

Move-Step Structure of the Introduction Section of English Medical Science Research Articles Written by Chinese Researchers Published in International Journals

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ABSTRACT

In the past decades, a number of researchers have tried hard to identify the move-step structure of different sections in research articles (RAs) from various disciplines. However, there is a very few amount of previous studies conducted on the move-step structure of the Introduction section of English medical science research articles (MSRAs) written by Chinese researchers published in international journals. In order to fill this gap, the present study aims to identify the moves, steps, and their structure of the Introduction section of English MSRAs written by Chinese researchers at Zunyi Medical University (ZMU) published in international journals. To create the target corpus of the present study, 30 Introductions were purposively selected from 25 international medical science journals, which were published from 2007 to 2015. It is worth noting that all the authors are restricted to Chinese researchers only and at least one author must come from ZMU. The framework of Kanoksilapatham's (2005) was adopted for the move-step analysis in the present study. The results demonstrated that these Introduction sections were generally written with three moves following the selected framework. In addition, there were two new steps that occurred in the Introduction section of these English MSRAs. In conclusion, the findings of the present study might provide a guideline for the research who plan to write English MSRAs for international articles more effectively. Moreover, the findings may provide valuable information for academic writing textbook designers as well.

1. Introduction

Recently, English has rapidly developed more complex relationships between communities of speakers around the world (Sharifian, 2009), and it has acquired the status of an international language. As a result, research articles (RAs) in English play the indispensable roles in advancing scientific knowledge among scholars worldwide. During the past two decades, many genre analysts have been

aware that writing RAs Introduction section poses a big difficulty for academic writers, so they have tried to find an approach to figure out the move-step structure of this genre. Swales (1990) states that writing RAs Introduction section is troublesome to almost all academic writers since they have many difficulties in academic writing^[1]. Because of the importance of Introduction section to the whole RAs and the difficulties writers may have, it has gotten more attention than other sections. Many scholars

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have shown their great interest in the study of this section. The most popular work in the field of genre analysis is Swales' (1990) Create a Research Space (CARS) model, in which he proposed three distinct moves: Move 1: *Establishing a territory*; Move 2: *Establishing a niche*; and Move 3: *Occupying the niche*.

Apart from the influential study done by Swales (1990), the Introduction section has been frequently analyzed from various disciplines. Nwogu (1997) firstly works on exploring the rhetorical structure of the medical science research articles (MSRAs) by using Swales' (1990) model. From his findings, the Introduction section includes Move 1: *Presenting background information*, Move 2: *Reviewing related research*, and Move 3: *Presenting new research*. Samraj (2002) analyzed the rhetorical structure of RAs Introduction section from two related disciplines: Wildlife Behavior and Conservation Biology, by using Swales' (1990) CARS model. The results of this study revealed that there were disciplinary variations in the structures of Introduction between these two related disciplines. Following Swales' (1990) model, Kanoksilapatham (2005) made a study on the move-step structure of complete biochemistry RAs, and proposed that the Introduction section contains three moves: Move 1: *Announcing the importance of the field*, Move 2: *Preparing for the present study*, and Move 3: *Introducing the present study*. Her work is considered as a very detailed model, which includes eight steps (see Appendix A). A new study on RAs Introduction section is worked out by Kanoksilapatham (2012) in which a contrastive study on the rhetorical structure of RAs Introduction section in three engineering subdisciplines (civil engineering, software engineering, and biomedical engineering). The results showed that all three moves occurred frequently in the three subdisciplines. Due to the disciplinary variations, some steps occurred more frequently in a certain subdiscipline than in the others. Kanoksilapatham (2012) proposed that the awareness of conventions in the academic genre helps the novice scholars to publish successfully in their field^[2].

To date, very few researchers have conducted the analysis of the Introduction of English MSRAs. Besides, there is no previous research that conducts the move-step structure analysis of the Introduction section of English MSRAs written by Chinese researchers.

Therefore, the major aim of this research is to identify the moves, steps and their structures of the Introduction section in English MSRAs written by Chinese researchers at Zunyi Medical University (ZMU), southwest of China, published in International medical science journals. In order to accomplish the objectives stated previously, the present study addresses the following research question:

What are the moves, steps, and their structures of the Introduction section in English MSRAs written by Chinese researchers at ZMU published in International medical science journals?

The findings of the present study are hoped to provide a guideline for the later researchers who hope to write English MSRAs in international publication more effectively^[3]. Moreover, the findings may provide valuable information for academic writing textbook designers as well.

2. Methodology

2.1 Corpus Compilation

Based on the criteria of representativeness, reputation and accessibility (Nwogu, 1997), in the present study, a total of 30 MSRAs written by Chinese researchers at ZMU are purposively selected from 25 prestigious international medical science journals available on China National Knowledge Infrastructure (CNKI), which is the world's largest database of research content from China (www.cnki.net) (Tang, 2007).

The criteria for the selection of these 30 RAs are as follows. First, due to the limited number of MSRAs written by Chinese researchers at ZMU published in international journals, the years of their publication are extended from 2007 to 2015. Second, the authors of the MSRAs are restricted to Chinese writers only and at least one author must come from ZMU. If the author(s) include(s) native speaker(s), those RAs will be discarded. After the purposive selection, there were 50 RAs that satisfy the above criteria, then the researcher randomly selected 30 RAs from those 50 RAs to be a representative corpus for this study.

For the purposes of move identification and easier access, the 30 Introductions of MSRAs are codified by the abbreviations I1 to I30^[4].

2.2 Analysis Framework

Move-step identification is based on the model of Kanoksilapatham (2005) for the following reasons. First, Kanoksilapatham's (2005) framework is more sufficient to be applied in the present study. She identified three moves and eight steps in the Introduction section, thus her framework is more detailed when compared with Nwogu's (1997) six steps. Second, Kanoksilapatham's (2005) framework is more updated, whereas Nwogu's (1997) model was proposed almost 20 years ago, which is far from the years of the publication of the present corpus from 2007-2015. Third, Kanoksilapatham's (2005) work also belongs to hard science similar to medical science in the present study. Lastly, Kanoksilapatham's (2005) framework has a high inter-coder reliability, which the percentage agree-

ment rate achieved more than 90%, and it has been used by later studies such as Shi (2010; 2014). This increases the reliability of this model. Due to the above reasons, the researcher decided to employ Kanoksilapatham's (2005) framework for the analysis in this current study^[5].

2.3 Move-Step Identification

Firstly, the researcher identified the organization and found the move boundaries according to the communicative purposes. In terms of move embedment, the sentence was found as only one move.

The criteria for justifying and classifying the frequency of each move are defined based on Kanoksilapatham's (2005) 60% cutting point. According to the criterion, a move is considered to be a conventional move if its frequency reaches 60% or more. If the frequency of occurrence of a move is below 60%, it is considered as an optional move.

2.4 The Inter-Coder Reliability of Move-Step Identification

To ensure accuracy in the move analysis, the inter-coder reliability was conducted in the present study. Hence, two coders, i.e. the researcher and one expert participated in this study. The expert is a PhD degree holder who graduated from the School of Foreign Languages at Suranaree University of Technology. According to Kanoksilapatham (2003), she takes 25% of the entire corpus for assessment of inter-coder reliability. According to this data, 8 RAs were randomly selected from 30 RAs. The percentage agreement rate was applied to measure the inter-coder reliability of move identification because it is popular and relatively easy to interpret. It can be computed by using the formula:

$$\text{Agreement rate} = A / (A + D) \times 100$$

(where A = the number of agreements; D = the number of disagreements).

After the two coders analyzed RAs separately, the results showed that the percentage agreement rate reached 81.25%. It is worth noting that the satisfactory agreement level of the present study will be higher than 70% following the proposed level by Kwan (2006), because this criteria has been accepted in some previous studies of the similar nature to this present study (e.g., Shi, 2014). Thus, the results demonstrated that the researcher can identify moves with a sufficient degree of accuracy. Any disagreement is discussed and negotiated^[6].

3. The Results of Move-Step Structure Analysis

The results revealed that the 30 Introduction sections

of MSRAs are consistent with Kanoksilapatham's (2005) model, which consists of three moves and 11 steps (see Appendix B). The three moves include, Move 1: *Announcing why the topic is worth investigating*, Move 2: *Preparing for the present study*, and Move 3: *Introducing the present study*. Move 1 and Move 3 occurred 100% in all RAs. A distinct difference is that Move 2: *Preparing for the present study* was present only 66.67%. It is possible to indicate that Chinese researchers have little knowledge about filling up gaps and limited language to write gap filling statements. According to Kanoksilapatham's (2005) criteria, all the three moves found in the Introduction section are conventional. It is worth noting that there were two new steps found in the present study: Move 1, Step 4: *Generalizations from previous studies* and Move 3, Step 4: *Stating the value of the present study*. Below are the detailed examples of the moves and steps found in this present study.

3.1 Move 1: Announcing why the topic is worth investigating

This move includes four steps:

(1) Step 1: Claiming the importance of the topic is used to state why the topic is important and worth conducting.

Excerpt 1: *Although the underlying cause of AD is very complex and far from fully understood, it is widely acknowledged that genetic risk factors play an important role in the incidence of AD (Gatz et al., 2006; Rogaev et al., 1995; Sherrington et al., 1995).* (I2)

(2) Step 2: Making topic generalizations serves to present the general knowledge about the present study.

Excerpt 2: *Lipopolysaccharide (LPS), a bacterial endotoxin, is widely used to produce neuroinflammation, either by systemic injection, intraventricular microinjection or chronic infusion, or by incubation with brain cells (Hauss-Wegrzyniak et al., 1998; Kim et al., 2000; Kitazawa et al., 2005).* (I1)

(3) Step 3: Reviewing the previous research is to review the previous studies which are relevant to the study being reported^[7].

Excerpt 3: *It has been reported that the TCR repertoire of variable gene segments in humans comprises more than 70 TCR AV (variable gene of TCR α chain)* (I2)

(4) Step 4: Generalizations from previous studies offers the conclusions, research gaps or limitations from previous studies.

Excerpt 4: *These events cannot be interpreted only by the mechanism at supraspinal levels, leading us to speculate that some underlying mechanisms involved in the spinal cord and/ or dorsal root ganglion (DRG) might play*

an important role in LA analgesia. (I14)

Move 1, Steps 2 and 3 were frequently used, with the frequency of 100% and 96.67%, respectively, while Move 1, Steps 1 and 4 were less used, with only 53.33% and 40%, respectively. The results indicated that the Chinese medical science researchers prefer to provide the general knowledge of the study being reported and review the previous studies. In addition, Move 1, Step 4 is a new step in MSRAs written by Chinese researchers comparing with biochemistry RAs in Kanoksilapatham (2005). This shows that the Chinese medical science researchers tend to generalize the conclusions or limitations from previous studies^[8].

3.2 Move 2: Preparing for the present study

The communicative purposes of this move are to show the weakness of the previous studies and to assert that a particular research problem demands to be solved. Unlike Moves 1 and 3 which were present 100%, the occurrence of Move 2 was much less frequent, being found with only 66.67% of the corpus. The data show that Move 2 has two variations: Step 1: *Indicating a gap* and Step 2: *Raising a research problem*. The realization of Move 2, Steps 1 and 2 is illustrated in Excerpts 5–6.

(1) Step 1: Indicating a gap states the insufficiency of the previous research in the area of the study being reported.

Excerpt 5: *However, it remains unknown about the detailed characteristics of CDR3 length repertoire in peripheral blood of healthy people.*(I4)

(2) Step 2: Raising a research problem has the function to indicate a problem needing a solution and the demand for the investigation of the study being reported.

Excerpt 6: *The safety of long-term use of NSAIDs has, however, been questioned, and providing other potential anti-inflammatory treatments for AD remains essential.* (I13)

Move 2, Step 2: Raising a research problem is the least frequent step in the present study, which occurred only 13.33%. The finding demonstrates that the Chinese medical science researchers tend to avoid mentioning the research problems when they write MSRAs.

3.3 Move 3: Introducing the present study

The communicative of this move is to fill up the gaps or to announce the solution to the problem identified in Move 2. Move 3 is conventional move, which occurred 100% in the corpus. There are three steps to achieve this move:

(1) Step 1: Stating purpose. This step is to state objectives of the study.

Excerpt 7: *This study was aimed at addressing the*

effects of Dendrobium alkaloids on rat primary cultured neurons subjected to oxygen-glucose deprivation/reperfusion (OGD/RP), in an attempt to find a new multifunctional cytoprotective agent to treat ischemic brain vascular diseases^[9]. (I11)

(2) Step 2: Describing procedures is to state the main procedural features of the study being report.

Excerpt 8: *We developed an A/R model using adult cardiomyocytes freshly isolated from rat to mimic the IR microenvironment in vivo.* (I9)

(3) Step 3: Presenting findings whose function is to show the overall findings of the study and let readers be curious about how the results were obtained. This will motivate readers to read further.

Excerpt 9: *The results clearly demonstrated G. lucidum spore is effective in protecting against Cd(II) hepatotoxicity, probably through the induction of Metallothionein.* (I5).

(4) Step 4: Stating the value of the present study whose communicative purpose is to state the contribution and significance of the research.

Excerpt 10: *The results would provide the basic data for investigating TCR gene recombination, and CDR3 pedigree drift in disease state.* (I14)

Move 3, Step 1: *Stating research purposes* is a conventional step, which was found 80% in the corpus. However, Move 3, Steps 2, 3 and 4 were employed less frequently. The results revealed Move 3 is realized mainly by stating the research purposes. In addition, most Chinese researchers prefer to keep the methodology and research findings later in the Methodology and Results sections. Lastly, Move 3, Step 4: *Stating the value of the present study* is a new step in this corpus of MSRAs. It indicates that the Chinese medical science researchers tend to claim the value of their study in the Introduction too^[10].

4. Discussion and Conclusion

The objective of the study is to identify the moves, steps and the structure of English MSRAs Introduction sections written by Chinese researchers at ZMU to gain rhetorical information of composing such genre to help Chinese researchers write their MSRAs more effectively. Overall, three moves and ten steps were found in the present study. Compared with Nwogu (1997), Posteguillo (1999) and Kanoksilapatham (2005), similarly, 3 moves were revealed in the Introduction section. The move frequency of the 3 moves was consistent with Kanoksilapatham (2005), and all the 3 moves were conventional moves in both studies. However, some differences were also found. For instance, there are 6 steps in Nwogu's (1997), 8 steps in Kanoksilapatham's (2005), while 10

steps in the present study. Therefore, the move-step structure identified in the present study was more detailed than the previous studies. Move 1, Step 4: *Generalizations from previous studies* and Move 3, Step 4: *Stating the value of the present study* were found to be new moves which were not found in Nwogu (1997), Posteguilo (1999) and Kanoksilapatham (2005). It showed that nowadays the Chinese researchers in medical science seem more likely to generalize the conclusions, research gaps or limitations from previous studies and they placed more emphasis on highlighting the contribution and value of their own research. Interestingly, Move 3, Step 3: *Presenting findings* was not found in Nwogu's (1997) study, and a possible reason for this difference might be that the previous medical science researchers would like to keep the findings in the Results section, while today's medical science researchers prefer to report the main findings before the Results section in order to motivate readers to read further^[11].

In Nwogu's (1997) study, Move 1 is an optional move. The aim of Move 1 is to show background. In this study, Move 1: *Stating why the topic is important* is an obligatory move, because all the 30 RAs have this move. In addition, the Step *Making topic generalizations* was frequently but not always used in Posteguillo's (1999) study. However, the appearance of this step was 100% in this research. A reasonable explanation might be the shorter history of computer science. In addition, it can be indicated that the medical science researchers prefer to generalize the topic knowledge of the study being reported.

The Step *Review of literature* was found to be frequently used in the previous studies. The authors in different areas have to review and comment on previous studies before they describe their own studies. In the present study, the literature review was very frequently used by the medical science researchers, with the occurrence of 96.67%. It is indicated that this step helps the medical science researcher to find out what is already investigated. In addition, it enhances the researchers' credibility by indicating that the reported research is based on a thorough knowledge of the subject under study, making their RAs more convincing and persuasive^[12].

The findings of the present study are hoped to be useful to the medical science researchers at ZMU and in general the best understand developments of the move-step structure of MSRAs. The awareness of this research sets patterns of move-step structure of MSRAs may be useful to medical science researchers to write English MSRAs that are possible to be accepted by international English medical science journals. Moreover, the move-step structure framework attained from this present study might shed some light on the MSRAs writing for medical science re-

searchers in other countries with similar EFL contexts.

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APPENDIX A
THE INTRODUCTION SECTION FRAMEWORK OF KANOKSILAPATHAM (2005)

Move/Step	Frequency of Occurrence (%)
Introduction	
Move 1: Announcing the importance of the field	100%
Step 1: Claiming the centrality of the topic	
Step 2: Making topic generalizations	
Step 3: Reviewing previous research	
Move 2: Preparing for the present study	66.66%
Step 1: Indicating a gap	
Step 2: Raising a question	
Move 3: Introducing the present study	100%
Step 1: Stating purpose(s)	
Step 2: Describing procedures	
Step 3: Presenting findings	

APPENDIX B
THE FRAMEWORK OF THE MOVE-STEP STRUCTURE OF
INTRODUCTION SECTION OF ENGLISH MEDICAL SCIENCE RESEARCH ARTICLES WRITTEN BY CHI-
NESE RESEARCHERS

Move/Step	Frequency
	The Introduction of MSRAs (N=30)
M 1 Stating why the topic is worth investigating.	30 (100%)
S1 Claiming the importance of the topic	16 (53.33%)
S2 Making topic generalizations	30 (100%)
S3 Reviewing the previous research	29 (96.67%)
*S4 Generalizations from previous studies	12(40%)
M 2 Preparing for the present study	20(66.67%)
S1 Indicating a gap	17 (56.67%)
S2 Raising a research problem	4(13.33%)
M 3 Introducing the present study	30 (100%)
S1 Stating purpose	24 (80%)
S2 Describing procedures	6 (20%)
S3 Presenting findings	7 (23.33%)
*S4 Stating the value of the present study	9 (30%)

Note:

1. N=the total number of analyzed RAs Introduction sections in this study
2. %= the frequency of occurrence of a move/step
3. * = new move or step
4. M= move; S= step