



**Rhetorical Structures of the Introduction Chapters of  
the Engineering Discipline PhD Theses in Malaysian  
Universities**

by

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A thesis submitted in fulfillment of the requirements for the degree of  
Doctor of Philosophy

**Faculty of Business & Communication  
UNIVERSITI MALAYSIA PERLIS**

2024

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## ACKNOWLEDGEMENT

In the journey towards completing this thesis, I have been blessed to receive guidance, support, and encouragement from a wide range of people and organizations. I extend my sincere thanks to each one.

First, I extend my deepest thanks to Allah SWT for providing me with the strength, wisdom, and persistence needed to undertake this academic endeavour. I've found ceaseless inspiration in His mercy and guidance.

I am profoundly grateful to my supervisors, Associate Professor Dr. Ina Suryani Ab Rahim and Dr. Sharmini Abdullah. Their continuous support, valuable insights, and academic expertise have been instrumental in shaping this research.

To my parents, Rosnah bt Idris and Zubir bin Abdullah, no words can capture the gratitude I feel. Your unwavering love and sacrifices have formed the foundation upon which this work stands.

My wife, Norlizawati bt Ghazali, and children, Farid Naufal b Faharol and Ruhil Aisyah bt Faharol, have been my steadfast support. Your understanding and love have anchored me through challenging times, and I dedicate this work to you.

I owe a debt of gratitude to my friends, Dr. Shafiq Shaharuddin, Masturah Sabri, Dr. Zailani, Dr. Syahril and Mohammad Shukor, whose support and intellectual engagement have greatly enriched my experience.

Special thanks go to my interrater, whose expert evaluations have enhanced the quality of this research.

I also extend my thanks to my siblings, in-laws, and extended family members. Your support and encouragement have been invaluable sources of strength.

Finally, I acknowledge the contributions of the Center for Graduate Studies, the Library, and the Training and Talent Enhancement Unit, UniMAP. Their resources and dedication to academic excellence have been incredibly beneficial.

This thesis is not the result of my efforts alone, but a collective achievement built on the support, love, and faith of many. To everyone who has contributed, named or unnamed, my deepest thanks are with you.

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## LIST OF ABBREVIATIONS

Move 1	Establishing a territory
Move 2	Establishing a niche
Move 3	Announcing the present research
M1S1	Claiming centrality (importance of topic)
M2S1A	Indicating a gap in research
M2S1B	Indicating a problem or need
M2S1C	Question-raising
M2S1D	Continuing/ Extending a tradition
M2S1E	Counter-claiming
M3S1	Purposes, aims or objectives
M3S2	Work carried out
M3S3	Method
M3S4	Materials or Subjects
M3S5	Findings or Results
M3S6	Product of research/ model proposed
M3S7	Justification/ Significance
M3S8	Thesis structure
M3S9	Chapter structure
M3S10	Research questions/ Hypothesis
M3S11	Theoretical positioning
M3S12	Defining terms
M3S13	Parameters of research
M3S14	Application of product
M3S15	Evaluation of product
MSO1:	Making topic generalisation and giving background information
MSO2:	Reviewing previous research
MSO3:	Defining terms

# Struktur Retorik Bab Pengenalan Tesis PhD dalam Disiplin Kejuruteraan di Universiti Malaysia

## ABSTRAK

Penulisan tesis adalah aspek penting dan kompleks dalam pengajian siswazah yang menuntut kepatuhan ketat kepada konvensi penulisan akademik. Antara pelbagai jenis tesis, tesis PhD sering dianggap sebagai yang paling rumit, membawa cabaran yang signifikan kepada pelajar siswazah. Kajian ini telah menganalisis dengan teliti 25 Tesis PhD Kejuruteraan Terbaik Malaysia, menggunakan Analisis Gerakan yang dipandu oleh Model Bunton, untuk meneroka bahagian Pengenalan, yang sering dikenal pasti dalam literatur sebagai bahagian yang paling sukar untuk ditulis. Penemuan penyelidikan ini adalah pelbagai: termasuklah pengelasan penonjolan maklumat latar belakang, kajian semula kajian-kajian terdahulu, dan definisi terma sebagai langkah bebas gerakan; penemuan kekerapan tinggi dalam mendakwa kepentingan pusat dan mengenal pasti jurang; pengiktirafan penulisan khusus disiplin melalui teknik linguistik tertentu; dan pemerhatian pengaruh budaya institusi dalam ciri-ciri seperti struktur bab. Satu model retorik bab pengenalan bagi tesis PhD dari Malaysia dalam bidang kejuruteraan juga telah ditemui hasil dari analisis. Penemuan ini bukan sekadar teoretikal tetapi mempunyai implikasi praktikal untuk penulis tesis, penyelia, pensyarah bahasa yang mengajar penulisan akademik, dan pembangun kurikulum. Kajian ini merapatkan jurang pengetahuan yang sedia ada dan menawarkan garis panduan yang boleh dilaksanakan untuk menulis pengenalan tesis, dengan aspirasi untuk meningkatkan amalan dan pedagogi penulisan akademik. Ia menyumbang perspektif berharga yang boleh memberi manfaat kepada pelajar siswazah, penyelia, pensyarah universiti, dan pembuat dasar pendidikan di Malaysia, memupuk pemahaman yang lebih kukuh dan menyeluruh tentang proses penulisan akademik.



# **Rhetorical Structures of the Introduction Chapters of the Engineering Discipline PhD Theses in Malaysian Universities**

## **ABSTRACT**

Writing a thesis is a complex yet crucial aspect of postgraduate studies, demanding high conformity to academic conventions. This is particularly true for PhD theses in the Engineering discipline, which present a unique set of challenges. This study aims to uncover the rhetorical structure of the Introduction chapters in 25 high-ranking Engineering PhD theses from Malaysia, applying Move Analysis based on the Bunton Model. The focus lies on the Introduction section, a part of the thesis often cited as the most difficult to compose. The findings reveal several novel insights: the identification of move-independent steps such as highlighting background information, reviewing prior research, and term definitions; a prevalent focus on claiming centrality and identifying gaps in existing research; the use of discipline-specific linguistic techniques; and the influence of institutional culture on chapter structuring. A distinct rhetorical model for the Engineering discipline in PhD thesis introduction from Malaysia was also discovered. These insights have both theoretical and practical implications, offering actionable guidelines for thesis writers, supervisors, academic writing instructors, and curriculum developers. The study thus fills a gap in existing research, contributing to a more nuanced understanding of the academic writing process in the Engineering discipline in Malaysia.

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## CHAPTER 1 : INTRODUCTION

### 1.1 Background of the Study

Over the last three decades, there has been a growing interest in the rhetorical structure of academic discourse, prompted by the recognition that an academic text's persuasive effect is derived not only from the scientific knowledge it convey, but also from the adept use of rhetorical and language choices that conform to the shared conventions of a particular discourse community (Bunton, 2002; Kawase, 2021; Soler-Monreal et al., 2011; Swales, 1990). Therefore, the rhetorical structure of academic writing has been an active topic of research (Ädel, 2014; Casal & Kessler, 2020; Fazilatfar & Naseri, 2014; J. C. Huang, 2018; Lu et al., 2021; Rawdhan et al., 2020; Saricaoglu et al., 2021; Wei et al., 2020; Ye, 2019; Zainuddin & Shaari, 2021). Moreover, the importance of conducting research on rhetorical structures in academic writing through text deconstruction and examination in order to make the framing of discourse visible to novice writers have been highlighted by linguists, text analyst and researchers (Arulandu, 2006; Bunton, 2002; Carbonell-Olivares et al., 2009; Ebadi et al., 2019; Kawase, 2018; Lim, 2012; Loan & Pramoolsook, 2016; Ono, 2017; Rawdhan et al., 2020; Soler-Monreal et al., 2011; Swales, 2004b; Tankó, 2017; Yoon & Casal, 2020; Zainuddin, 2012; Zand-Moghadam & Meihami, 2016).

Rhetoric is defined as the art of using language effectively (Brooks & Warren, 1979). It can be seen as an effective tool that can be deployed by skilled writers to effectively convey meaning either through the written or spoken medium and can be used as a promotional tool (Kessler, 2020; Martin & Leon Perez, 2014). It is related to the way thoughts, opinions, or suggestions to be presented clearly and effectively (Toye, 2013).

The use of rhetoric by writers in their writing can influence reader's opinion towards an issue and spark new thinking (Andrews, 2014; Gilbert & Mulkay, 1984; Kennedy, 2007). The rhetoric discipline is closely related to academic writing. This is apparent as the tradition in academic writing, and the development of the rhetoric discipline can be traced back to the B.C Era. This can be seen in the scholarly and academic writing of great and famous philosophers in the Greek civilization such as Socrates, Aristotle and Plato. Among the works of these scholars are *Antidosis* and *Against the Sofis* (Socrates), *Gorgias* and *Phaedrus* (Plato) and *Rhetoric Book I*, *Book II* dan *Book III* (Aristotle) (McCroskey, 2001).

Academic writing is a form of communication used to impart information, clarify concepts, and deliver arguments towards readers (Yoon & Casal, 2020). It is a linguistic process that involves the careful application of linguistic features that enable writers to connect with their target reader. However, academic writing is not solely composed of linguistics processes. Additionally, it encompasses socially and culturally loaded processes (Sadeghi & Alinasab, 2020), by which writers seek agreement and recognition within a discourse community using a variety of techniques, such as establishing authorial presence (Hyland & Joanna, 2021; Morton & Storch, 2019). This is consistent with Kawase (2018), who argues that excellent academic writing is defined not just by the writer's linguistic skills, but also by the writer's adept use of rhetorical devices embedded in the writing. Toye (2013) also asserted that rhetoric is powerful that it can allow writers to sway opinions, spark new thoughts and win arguments. The use of rhetoric in academic and thesis writing allows writers to convey meaning and spark new thinking which will be able to change readers' views and perception, and highlight the importance of certain points presented in the thesis. The importance of rhetoric in thesis writing is not only to

influence readers through skilful use of linguistic features but more importantly effectively deliver thoughts through writing.

In today's competitive higher education environment, postgraduate students must improve academic writing literacy in order to complete their degree on time, acquire a proper career, or earn scholarships for future postgraduate work (Khozaei Ravari & Tan, 2019). Academic excellence is directly connected to effective academic writing (Ho, 2013) and the quality of thesis writing for students (Hyland, 2004). Even though university students are expected to have strong grasp of the English language, many of them fall short of the standards required for academic writing (Linda H & Morrison, 2021; Wilcox & Jeffery, 2015). Both native and non-native speakers find graduate-level academic writing challenging (Iermolenko et al., 2021; Sadeghi & Alinasab, 2020; Vo, 2019).

The number of PhDs awarded worldwide has surged considerably in recent decades (Paltridge & Starfield, 2020a). One of the requirements to obtain a PhD degree is to write a thesis or dissertation which is an academic report of the research being submitted for the doctoral degree to be assessed and awarded (Lim et al., 2015). To obtain a PhD, a doctoral candidate needs to adhere to strict criteria and standard of the research (Barrett et al., 2021). Moreover, the academic thesis report produced must also have a high-quality standard in terms of its language aspects accompanied by the inclusion of excellent rhetorical skills (Barrett et al., 2021; Brooks-Gillies et al., 2021). An academic thesis, which comprises of chapters such as introduction, literature review, methodology, findings and discussion, and conclusion, is the last examination of a student's capacity to conceptualize, design, conduct research, analyse evidence, and participate profoundly

and meaningfully in academic discourse (Anderson & Okuda, 2021). Among the sections that make up a Ph.D. thesis, the introduction is one of the most difficult and important to write (Carbonell-Olivares et al., 2009; Cheung, 2012; Ono, 2017). The sentiment on the importance of thesis introduction chapter and challenges encountered in writing it is also shared in the Malaysian thesis writing context (Kotamjani et al., 2018; Singh, 2016). Thus, skilful use of rhetorical strategies in the introduction chapter of a thesis is crucial among thesis writers to communicate their academic thesis in a presentable manner that benefit them to their writing discourse community, which leads to recognition within their disciplinary community.

Writing in the style of or as a member of a disciplinary community has long been a significant area of research (Yin Li & Deng, 2021). Several researchers have investigated the genres required of students as they enter a disciplinary community, such as master's theses and doctoral dissertations (Ajanovic & Çizel, 2021; Geng & Wharton, 2019; Q. Li & Zhang, 2021). PhD theses are difficult to write as these authors are expected to provide unique research in accordance with the writing traditions of their respective disciplinary communities (El-Dakhs, 2018). When students pursue a degree in a particular discipline, such as engineering, applied linguistics, biology, or law, they are expected to acquire not only discipline-specific knowledge and skills, but also to engage with the content, demonstrating an ability to articulate their ideas in accordance with the discipline's established discourse practices (Nekrasova-Beker, 2019).

Within the growing demographic of individuals pursuing higher education, a significant subset is made up of those studying engineering and related fields, encompassing approximately 18% of the population aged between 25 and 64 in

developed nations (OECD, 2020). This group is surpassed only by those whose academic focus has been on social sciences, business, and law, representing 27% of the same age group. Conversely, those who have dedicated their studies to the humanities or education account for a smaller proportion, at 10% and 13% respectively (OECD, 2020). However, despite this considerable presence, the academic examination of writing practices within the engineering discipline has been relatively neglected, indicating an absence of extensive research and understanding in this field of study (Becker & Chiware, 2015; Gardner, 2008; Koutsantoni, 2006; Maher & Milligan, 2019; Samraj, 2008). Additionally, members of the engineering field have been consulted for the writing of engineering texts. Contrary to popular belief, a study done by Lattuca et al. (2006) revealed that communicating (and thus writing) is critical for engineers. This is reflected as hiring companies valued communication higher than problem solving ability (Maher & Milligan, 2019). Hasrati & Street (2009) reinforced the importance of writing by highlighting the attitude of more senior engineers toward the importance of rhetoric for successful engineering practice.

Additionally, this concept of discipline emphasizes the significance of "localized repertoires" shared within smaller networks, both institutionally anchored in departments and geographically distributed in research networks (Kaufhold & McGrath, 2019). Local cultures have an effect on disciplinary practices (Trowler, 2014) and corresponding academic genres (Kuteeva & Negretti, 2016). Holliday (1999) posited a contrast between "big culture" and "small culture," classifying small cultures in an educational setting into five interacting cultures: national culture, professional-academic culture, classroom culture, student culture, and youth culture. Connor et al., (2016) advocated, based on this dynamic view of culture, that texts be researched in their social and institutional contexts,

that culture be particularized to include "small cultures," and that texts be studied as part of dynamic, interactive patterns of communication. While it may seem reasonable for text production to have certain characteristics that transcend linguistic and ethnic boundaries, cultural variances in communication strategies are also to be expected (Soler-Monreal et al., 2011). Thus, the value of cultural investigations is recognized in genre studies (Swales, 2004a).

To sum up, the investigation of rhetorical structure in engineering thesis, particularly in the introduction section should therefore be given more attention. Regarding the investigation of culture-related variation in thesis introduction in Malaysia, such framing of discourse can be beneficial for genre-based writing pedagogy material as audience awareness is a skill that postgraduate students need for writing effective theses. It refers to the ability of a writer to answer audience needs and maintain the flow of communication with readers through words (Kakh, Mansor, & Zakaria, 2014). This paves the way to this type of research to have a contribution in the body of knowledge of disciplinary-community writing, particularly the engineering discipline and especially to postgraduate academic writing, as well as pedagogical material contribution towards thesis writers, supervisors, language instructor teaching English for Academic Purposes (EAP) and curriculum writers.

## **1.2 Problem Statement**

Academic writing conducted with limited awareness and knowledge of textual and rhetorical elements becomes problematic (Yea et al., 2020). Analysis on the macrostructure and microstructure of theses can provide insights into the structure of thesis writing (Starfield & Paltridge, 2019). Even though every section in a PhD thesis is

important, however, the introduction section has been rated as the most important and hardest section to be written (Carbonell-Olivares et al., 2009; Cheung, 2012; Ono, 2017), and this view is shared within the Malaysian context (Kotamjani et al., 2018; Singh, 2016). Additionally, Kawase (2018) highlighted that thesis introduction chapter functions to conceptualise research and explain the entire study, further contributing to the importance of the introduction section. Moreover, the introduction chapter is among the first chapter that thesis authors write, and the first chapter that thesis audience read. It functions to create a research space and establish the niche of the research (Lim, 2012; Zainuddin & Shaari, 2021). Therefore, thesis introduction contains key elements of research such as research objective, research question and purpose statement (Lim, 2014; Lim et al., 2015).

In addition, as a common practice worldwide, doctoral candidates need to submit and defend their research proposal, which consist of three chapters (introduction, literature review, and methodology), for a research proposal defence session before embarking on their research (Lim et al., 2015). This is also true for the Malaysian doctoral student academic environment. Even though thesis writing is an iterative process, however, the writing process for these three chapters, especially the introduction chapter, started from the early stages of doctoral study to account for the research proposal defence session. Therefore, it is important for doctoral candidates to grasp the rhetorical structure and linguistic realisation of thesis introduction chapter from the earliest stage possible to ensure better writing (Maher & Milligan, 2019; Yea et al., 2020). Thus, investigation on the rhetorical structure and linguistic realisation of thesis introduction chapter can make the framing of discourse visible to doctoral candidates.