives	6	100%	6	100%
M3S2: Method	0	0%	2	33%
M3S3: Materials or Subjects	0	0%	3	50%
M3S4: Findings or Results	1	17%	0	0%
M3S5: Theoretical positions	2	33%	1	17%
M3S6: Hypothesis	2	33%	2	33%
M3S7a: Thesis structure	3	50%	0	0%
M3S7b:Synopsis of the research	0	0%	5	83%
paper				
M3S8: Claim for the novelty of research/paper	0	0%	1	17%

TABLE 5. Obligatory and Optional Steps of Move 3 in the Traditional and Article-based Theses

Move 3: announcing present research or occupying the niche. For Move 3, this study revealed that some steps found in Bunton's (2002) model were absent in the corpus of this study.

This could be attributed to the institutional guidelines on manuscript publication. In Bunton's (2002) model, the data were obtained from the University of Hong Kong and they were from differing disciplines (Dental, Architecture, Social Science, Science, Medical, Arts, Education, Engineering). Synopsis of the research paper and claim for the novelty of research/paper were the two new identified steps in Move 3 which were only found in AT. The frequency and linguistic realisations of the steps in Move 3 for this study are described in the following sections.

Move 3 Step 1: Purposes, aims or objectives. According to Bunton's (2002) model, the first step found under Move 3 is *purposes, aims or objectives*. Findings revealed that *aims or objectives* occurred mainly in 100% for both types of theses albeit under the different section headings, such as *research aims, thesis aims, purpose of the present research* and *aims*.

It is interesting to note that most of the TT writers announced the aims of their studies by using the past tense as in the purpose of this thesis was to investigate, the present program of research was undertaken to address, a further aim was to explore (example 19). However, the AT writers were more inclined to use the present tense, such as specifically this dissertation aims to, each paper contributes to the overall aim of the thesis, which is, it is the aim of this thesis to explore, and the current research aims to examine (example 20). This may perhaps be due to the differences in how arguments are forwarded in these two different categories of theses. In a way, it could be that the writing of a TT has a tacit option of using either the present or the past tense for this move purpose, while the AT could be more conventionalised. Having to report using the present tense form is deemed suited for publication purposes. Extracts from the theses are illustrated in the examples 19 and 20 in which their linguistic realisations are highlighted in bold.

Examples (19,20)

- (19) The purpose of this thesis was to investigate potential neural mechanisms underlying the plasticity that occurs in proximal muscle representations during an INB. (TT5) (20) Specifically this dissertation aims to:
- 1. Critically review the literature of the effectiveness of mass media campaigns with smokers from socioeconomically disadvantaged groups (**Paper One**)
- 2. Examine which type of anti-smoking mass media campaign message is perceived as effective in promoting cessation among highly socioeconomically disadvantaged smokers (**Paper Two**) (AT1)

In example 19, linguistic realisations of step 1 in Move 3 is signalled by the phrase the purpose of this thesis was to investigate which was expressed in the past form. Furthermore, the writer gave emphasis to the aim of the research by adding the adverb specifically. Another distinguishing feature in the linguistic realisation of example 20 is the reference to the paper or article. The reason is obvious because the thesis is written with a compilation of multiple articles or papers.

Move 3 Step 2: Method. Another step that is found in only AT is step 2 where the writers explained their research methodology. This step was found in 33% of the AT (an optional step) while none was not found in the TT. The total absence of this move in the TT could be attributed to the convention of not stating the methodology in the introductory chapter. In fact, there is a separate methodology chapter in a thesis. Similarly, the convention of AT allows the writer to include methodology in the introduction chapter. The linguistic realisations of this step are shown in examples 21 and 22.

Examples (21,22)

(21) Across the five studies conducted as a part of this thesis, quantitative, qualitative and mixed method designs have been employed in an attempt to allow for a more complete understanding of participants' attitudes and perceptions regarding tobacco, alcohol and cannabis use. (AT2)

- (22) This question has been answered in a variety of patient populations by many research groups across countries over the last 20 years, so it is fitting to apply meta-analytic methods to pool these data together.(AT4)
- **Move 3 Step 3: Materials or subjects.** The next step which was not found in the introduction of the TT is the step that describes the material or subject. In the AT, there was a 50% occurrence, qualifying it to be an optional step, though in Bunton's (2002) model, this was considered as an obligatory step. A reference to the role of materials or subjects was signalled by the words *sample* and *participants* in example 23 (AT1) and *survey* in example 24 (AT3) accompanied by the verbs, *was recruited* and *was administered*.

Example (23, 24)

- (23)A large **sample of participants was recruited** to complete one touchscreen computer cross-sectional survey, providing data for Papers Two, Four and Five. (AT1)
- (24) These papers are based on **one survey that was administered** to patients at four Australian radiotherapy centres.(AT3)
- **Move 3 Step 4. Findings or results**. This step was only found in TT and it has only 17% occurrence. Therefore, it is an optional step. This low occurrence can be attributed to the fact that TT usually have a separate result chapter. In contrast, this step was found in each research article and not in the introduction chapter of AT. See example 25 for the linguistic realisation of this step.

Examples (25)

- (25) **These results suggest that** mesothelioma is a responsive tumor to the key anti-viral and anti-tumor cytokines belonging to the type I IFN group, production of which is stimulated by TLR7 agonists. (TT2)
- **Move 3 Step 5: Theoretical positions.** Indicating theoretical position is another step in Move 3. This step occurred with 33% and 17% frequency in the TT and AT respectively (Table 5). In both examples 26 and 27, the noun *theory* specifies the theoretical positioning accompanied by verbal expressions like *underlying this thesis* and *is plausible*.

Examples (26, 27)

- (26)Indicating theoretical position(M3S5): The **theory underlying this thesis** is that in breast cancer there is an increase in phospholipids in the hair fibres of afflicted individuals, which is also reflecting an alteration in their serum lipid profile. (TT3)
- (27)Indicating theoretical position(M3S5):Thus, the theory is plausible from psychological, biological and evolutionary perspectives. (AT4)
- **Move 3 Step 6: Hypothesis:** Another step found in Move 3 was *hypothesis* which was realised in both theses with 33% occurrences (examples 28 and 29).

Examples (28, 29)

(28) Hypothesis (M3S6): Hypothesis. **It was hypothesized that** acute post-traumatic stress, depression, and pain would be associated with lower cognitive performance on neuropsychological measures. (AT6)

(29) Hypothesis(M3S6): **Hypothesis on how** breast cancer-associated lipids are incorporated into hair (TT3)

As shown in example 28, the writer of AT had provided a hypothesis for acute post-traumatic stress, depression, and pain which was realised by the phrase *it was hypothesized that...* Similarly, linguistic realisation on hypothesis was also found in TT (see example 29). The phrase *hypothesis on how* was used to anticipate how breast cancer-associated lipids can be incorporated into hair.

Move 3 Step 7a: Thesis structure. In addition, the other major difference found between the two types of theses was in the step *thesis structure*. This step was only found in TT (50%) and was considered as optional step (see example 30).

Example (30)

(30) Thesis structure (M3S7a): Organization of thesis

The thesis consists of nine chapters.

The present chapter covers the background to and objectives of the study. ..

Chapter Two presents a comprehensive review of the literature related to ...

Chapter Three describes...

Chapters Four to Eight present the results of the study...(TT1)

It could be seen from the example that the *thesis structure* necessarily has to be addressed in somewhat different ways for both categories of theses. In example 30 from TT1, there is a direct address to the structure by reference to distinct chapter organisation such as *the thesis consists of nine chapters, the present chapter covers, chapter two presents, chapter three describes and chapters four to eight present.* However, in the AT theses, this step was identified differently in which the writers showed the structure of their theses by referring to the structure of each paper that was included in their theses. Thus, by using the noun *paper*, the writers showed the structure of each published paper which stands as each chapter of that thesis (see example 31 and 32).

Move 3 Step 7b: synopsis of the research paper: The *synopsis of the research paper* was another step in move 3 that was only found in AT. In AT, this step was realised by phrases such as *this thesis by publication is made up of five related papers, presented in Papers One to Five*, and *data presented in Papers One and Three* (see example 31). Examples (31, 32)

- (31) Synopsis of the research paper(M3S7b): This thesis by publication is made up of five related papers, rather than a series of chapters. All papers are published. These papers are based on one survey that was administered to patients at four Australian radiotherapy centres. This survey contained multiple sections. In order to answer the 5 aims of this thesis (presented in Papers One to Five), some survey sections were administered to the entire participant sample (data presented in Papers One and Three), whilst other sections were administered to smaller subsamples during the study period (data presented in Papers Two, Four and Five). (AT3)
- (32) Synopsis of the research paper (M3S7b):The FCTC addresses both demand reduction strategies as well as tobacco supply. Articles 6 14 of the WHO FCTC contain the primary demand reduction strategies,... (AT1)

In another example (32) from AT1, the linguistic realisation of this step is highlighted by reference to the articles and their content, such as $Articles\ 6-14$ of the WHO FCTC contain. In other words, it could be said that it is deemed important in some AT to provide a synopsis of each published paper in the introduction chapter. However, in TT, the thesis structure showed that each chapter provided very specific information according to its stated purpose without having to resort to a more detailed explanation of the textual content.

Move 3 Step 8: Claim for the novelty of research/paper: This was the last step identified in only (17%) AT. See example 33 for this step. Example (33)

(33) Claim for the novelty of research/paper(M3S8): Furthermore, for the first time, I examine whether inflammatory markers mediate relationships between lifestyle and depression. (AT1)

As shown in example 33 from AT1, by using the phrase *for the first time* the writer asserts that it was the first time that he/she examined the relationships between the lifestyle and depression.

DISCUSSION

This study has demonstrated the extent of the rhetorical moves and their linguistic realisations in the two types of PhD theses: the TT and AT. In general the findings showed that both TT and AT had similar move pattern in the PhD theses. This finding is congruent with the results of Bunton (2002) and Swales (1990) where all three moves were obligatory moves. However, there were variations in the use of the steps in this study. Additionally, the finding of this study revealed new identified steps which were not included in the previous move models. This new identified steps were synopsis of the research paper and claim for the novelty of research/paper in Move 3 in AT. The reason for this finding in AT is because in this type of thesis, writers need to write a synopsis of each article. However, in TT, the communicative aim is different and writers need to refer to each chapter's structure under the step thesis structure. Regarding Move 1, the finding *claiming centrality* as an obligatory step in the two types of the theses was in line with Bunton (2002) and Swales' (1990) studies. Nevertheless, this finding contrasted sharply with that of Asuncion and Querol's (2013) findings on the rhetorical move pattern of the masters' theses. In their study, the least used step in Move 1 was claiming centrality. In addition, in both types of theses making topic generalization was found as an obligatory step in Move 1. This finding supports Asuncion and Querol's (2013) study on the introduction of master theses where they too found making topic generalizations as a dominant step. Defining term was another step in Move 1 which was found different from the previous studies. This step was considered as optional in both types of the theses in the present study, while it was identified as obligatory in Bunton's (2002) study. With regard to the other step in Move 1, reviewing previous research, findings from previous studies (e.g. Bunton 2002; Soler-Monreal et al. 2011; Kawase 2018) had revealed this step to be vital and obligatory and similarly, it is so for this study.

In Move 2, the findings in this study was in contrast to Bunton's (2002) study. The step *counter claiming* was considered an optional step, while in this current study, this step was identified as obligatory in both TT and AT. This finding was also in contrast with Asuncion and Querol's (2013) study in which the step *counter claiming* was not identified in the introductions of master theses on social studies. *Indicating a gap* appears to be the most preferred step for the establishing of a niche in research in both TT and AT. This finding

corroborated the findings of the study by Choe and Hwang (2014) in which this step was found as the most dominant step in thesis and research article. Similarly, in another study by Samraj (2002), *indicating a gap* was also found as the most significant step in the introduction of the research articles in the field of Wildlife Behavior. *Question raising* was the other step in Move 2. The finding of this step in this study was in line with Bunton's (2002) findings. Like Bunton's (2002) study, it was considered as an obligatory step in both TT and AT. In the current study, *continuing a tradition* was the second most dominant step found in both types of theses, while in the study by Choe and Hwang (2014), it was found that *question raising* was the second most dominant step in the thesis and research article.

In Move 3, the step *purposes and aims* had the highest frequency (see Table 5). The importance of this step was also confirmed by Soler-Monreal et al's. (2011) study. In their study, the most prevalent step found in Move 3 in the thesis introductions written in Spanish and English was the use of step 1 outlining purposes and aims. Method and materials or subjects were the next steps in Move 3 which only observed in AT as an optional element. This finding was in contrast with Bunton's (2002) finding where these steps were considered as an obligatory step in the introductions of the TT. However, the finding of theoretical positions as an optional step in both TT and AT corroborated Bunton's (2002) data in that this step was considered an optional step. Hypothesis was found as an optional step in both TT and AT and this finding was in line with the findings of Bunton (2002). In terms of the sequencing of steps, the finding was in contrast with Bunton's (2002). He found that research question was followed by hypothesis while in the current study no indication of such sequencing was observed. Instead in this study, the step hypothesis was found before the step purposes and aims while the step research question was not found in this study. Interestingly, the main variation observed between TT and AT was in Move 3 specifically in the use of the steps thesis structure in TT and synopsis of the research paper in AT. These two steps illustrated the structure of each chapter however their linguistic realisations were expressed differently. In TT, the linguistic realisation of the step thesis structure mainly refers to the chapters of the theses. On the other hand, in the AT, the linguistic realisation of the synopsis of each research article mainly refers to the number of papers or articles included in the thesis (eg. Paper 1, paper 2, etc.). Another significant variation was observed in Move 3. As the last step in Move 3, the step claim for the novelty of research/paper was found only in AT introductions because the writers could claim for the novelty of their research. This finding was in sharp contrast with the previous studies (Swales, 1990, 2004; Bunton, 2002; Soler-Monreal et al., 2011; Asuncion & Querol, 2013; Kawase, 2018) in which no indication of the steps synopsis of the research paper and claim for the novelty of research/paper were found in their model. The reason could be because these researchers conducted their analysis on traditional type theses. AT thesis by contrast, has a very different format from TT. Its text structure requires the writers to include a synopsis for each paper in the thesis. This step in the overall structure of the AT thesis is crucial as it prepares the readers for the content of the paper. Inclusion of this step meets the readers' expectation in a thesis discourse. As a thesis with publication (article-based thesis), the claim for the novelty of research/paper is a step unique to AT thesis. It is pertinent that AT writers are able to demonstrate the worth of the papers in the thesis and in turn highlights the scholarship of the writer. Apart from these differences, the fact remains that these two categories of theses had aligned to a typical overall move structure. These findings further supported the use of Bunton's (2002) and Swales' (1990) models in the analysis of PhD theses. They also corroborated previous studies (e.g., Bunton, 1998, 2002; Samraj, 2008; Swales, 2004) in which thesis introductions were propounded as similar in their broad rhetorical structures regardless of text type.

CONCLUSION, IMPLICATION, AND DIRECTIONS FOR FUTURE STUDIES

To conclude, this study had revealed the main similarities and disparities between TT and AT introductions as found in the pursuit of moves and steps and their accompanying linguistic realisations. In general, both categories of theses abided by three obligatory moves found in a thesis introduction which is further affirmed by Swales (1990) and Bunton (2002). For most of the steps, there were also shared similarities in terms of obligatory and optional steps. However, in the case of an obligatory step, a notable disparity was found in Move 3 step 7b, which hinges on *synopsis of the research paper* found only in AT as obligatory while it was absent in TT. Moreover, among the other optional steps in Move 3, expressions for *methods* and *materials* were found to be quite different for the AT. While the TT recorded zero occurrence for these steps, they recorded at 33% and 50% in the AT respectively. Clearly, there was a definite presence of these elements in the AT even though they were optional. Moreover, besides *synopsis of the research paper*, step *claim for the novelty of research/paper* was also identified as a new step to fulfil the communicative purpose of Move 3 in only AT.

Based on the findings, it is crucial to carry out this comparative study. This study hinges on the paradigm shift in the area of academic writing and requirements and emphasis of research universities on publication for graduation. This shift warrants the introduction of a new thesis structure which is a thesis with research articles or better known as the AT in this study. With the introduction of this new PhD thesis structure, it is pertinent that a study be carried out to determine its schematic structures and linguistic realisations and how these elements differ from that of the TT. Knowing the distinctions of the theses structure between the TT and AT would ease the writing efforts of novice postgraduate students. An output of this study is a revised rhetorical move model that could be used for writing classroom instructions (see appendix B).

Besides its strength, this study also has a few limitations. As this study is a small study within a larger study, the sample size could be increased in future studies. Additionally, since the focus of this paper is on two different text types of PhD theses (TT vs AT), future studies could investigate the schematic structures and their linguistic realisations of AT in different disciplines.

In sum, analysing the rhetorical moves and steps together with their linguistic realisations in the TT and AT has offered much insight not only into the writing styles of thesis writers governed by the context of text but has also revealed the extent to which the thesis writers of the two types of the PhD theses have a general rhetorical structure. The findings of this genre-based study may also help supervisors and EAP instructors design appropriate teaching materials for thesis writers or PhD candidates. It may also help the writing instructors illustrate how different writers present their comments using different language realisations.

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APPENDIX A

LIST OF LINGUISTIC REALISATIONS OF MOVES 1,2,3

Move 1: Establishing a Territory

Extensively, most extensively, considerable, many, large body, wide interest, interestingly, central, favorite, well known, is known to, well documented, gradually accepted, standard procedure, tend to, believed, often, commonly, in the literature, previous studies...

Move 2: Establishing a Niche

However, challenged, failed, suspect, unreliable, but, little, less, few, no, not, rather, only, limited, inconclusive, restricted, in spite of, question, unclear, need to, hence, desirable, of interest to...

Move 3: Announcing the Present Research (Occupying the Niche)

This research presents, this study focuses on, this thesis proposes, this paper introduces, we present, we provide, we aim, my aim, we attempt, we describe, organized, structured, divided, we argue, the aim of study, approach provides, results indicate...

APPENDIX B

REVISED MOVE MODEL

Traditional	Article-based	
Obligatory Optional	Obligatory Optional	
Move 1:Establishing a territory	Move 1:Establishing a territory	
Steps	Steps	
Claiming centrality	Claiming centrality	
Making topic generalization	Making topic generalization	
Defining terms	Defining terms	
Reviewing previous research	Reviewing previous research	
Move 2: Establishing a niche	Move 2: Establishing a niche	
Steps	Steps	
Counter claiming	Counter claiming	
Indicating a gap in research	Indicating a gap in research	
Question raising	Question raising	
Continuing a tradition	Continuing a tradition	
Move 3:Occupying the niche	Move 3:Occupying the niche	
Steps	Steps	
Purposes, aims or objectives	Purposes, aims or objectives	
•	Method	
	Materials or Subjects	
Findings or Results		
Theoretical positions	Theoretical positions	
Hypothesis	Hypothesis	
Thesis structure		
	Synopsis of the research paper	
	Claim for the novelty	

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