

## **Definitional Clarifications in the Introductions of PhD theses: A Genre-Based Analysis\***

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### **Abstract**

PhD thesis introductions help student writers to discuss the significance of their study and establish how their study relates to and draws on previous research. The present study used a genre-based approach to examine one subsection in introductions of applied linguistics PhD theses. To that end, Iranian PhD thesis introductions were textually analysed. A researcher-made questionnaire, grounded on the responses from a semi-structured interview, was administered to Iranian applied linguists and PhD students to seek their opinions regarding how the subsection should be written. Frequency counts and statistical tests were used to analyse the data using SPSS (version 22). Results of genre analysis showed varying lengths, non-alphabetic ordering of the terms, and frequent uses of indirect quotations to organise the subsection. Results of textual analysis also revealed significant overlap between the terms in introductions and keywords in abstracts. The terms primarily derived from research questions. Results of questionnaire response analyses showed no statistically significant differences between the attitudes of applied linguists and PhD students. Implications of the study for PhD introduction thesis writing are discussed.

**Keywords:** Introductions, theses, textual analysis, genre-based approach

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### Introduction

Recent years in English for academic purposes (EAP) have witnessed a growing interest in empirical investigation of academic research genres. EAP researchers have analysed the rhetorical features of well-established genres, including research articles (RAs), following the pioneering work of Swales' Create-a-Research-Space (CARS) model (1990, 2004) with primary attention paid to RA introductions in both hard sciences such as chemistry and soft sciences like applied linguistics. Following Swales' tradition, researchers have successfully attempted to analyse RAs and subsections of an RA for rhetorical and linguistic features (see Van Enk & Power, 2017 for full treatment of an RA). Of particular interest include the works of Becky and Kwan (2017) on macro-structure analysis of RAs in information systems; Tseng (2018) on the rhetorical structure of theoretical sections of language and linguistics RAs; El-Dakhs (2018) on genre analysis of abstracts; Moghaddasi and Graves (2017) on rhetorical move analysis of mathematics RA introductions; Cotos, Huffman, and Link (2017) on move-step analysis of method sections; Bruce (2009) genre analysis of results sections of sociology and organic chemistry RAs; and Liu and Buckingham (2018) on the schematic structure of applied linguistics RA discussion sections.

In addition to RAs, other academic genres have appealed to EAP researchers. Theses as advanced learner genres (Hyland, 2006), most notably PhD theses, have recently attracted researchers' interests. Such recognition results from the assertion that PhD theses can be considered educational genres which follow their own genre-specific features and conventions (El-Dakhs, 2018). PhD student writers should follow the writing conventions of their disciplinary communities, conform to organizational structures of PhD thesis writing, recognise the purpose of the study, identify the research perspective taken in the study to present an original work (Paltridge & Starfield, 2007). As Thompson (2013) asserted, "the sheer size of the text and the complex task of planning one's research, of synthesizing one's reading, and of sustaining a coherent and extended argument, is an immense challenge for any student writer" (p. 284). As such, PhD thesis writing poses formidable problems for non-native English speaking writers who use a language other than their mother tongue to write in foreign academic cultures.

One of the main sections of a PhD thesis, which have proved to be most troublesome, is introductory chapter. As Paltridge and Starfield (2007) noted, the key role of the introduction is to create a research space for the writer. Student writers are confronted with a wealth of options to create the research space, and they need to make decisions about which options to use. Such decisions, as Swales (1990) observed in terms of research article introductions, make it difficult for student writers to structure a PhD thesis introduction. Prior research has shown that although PhD thesis introductions follow a general fixed overall structure, they tend to vary considerably in terms of the choices, which make up the overall structuring of the introduction (see Kawase, 2018, for a full treatment). Previous research has also revealed that the majority of the studies have been limited to PhD theses written by native-English speaking student writers.

Given the challenges writing a PhD thesis introduction presents and the significance accorded to it, much more research is needed to unravel both rhetorical and linguistic features of PhD thesis introductions. Although some researchers (Bunton, 2002; Kawase, 2018; Pltridge, 2002) have analysed the rhetorical structure of PhD thesis introductions and some other researchers (Kawase, 2015; Thompson, 2013) have explored the linguistic features of introductions, these studies have been limited to PhD theses written by native-English speaking student writers in English speaking countries. Furthermore, such studies have not examined the different subsections of the introduction, which may be framed differently across academic cultures.

Considering the foregoing limitations of the previous studies, the present study examines one of the subsections of a PhD thesis introduction which is variously known as definitional clarifications (Swales, 2004), or defining terms (Bunton, 2002; Paltridge & Starfiled, 2007; Kawase, 2018) across PhD theses written by Iranian PhD student writers in applied linguistics.

### **Literature Review**

#### ***Genre-based Approaches to Theses<sup>1</sup>***

Research has shown that using genre-based approaches can offer useful insights into the analysis of academic genres. Genre analysis helps researchers to analyse how different sections of an RA can be structured (see Van Enk & Power, 2017 for full treatment of an RA). As Paltridge and Starfield (2013)

explained, “with the use of genre analysis techniques, ESP students can be taught how to recognize (as readers) and mimic (as writers) the schematic structure of texts in their chosen discourse communities” (p. 80). Much earlier, Swales (1990) noted that genre analysis could enable researchers to examine the written and spoken discourse for applied aims. Similarly, Dudley-Evans and John (1998) believed that “one of the main advantages of genre analysis is its ability to relate textual findings to features of the discourse community within which the genre is produced” (p. 91).

Similarly, some researchers have argued for the potential values genre approaches to PhD thesis writing can have. As such, adopting a genre-based approach “identifies the communicative functions that thesis writers typically need to express and can identify and classify the role that resources such as metadiscourse and intertextual reference play in the mediation of the relationship between author and reader” (Thompson, 2017, pp. 388-389). Thompson is quick to note that the main value of a genre approach lies in the “heuristic potential of such an approach, rather than a set of prescriptions for how texts could be structured and expressed” (p. 379).

Following Swales (1990), researchers use moves and steps to analyse the characteristics of a genre. Moves signal both the purpose of the writer and the content s/he wishes to communicate (Dudley-Evans & John, 1998). Moves gain credibility in ESP genre analysis on the grounds that while the language of a genre as a whole is effective, the specific language associated with each move should be considered as well to enable a writer to be completely accepted by the members of the discourse community (Crossley, 2007). Some moves of a genre may be obligatory, while others may be optional; furthermore, moves can be arranged in both linear and cyclic fashion, so they may or may not follow a regular pattern of occurrence (Kanoksilapatham, 2007), and such differences cannot be disputed in terms of theoretical differences. Each move can be realized through a number of linguistic choices which function to achieve the communicative purpose of the move to which they belong; these linguistic elements such as style, tone, voice, grammar, and syntax that realise the rhetorical moves, are referred to as steps (Basturkmen, 2012; Kanoksilapatham, 2007).

Steps are the linguistic manifestations of the rhetorical and structural features of a genre; these constituent elements of the moves of the genres may either be obligatory or optional (Swales, 1990).

The trajectory of the ESP genre approach thus proceeds from a genre's schematic structure to its lexico-grammatical features (Bawarshi & Reiff, 2010). The process has tended to move from context to text, so the analysis is by no means linear or static (Flowerdew, 2002). From this point of view, genre analysis "tend[s] today to view genre as more contextual than simply textual, dynamic than static, varied than monolithic, and interesting in its shaping of and being shaped by people" (Belcher, 2006, p. 142). It is, therefore, the communicative purposes that lead to and set the rationale for a genre and form its internal construction, and moves are the rhetorical units of a written or spoken discourse, which play coherent communicative functions.

In recent years, researchers have paid considerable attention to thesis writing. A thesis, as Hyland (2006) asserted, is an advanced academic learner genre, which PhD student writers need to complete as a requirement in graduate programmes in many universities across the globe. In spite of widespread attention, lamentably, as Paltridge (2002) noted, advice on PhD thesis writing differs considerably from actual practice, making the task of thesis writing formidable for students. Although Paltridge and Starfield (2007) claimed that the expectations of any academic disciplines and educational system may influence the overall structure and organisation of a thesis, the common structure for theses is the traditional IMRD (Introduction, Methods, Results, Discussion), especially in applied linguistics.

### ***PhD Thesis Introductions***

Introductions play a strategic role in theses. Swales (1990) and Swales and Feak (2012) have discussed the reasons of significance in terms of an RA which can be (safely) transferred to thesis introductions. First and foremost, introductions create a research space for writers. To create the CARS, student writers need to make claims of centrality for the research under investigation. Second, creating a research space requires making an original contribution of knowledge (Bunton, 2002), which prompts student writers to establish how

the study relates to and draws on previous research. Third, researchers indicate the relationship between the thesis topic and the field of work, locating the study in relation to the field (Paltridge & Starfield, 2007).

PhD theses introductions tend to vary in length and citation density. Introductions tend to be shorter than the other PhD thesis sections. Bunton's (1998) analysis of 13 PhD texts showed that introductions could be as few as three pages or as long as 46 pages. Bunton's (2002) analysis of 45 introductions across disciplines indicated lengthier texts in medicine and social sciences. The major reason for such variability, as Paltridge and Starfield (2007) noted, was the embedding of literature review in introductions. Introductions may tend to be variable in citations, which may not have many references, or may use as many as 135 references to the literature. Such variations, as Swales (2004) commented, can be subject to disciplinary tendencies.

The analysis of structure and organisation of thesis introductions builds upon that of RA introductions. RA introductions serve three main communicative purposes, which Swales (1990) called moves realized through some strategies or actions known as steps: (Move 1) establishing a territory, (Move 2) establishing a niche, and (Move 3) occupying the niche. Researchers establish the territory by making claims of centrality about research and by reviewing previous research. The niche is established when writers indicate insufficient aspect of previous research and/or specify aspects of previous knowledge which need to be extended (Kawase, 2018). Finally, researchers occupy the niche when they discuss the goals, present the major findings of the study, and indicate RA structure. When Swales (2004) revisited the RA structure, he modified his 1990 model, keeping the three moves but removing and adding some steps. "Definitional clarifications" (p. 232) was another new step which Swales added to Move 3, briefly defining it as "extended definitional discussions of key terms" (p. 31).

Research has shown that thesis introductions also follow these three moves, although much disciplinary variation in terms of steps has been reported (see Kawase, 2018 for a most recent update). Using Swales' (1990) CARS model, Bunton (2002) analysed 45 PhD thesis introductions written by native and non-native students across many disciplines, including

engineering, education, arts, science, medicine, and social sciences. The results of his study showed some major differences between RA and PhD thesis introductions, although PhD thesis introductions include the three main moves. The first difference was that PhD theses used much more steps (11 more steps) to realise the moves. The second difference related to the third move in thesis introductions in which the majority of the newly identified steps were located. The third difference was related to occurrence of “defining terms” in both Move 1 and Move 3 to indicate both establishing the territory and filling the gap. The final difference concerned the cyclical nature of Move 1 and Move 2 followed by Move 3, which prompted Bunton to conclude that PhD thesis introductions followed a two-part structure.

Building on Bunton’s (2002) model and that of Paltridge (2002), Paltridge and Starfield (2007) proposed a new framework for the analysis of PhD thesis introductions. Generally, the model includes three moves and 11 steps, four of which are obligatory and the other remaining seven steps are optional. The model bears great resemblance to that of Bunton, although defining terms occurs on in Move 3 in Paltridge and Starfield model. Although Paltridge and Starfield’s model does not derive from empirical investigation of PhD thesis introductions, it can be a good starting point for empirical testing.

Primarily basing their contrastive analysis of rhetorical organisation of PhD theses on Swales’ (1990, 2004) work, Sler-Monreal, Carbonell-Olivares, and Gil-Salom (2011) examined 10 Spanish and 10 English PhD introductions in computing. Results of their genre analysis revealed some major differences between these two languages. Although both English and Spanish writers generally followed the three moves identified by Swales and used “defining terms” as a step to clarify key terms in Move 1 and in Move 3, Move 2 for Spanish introductions was optional and Spanish writers did not always use it to frame their introductions. English introductions, however, followed M1-Move 2-Move-3 sequence more closely.

More recently, Kawase (2018) analysed 20 PhD thesis introductions in applied linguistics, using Bunton’s move-step model. Kawase also compared the results of his study with those of previous studies using Bunton’s model. The findings showed that, like Sler-Monreal, María, Carbonell-Olivares, and Gil-Salom’s (2011) study, defining terms was used in Move 1 and in Move 3.

The other findings of the study included the following: (1) applied linguistics thesis introductions followed moves and steps described in Bunton (2002), (2) applied linguistics thesis writers tended to refer to materials and subjects than methodology-related descriptions, (3) applied linguistics thesis introductions used steps of the moves in various combinations to organise introductions, and (4) different disciplines used different rhetorical conventions to construct PhD introductory chapters.

### ***The Rationale for and the Research Questions of the Present Study***

The analysis of the findings of previous studies in the foregoing section suggest that PhD thesis introductions can be rhetorically and textually manifested differently across different disciplines. Notwithstanding the differences, some similarities may emerge. The findings show that almost all introductions follow some conventions—moves and steps—to organise arrangement of ideas. Moves are necessarily obligatory, but steps can be optional. Moves and steps may recycle throughout introductions, and do not necessarily follow one another in a fixed, linear order, although variations can be found across disciplines.

One of the optional steps, which emerge from the analysis of findings, includes defining terms. Although such an optional step is documented in RA introductions (see Swales, 2004, who uses definitional clarifications), it carries a more significant weight in PhD theses introductions due to larger space student writers have available to clarify key terms they use throughout the thesis. Table 1 compares this step (in boldface) in three studies on PhD thesis introductions. As can be seen, the step is repeated in Move 1 and in Move 3, which implies student writers tend to define key terms throughout the introduction to help readers fully understand the central terms and variables.

Although great significance is accorded to how key terms should be defined in PhD theses, we have no empirically driven study to help us know how long they should be, in what order they should be arranged, whether they should be defined using direct quotations, block quotations, or indirect quotations. No information exists to help student writers understand if the key terms in introductions differ from the keywords in abstracts. The following research questions were formulated to address the above gaps in the literature:

1. How long are key terms? How are they arranged? What is the nature of quotations used in defining key terms?
2. Do key terms in PhD thesis introductions differ from keywords in PhD thesis abstracts?
3. Where do key terms derive from?
4. What are Iranian PhD students' and applied linguists' perceptions of key terms?

Table 1

*Moves and Steps in the Introductions of PhD Theses across Three Studies*

Moves and Steps	Kawase (2018)	Sler-Monreal, Carbonell- Olivares, and Gil-Salom's (2011) Study	Bunton's (2002) Study
Move 1: Establishing a research territory			
Topic	19 (95.0)	9 (90.0)	38 (84.4)
generalisations/Background Centrality/Importance of topic	18 (90.0)	6 (60.0)	36 (80.0)
<b>Defining terms</b>	<b>2 (10.0)</b>	<b>8 (80.0)</b>	<b>10 (22.2)</b>
Parameter of research	2 (10.0)	N/A	2 (4.4)
Reviewing previous research	19 (95.0)	8 (80.0)	39 (86.7)
Move 2: Establishing a niche			
Gap in previous research	15 (75.0)	7 (70.0)	33 (73.3)
Question-raising	5 (25.0)	1 (10.0)	10 (25.0)
Counter-claiming	2 (10.0)	N/A	2 (4.4)
Continuing extending tradition	5 (25.0)	7 (70.0)	10 (22.2)
Problem/Need	10 (50.0)	8 (80.0)	31 (68.9)
Move 3: Occupying a niche			

Purpose/Aims/Objectives	17 (85.0)	6 (60.0)	38 (84.4)
Chapter structure	8 (40.0)	5 (50.0)	5 (11.1)
Theoretical position	9 (45.0)	N/A	6 (13.3)
Announcing research/Work carried out	17 (85.0)	8 (80.0)	12 (26.7)
Parameters of research	2 (10.0)	N/A	3 (6.7)
Research questions/Hypotheses	15 (75.0)	5 (50.0)	8 (17.8)
<b>Defining terms</b>	<b>4 (20.0)</b>	<b>5 (50.0)</b>	<b>4 (8.9)</b>
Method	9 (45.0)	6 (60.0)	33 (73.3)
Material/Subjects	11 (55.0)	4 (40.0)	11 (24.4)
Findings/Results	5 (25.0)	9 (90.0)	10 (22.2)
Product/Model proposed	2 (10.0)	N/A	10 (22.2)
Application	0 (0.0)	3 (30.0)	3 (6.7)
Evaluation	2 (10.0)	0 (0.0)	4 (8.9)
Justification/Significance	11 (55.0)	6 (60.0)	19 (47.2)
Thesis structure	17 (85.0)	10 (100.0)	31 (68.9)

*Note.* Kawase's (2018) included 20 theses; Sler-Monreal, Carbonell-Olivares, and Gil-Salom's (2011) Study 10 theses in Computing; and Bunton's (2002) study 45 theses in engineering, education, arts, science, medicine, social sciences. Adapted from "Rhetorical structure of the introductions of applied linguistics PhD theses," by C. Soler-Monreal, M. Carbonell-Olivares, and L. Gil-Salom, 2011, *Journal of English for Academic Purposes*, 31, p. 21. Copyright 2017 by Elsevier Ltd. All rights reserved.

## Method

### *Participants*

The participants of the study included Iranian PhD students and university professors in applied linguistics. Thirty applied linguists (9 females, 21 males) and 32 PhD students (12 females, 20 males) completed a researcher-made questionnaire. Applied linguists differed in their age ranging from 32 to 58, but PhD students were within 27 and 53 years of age. Years of teaching experience for applied linguists were between 5 and 25, but for PhD students teaching experience ranged from 3 to 24 years.

The snowball sampling was used to select the participants. A researcher-made questionnaire was developed and sent to 147 participants, but only 62 of them completed and returned the questionnaire. The participants were located in the Iranian Universities in which PhD programmes in applied linguistics were offered.

### ***Corpus Development***

To analyse the key terms, the researcher developed a corpus. The researcher selected the PhD theses in applied linguistics written by Iranian PhD students at Iranian universities. PhD theses in applied linguistics are available in a limited number of universities. Getting access to theses in universities was based on some rules. Due to some limitations and university requirements, it took a longer time to develop the corpus. The researcher could not access all PhD theses in applied linguistics, because some of the universities did not give free access to the theses. The total number of theses for this study was 129. Out of this number, 10 did not consist of key terms section, so they were taken out, and 119 theses remained for the analysis. Table 2 shows the universities and number of theses.

Table 2

#### *The Collected PhD theses*

University	Number of theses
Allameh Tabatabaai University	23
Kharazmi University	3
Razi University	2
University of Tabriz	2
Shahid Beheshti University	1
Shiraz University	10
Tarbiat Modares University	24
University of Isfahan	8
University of Tehran	51
Urmia University	2

Ferdowsi University of Mashhad	1
Hakim Sabzevari University	1
Shahid Chamran University of Ahvaz	1
Total	129

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### ***Instrument***

To develop the questionnaire, the researcher conducted an interview with 14 applied linguists and 12 PhD students. According to the responses provided for the interview by the participants, a close-ended questionnaire was developed. The questionnaire consisted of 22 items and it was a 5- point likert scale ranging from strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1). The items were developed based on the responses of applied linguists and PhD students in the interview. The first draft of the questionnaire included 28 items, but 6 items were deleted and for the final version, 22 items remained.

### ***Data Analysis Procedures***

IBM SPSS Statistics (version 23) was used to analyse the data. The data was analysed quantitatively. For quantitative analysis, descriptive statistics including percentages and inferential statistics including t-tests were used. To answer the first research question, the key terms and their definitions were typed in word files to be counted and the nature of quotations was analysed counting the number of direct quotations, indirect quotations, and block quotations. Frequency counts were used to answer the second and the third research questions. Finally, for the last research question, descriptive statistics including mean and standard deviation and an independent samples test were used.

## **Results**

### ***Length, Arrangement, and Nature of Quotations of Key Terms***

The first research question of the present study examined the key terms of the PhD theses in terms of their length, arrangement (alphabetic or non-alphabetic), and nature of quotations (direct, indirect, block). For the first part of the first research question, the

researcher used the Word software to count the words for each definition. Table 3 shows the minimum and maximum length of the definitions for each university.

Table 3  
*The Minimum and Maximum Length of Definitions across Theses*

University	Minimum	Maximum
Tehran	6	401
Tarbiat Modares	5	317
Allameh	5	365
Shiraz	7	698
Isfahan	10	624
Tabriz	18	119
Kharazmi	17	345
Urmia	25	165
Razi	17	63
Shahid Beheshti	31	230
Ahvaz	47	122
Hakim Sabzevari	42	260
Total	230	3,709

As shown in Table 3, in terms of length, the minimum size of the definitions for key terms is attributed to the theses written at Allameh Tabataba'i University and Tarbiat Modares university consisting only of five words. The maximum size is related to the theses of Shiraz university with 698 words. Table 4 shows the minimum and maximum length for definition of key terms for each university.

Table 4

*The Length of Definitions of Key Terms*

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University	Minimum	Maximum
Teh1	15	50
Teh2	45	57
Teh3	51	401
Teh4	37	102
Teh5	20	98
Teh6	39	178
Teh7	15	183
Teh8	21	68
Teh9	51	70
Teh10	6	279
Teh11	14	374
Teh12	12	75
Teh13	19	77
Teh14	48	61
Teh15	30	114
Teh16	10	110
Teh17	39	155
Teh18	15	81
Teh19	19	31
Teh20	45	99
Teh21	35	82
Teh22	31	316
Teh23	90	254

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Teh24	22	79
Teh25	61	188
Teh26	32	86
Teh27	18	77
Teh28	19	66
Teh29	41	106
Teh30	9	71
Teh31	36	112
Teh32	39	117
Teh33	34	83
Teh34	20	152
Teh35	14	93
Teh36	25	89
Teh37	40	128
Teh38	106	234
Teh39	17	67
Teh40	12	50
Teh41	55	184
Teh42	95	164
Teh43	10	137
Teh44	60	156
Teh45	20	62
Teh46	13	80
TM1	65	301
TM2	20	92

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TM3	5	75
TM4	18	87
TM5	86	317
TM6	111	219
TM7	21	61
TM8	41	124
TM9	16	55
TM10	40	78
TM11	17	17
TM12	28	138
TM13	70	109
TM14	20	51
TM15	26	127
TM16	15	76
TM17	11	202
TM18	27	87
TM19	14	164
TM20	48	136
TM21	43	105
TM22	40	123
TM23	24	62
TM24	16	116
AL1	56	116
AL2	9	39
AL3	28	67

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AL4	41	124
AL5	13	154
AL6	65	214
AL7	31	72
AL8	11	45
AL9	104	231
AL10	16	111
AL11	44	133
AL12	26	67
AL13	53	135
AL14	52	214
AL15	169	365
AL16	29	152
AL17	31	104
AL18	55	116
AL19	23	188
AL20	18	25
AL21	5	50
AL22	113	209
AL23	87	170
Shz1	14	109
Shz2	42	100
Shz3	7	98
Shz4	19	216
Shz5	10	47

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Shz6	26	204
Shz7	73	175
Shz8	31	78
Shz9	106	698
Isf1	26	72
Isf2	139	624
Isf3	10	69
Isf4	18	70
Isf5	14	168
Isf6	42	167
Urm1	45	126
Urm2	25	165
Razi	17	63
Sbz	42	260
Tab1	18	119
Tab2	40	83
Ahz	47	122
Khz1	17	56
Khz2	37	345
Khz3	32	101
ShB	31	230
Total	4,334	
1,6484		

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*Note.* The = Tehran; TM = Tarbiat Modares; AL = Allame Taatabaei; Shz = Shiraz; Isf = Isfahan; Khz = Kharazmi; Urm = Uromia; Tab = Tabriz; Ahz = Ahvaz; Sbz = Sabzevar; ShB = Shahid Beheshti

Moreover, the PhD thesis key terms were investigated in terms of their arrangement. They were divided into two groups of alphabetic and non-alphabetic. Out of 119 theses that had the key terms section, 42 arranged their key terms alphabetically and in the remaining 77 theses the arrangement of key terms was not done alphabetically. Table 5 shows the number of alphabetical and non-alphabetical for each university.

Table 5  
*Ordering of Key Terms across Thesis Introductions*

University	Alphabetic	Non-alphabetic
Tehran	15	31
Allameh	9	14
Tarbiat Modares	11	13
Shiraz	2	7
Isfahan	2	4
Kharazmi	--	3
Tabriz	2	--
Urmia	--	2
Razi	1	--
Shahid Beheshti	--	1
Ahvaz	--	1
Sabzevar	--	1
Total	42	77

The last part of the first question investigated the key terms in terms of their quotations. The writers used quotations to define their key terms. The definitions were divided into direct, indirect, and block quotations. The most frequent quotation type was indirect; 652 indirect quotations were found among all the quotations for defining the key terms. Direct quotation was used

389 times and block quotation was used 23 times in all the definitions of key terms.

***Key Terms: The same as or Different from Keywords?***

To answer the second research question, the researcher compared the key terms and key words to know how frequently these key terms are repeated in the key words. As mentioned previously, the total number of the theses was 129. Out of this number, ten theses did not have key terms and 69 did not have keywords in their abstracts. Therefore, the analysis was based on the 50 theses that consisted of both the key terms and keywords sections. The total number of key terms in these 50 theses was 372. Out of this number, 158 were observed in the keywords of the abstracts. Table 6 shows the number of key terms and those which are repeated in the keywords. For example, out of six key terms, only one similar word was observed in the keywords. Therefore, 43% of the key terms in the introductions were exactly repeated in the keywords of the abstracts.

Table 6

*The Frequency of Key Terms in Keywords*

Key term	Keyword
6	1
15	3
5	1
12	4
5	4
21	3
11	4
6	0
7	7
8	5
10	1
6	2

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12	0
8	3
7	4
5	2
6	2
3	0
7	3
7	1
9	0
6	6
9	5
4	3
4	1
5	5
14	2
9	3
4	2
2	1
9	6
6	3
10	2
6	1
9	6
4	3
11	5
8	5
5	3

	4	3
	6	2
	8	6
	13	12
	5	4
	3	4
	3	2
	5	2
	11	6
	9	3
	4	2
Total	372	
158		

***Key terms: Their Relations to Thesis Titles and Research Questions***

The third research question examined the relation between the key terms, titles and research questions of the PhD theses. The researcher investigated the key terms, titles, and the research questions in each thesis to understand which section (titles or research questions) was the main source for choosing the key terms. Table 7 shows the results of the investigation. As shown in Table 7, the key terms are used more frequently in the research questions than in the titles. For example, there are 12 key terms in the first thesis, one of which was seen in the title and seven of which were used in the research questions. About 25% of the key terms of introductions were found in the titles, while 49% were observed in the research questions.

Table 7

***The Frequency of Key Terms in Titles and Research Questions***

Number of Key terms	Number of key terms used in titles	Number of key terms used in Research questions
6	2	2

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12	1	7
7	0	4
10	1	5
14	4	10
6	0	4
9	6	8
14	2	1
16	4	8
5	3	3
9	4	6
5	4	3
6	2	3
9	1	7
6	4	4
2	1	1
17	2	7
12	2	6
8	4	5
3	3	3
3	2	2
20	2	4
5	1	3
7	3	4
15	3	5
5	0	1
12	3	6
5	4	4

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21	3	5
11	1	7
6	1	3
6	3	4
6	2	3
7	1	5
8	6	5
10	2	2
6	1	2
12	1	3
8	1	3
7	0	4
5	2	2
6	3	2
3	1	2
7	2	3
7	2	4
7	1	4
9	1	6
6	2	4
9	1	6
4	1	3
4	2	2
5	2	5
14	0	7
9	3	5
4	1	3

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2	0	0
9	2	2
6	2	1
10	0	3
6	0	2
9	5	4
4	2	4
11	2	4
8	4	5
5	4	4
4	2	1
6	1	5
8	4	4
13	2	2
15	3	6
5	4	0
5	0	3
2	1	1
5	1	4
9	1	5
5	2	3
5	2	2
8	3	0
9	2	2
4	0	3
15	2	4
18	3	7

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15	1	8
3	2	3
2	1	1
6	0	2
8	0	3
4	1	0
12	1	7
9	3	3
8	0	3
2	0	2
3	2	3
5	1	5
7	1	5
5	1	4
8	2	4
9	1	6
13	3	6
4	1	1
9	1	4
7	0	3
5	1	2
3	3	2
17	2	8
14	2	5
13	6	9
5	3	1
7	2	4

	13	3	4
	9	5	7
	6	2	4
	5	2	5
	11	4	6
	14	6	8
	7	2	4
	8	1	3
	9	2	3
	4	3	4
Total	950	240	463

*Applied Linguists and PhD students' attitudes towards Key Terms*

The final research question sought the attitudes of applied linguists and PhD students about key terms. The frequencies and percentages of the responses for each item were calculated and presented in Table 8.

Table 8

*Applied Linguists' and PhD Students' Attitudes*

Items	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
1	33	53.2	29	46.8	-	-	-	-	-	-
2	22	35.5	37	59.7	3	4.8	-	-	-	-
3	24	38.7	31	50.0	6	9.7	-	-	1	1.6
4	3	4.8	29	46.8	13	21.0	9	14.5	8	12.9

5	12	19.4	31	50.0	12	19.4	7	11.3	-	-
6	5	8.1	29	46.8	18	29.0	10	16.1	-	-
7	6	9.7	30	48.4	16	25.8	7	11.3		4.8
									3	
8	26	41.9	27	43.5	7	11.3	2			-
								3.2	-	
9	26	41.9	28	45.2	6	9.7	2	3.2		-
									-	
10	40	64.5	14	22.6	6	9.7	2			-
								3.2	-	
11	16	25.8	14	22.6	14	22.6	16	25.8	2	3.2
12	11	17.7	17	27.4	5	8.1	19	30.6	10	16.1
13	9	14.5	27	43.5	9	14.5	13	21.0	4	6.5
14	2	3.2	25	40.3	24	38.7	9	14.5	2	3.2
15	4	6.5	23	37.1	25	40.3	8	12.9	2	3.2
16	11	17.7	28	45.2	11	17.7	12	19.4	-	-
17	10	16.1	36	58.1	3	4.8	11	17.7	2	3.2
18	4	6.5	9	14.5	25	40.3	20	32.3	4	6.5
19	9	14.5	23	37.1	13	21.0	15	24.2	2	3.2
20	2	3.2	19	30.6	29	46.8	10	16.1	2	3.2
21	1	1.6	14	22.6	34	54.8	10	16.1	3	4.8
22	2	3.2	9	14.5	34	54.8	12	19.4	5	8.1

Note. *F* = Frequency; % = Percent; *N* = 62

In items 1, 2, 3, the participants were asked to express their agreement about selecting the key terms based on the variables, titles, and research questions of the theses. According to Table 8, applied linguists and PhD students strongly agreed to select their key terms according to the variables of the thesis (53.2%). In addition, they agreed to use the titles of the thesis to choose their key terms (59.7). The results of item 3 show that the participants agreed to select their key terms using the research questions of the thesis

(50%). Based on the results, the participants believed that the key terms in the introduction are the same as keywords in the abstracts (46.8%). In other words, they did not distinguish between the keywords and key terms.

The participants were asked about different sources of defining the key terms (literature review, theories, the experience of the experts in the field) in items 5 to 7. According to the results shown in Table 8, the participants agreed to use the literature review to define the key terms (50.0%). Also, the participants showed their agreement on using a theory to define a key term (46.8%). Moreover, item 7 asked the participants' ideas about using the experience of the experts in the field to define a key term and they agreed this item (48.4%).

In items 8 to 10, the participants were requested to express their degree of agreement on providing theoretical definitions, operational definitions, or both of them for key terms. The investigation of the results showed that the participants agreed to define the key terms theoretically (43.5%), and operationally (45.2%), but they strongly agreed to provide the readers with both the theoretical and operational definitions of key terms (64.5%).

According to the investigation, the participants agreed to arrange the key terms alphabetically (48.4%). In item 12, the number of participants who disagreed or strongly disagreed to write the key terms in order of importance was higher than those who agreed on this item (46.7%). When the participants were asked about the nature of quotations in items 13 to 15, they agreed to explain the key terms using direct quotations (43.5%), indirect quotations (40.3), and they were undecided about using block quotations (40.3). The participants agreed that a key term should occur frequently in a thesis (45.2%), but in item 17, they showed their agreement with this statement that a key term may not necessarily be repeated many times (58.1%). In item 18, the participants were undecided about the repetition of key terms as keywords in abstracts (40.3%).

The participants agreed to have at least one key term in theses (37.1%), but they were undecided about having at most 6 key terms (46.8%). In items 21 and 22, they were asked about the minimum and maximum length for a key term definition. Based on the analysis of the responses, they were

undecided about writing at least 15 words for a definition (54.8%) and at most 90 words (54.8%).

An independent sample t-test was used to test whether applied linguists and PhD students statistically significantly differed on key terms. The descriptive statistics are given in Table 9, and the inferential results are shown in Table 10. As shown in Table 10, the results showed there is no statistically significant difference between the attitudes of applied linguists and PhD students towards key terms.

Table 9

*Descriptive Statistics*

Group	N	Mean	Std. Deviation	Std. Error Mean
applied linguists	30	53.6333	6.58883	1.20295
PhD students	32	52.8750	5.45214	.96381

Table 10

*Independent-Samples T-Test for Applied Linguists and PhD students*

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total score									
Equal variances assumed	.749	.390	.495	60	.622	.75833	1.53200	-2.30613	3.82279
Equal variances not assumed			.492	56.429	.625	.75833	1.54143	-2.32901	3.84568

### Discussion

In terms of length, the investigation of PhD thesis introductions showed that 5 words and 698 words are minimum and maximum length for definitions of key terms, respectively. According to the results of the questionnaire, most of the applied linguists and PhD students were undecided about the minimum length of 15 words and maximum length of 90 words for definition of key terms, and the results of the independent t-tests showed a statistically significant difference for the minimum length, which implies these two groups hold different opinions about minimum length. The analyses showed a discrepancy between the attitudes. This discrepancy can be justified by referring to Paltridge and Starfield (2007), who believe that each university and discourse community has different expectations in writing and organising a thesis. It can be argued that the length of a definition depends on the expectations of the supervisors, the purpose of a thesis, and the requirements of the institution.

In terms of the arrangement of key terms, the results of the analysis of thesis introductions showed that most of the key terms were arranged in a non-alphabetic order. The investigation of the questionnaire responses revealed that most of the applied linguists and PhD students preferred to arrange key terms alphabetically. Applied linguists and PhD students prefer the alphabetic order because they may decide based on importance of the key terms in order to emphasise the purpose of theses.

In terms of the nature of the quotations, it was found that indirect quotation was the most frequent quotation used in the definitions. The results of the questionnaire manifested a relatively high agreement of applied linguists and PhD students about using direct quotations in defining the key terms. The reason for this discrepancy is the purpose of the study. In some studies, the writers have to use the exact quotation of the authority to convey the correct and exact meaning to the readers, while in some others they can make some changes to make the meaning clearer to the readers.

The second finding of the study was that about half of the key terms of the introductions were repeated in the abstract as keywords. The participants of this study agreed that key terms were the same as keywords. The results of the thesis investigations also showed that keywords of the abstract can repeat the key terms of the introduction. It can be argued that the key terms and keywords both play a crucial role in introducing the important concepts of the same study, so it is normal to have an overlap between these two sets of concepts. The other possible explanation may have to do with enhancing the focus of the study by repeating the main variables in both key terms and keywords. The readers will be aware of the main variables and focus more on those words by finding the terms in introductions as well as in abstracts.

The third finding of the study was that the key terms were observed more frequently in the research questions than in the titles. The applied linguists and PhD students highly agreed to choose the key terms using the titles of the theses based on the results of the questionnaire. Such differences may be because of different preferences in writing. Furthermore, according to APA, “a title should be concise and summarize the main variables of the study, the recommended length for a title is no more than 12 words” (p.23). Since the title should be short, it cannot consist of all the key terms, but research questions include more words and are longer than the titles. Therefore, it is more probable to observe the key terms in the research questions rather than the titles. On the other hand, the results of the questionnaire showed a high agreement of the participants to use the titles to select their key terms. This can be in line with the findings of the study done by Babaii and Taase (2013), who found an overlap between the keywords and titles of the articles in applied linguistics. In other words, 43% of the keywords were repeated in the titles.

The last finding of this study was that the applied linguists and PhD students did not think differently about key terms. The researcher compared their responses on the questionnaire items and did not find a

statistically significant difference. The possible reason is that PhD students follow the directions given by the applied linguists and their opinions are affected by their supervisors. The PhD students are still novice writers and need guidance and guidelines on the behalf of the supervisors as more expert writers in the field, so they rely on them to write the key terms. The final explanation may be the same cultural background. As Paltridge and Starfield (2007) pointed out, people from different cultural background may think differently. Since both the applied linguists and PhD students are from a similar culture, they may think similarly.

### **Conclusions and Implications**

Based on the findings of the present study, the following conclusions can be drawn. The first conclusion relates to the length, arrangement, and nature of quotations for key terms. What is currently being practiced in Iranian EFL PhD theses seems to differ from what both applied linguists and PhD students conceive. One reason for such a discrepancy may stem from departmental expectations in Iranian universities in which applied linguistics PhD programs are offered. Although the departments usually attempt to conform to the requirements set by the ministry of higher education and those of the university, they may also set some rules and regulations depending on the facilities, expertise, and orientations of professors, which may differ from one university to another. Another possible explanation may relate to the unavailability of any standard guidelines for both PhD students and applied linguists to follow. Although some general textbooks exist (Paltridge & Starfield, 2007), they may not be so popular and are not necessarily internationally well recognised, just as APA is for research articles. A third plausible argumentation deals with the PhD thesis as a distinct genre. As an advanced academic genre (Hyland, 2006), much less is known about it, and very little research has been done to help both supervisors and PhD students to understand how long it should be, what parts it should consist of, and how each part should be written. This is exactly the case, when the PhD thesis introduction is concerned. Although the overall macro structure of the introduction is somewhat known (see Bunton, 2002), none of the studies reviewed in this paper dealt with the definition of key terms in full length.

They just introduced the term, providing no explanation about how it should be written.

Based on the findings of the present study, it can be concluded that key terms and keywords may overlap. In other words, the keywords can repeat the key terms of the introduction. One possible explanation is that the key terms and keywords may not differ in meaning, but they may differ in function. Actually, the keywords are used to help the readers to find their required theses easily, but the key terms are written to introduce the variables and give more information about the topic of the study to the readers.

The third conclusion of this study has to do with relationship between key terms, research questions, and titles. What the applied linguists and PhD students practically apply in their writing is totally different from what they have in their minds. One of the possible reasons for this difference might be the nature and design of the study. For each study type, writers have to decide what to include in their titles or research questions and it may differ from one study to another. In some cases, the title contains the key phrases and a writer can choose his/her key terms among those phrases, but sometimes the title is too short and vague and aims to challenge the reader. On the other hand, writers have to be very clear about research questions and clarify the purpose of the study, so they should mention most of the key concepts. In this way, there will be a higher chance for the key terms to recur in research questions.

The final conclusion of the present study concerns the attitudes of applied linguists and PhD students on key terms. The applied linguists and PhD students think similarly about the key terms. The members of a community may have some common ideas about issues, and the applied linguists and PhD students both are the members of the same community. The other probable reason for justifying this similarity between two groups of participants may be the shared information about thesis writing between them. The applied linguists share their ideas and information with their students when supervising their theses, and this causes a degree of similarity.

Based on the findings of the present study, the following pedagogical implications can be discussed. When PhD student writers organise the introductions of their PhD theses, they should draw on the best common practice, which may not necessarily be found in general introductions to thesis writing, but may reflect departmental orientations differing from context to context. Although recommendations made in research publications and handbooks may help student writers to understand how introduction subsections can be successfully written, the final decision about how to best frame such subsections seem to derive from departmental expectations, supervising professors' interventions, and local contexts.

### Notes

1. In the present study, following Thompson (2013), British conventions are used to distinguish between theses and dissertations. An MA dissertation refers to the extended piece of work completed at masters' level, but a PhD thesis is used as the lengthy text produced as the culmination of doctoral research.

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