

## **Genre Analysis of introduction section of English and Persian Articles in Mechanics**

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### **Abstract**

This study was an attempt to conduct a contrastive study of genre analysis on the introduction section of English and Persian Mechanical Engineering Research Articles published in journals, following Swales' (1990) CARS (Creating a Research Space) model. To this end, sixty English and sixty Persian recent research article introductions were randomly extracted from nine English and Persian Mechanical Engineering Journals written by different authors.

According to Swales' (1990) CARS model, *Move Analysis* was conducted to collect the necessary data. The study investigated them following areas across the introduction section of English and Persian Mechanical Engineering Research Articles: (a) the significance of the frequency of each Move; (b) the significance of the frequency of each Step. To study the Move and Step frequency, and Linguistic Features of the Moves, Chi-square tests were run as appropriate nonparametric tests. The results of Chi-square tests for move analysis were non-significant, which show that the difference between English and Persian moves of Mechanical Engineering is not significant. The results of Chi-square for Steps frequency and Linguistic Features were significant which shows that there is a considerable difference between the frequency of English and Persian steps. The results of the study may be useful for those ESP (English for Specific Purposes) teachers who are teaching English to Mechanical Engineering students.

**Key Words:** <sup>1</sup>Genre, <sup>2</sup>Genre Analysis, <sup>3</sup>Move, <sup>4</sup>Steps, <sup>5</sup>Mechanical Journal Article.

## 1. Introduction

The fascination of uncovering the undivulged world has engaged many scholars in research, and as a result, writing a research report is one means of revealing one's research finding to the others concerned with the same issue. Nevertheless, what is more important than the finding itself is representing the finding to the world and promoting the existing body of human knowledge. As a result, the most important text type in ESP (English for Specific Purposes) and EAP (English for Academic Purposes) in particular, is research article. Within this text type, research article introduction is a genre in itself (Swales, 1990; Bhatia, 1993) as distinct from other sections of a research article. As Swales 1990 argues the reason for the wide studies on research article introductions is that they are the most difficult parts for writers. The causes of this

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<sup>1</sup> A genre is a class of texts characterized by specific communicative function that tends to produce distinctive structural patterns or a class of communicative events, the members of which share some set of communicative purposes (Swales, 1990).

<sup>2</sup> Genre Analysis is the process that identifies organization of Moves in a given genre and "the linguistic features that expert users of the genre have chosen to realize their communicative purpose" (Henry & Rosebury, 1988, p. 147).

<sup>3</sup> A Move is defined to be segments, elements, or stages comprising a genre each of which serves as a part of the total communicative purpose of that genre (Henry & Rosebury, 1988).

<sup>4</sup> Each Move consists of some steps, which work forward to the realization of the purpose of that move. According to Swales (1990) if a Move can only be realized by a series of strategies in a particular order, then strategies can be thought of as steps.

<sup>5</sup> It refers to Mechanical Engineering articles that are published in English and Persian journals and represent a report of an empirical research.

difficulty are the numerous options and decisions in this section: the amount of background knowledge, the authoritative versus sincere tone, the winsomeness of the appeal to readers, and directness of the approach they should incorporate into their writing. Swale 1990 enumerates ten textual studies (from 1979 to 1987) of English introductions as the most widely studied genre in research article as a whole.

A neglected point within the genre area is genre-based language teaching. The reason for this negligence should be looked for in the students' ignorance of genre conventions, the teachers' inclinations toward traditional approaches, and the syllabus designers' reluctance in cooperating genre-based approaches into the teaching syllabi. Swales 1990 voiced his concerns over the fact that the foreign language students need to be taught how to write journal articles, while their need is overlooked and taken for granted that researchers are capable of writing research reports without receiving any instruction. Genre analysis can be introduced as a means of providing students with beneficial frameworks within which they can improve their writing ability. Consequently, many recent studies have focused on the concept of genre (Bhatia, 1993, 1997; Connor & Mauranen, 2001; Dudley- vans, 1994; Flowerdew, 1993; Henry & Rosebury, 1996, 1998; Hicks, 1997; Holmes, 1997; Hyon, 1996, 2000; Kay & Dudley-Evans, 1998; Mustafa, 1995; Martin, 2003; Mavor & Trayner, 2001; Newton & Kennedy, 1996; Paltridge, 1994, 1995, 1996; Rowley, 2002; and Swales, 1990). In teaching any language, the generic structure of any given text type should be taken into account. Therefore, there is a need to incorporate findings into syllabi through which we teach our students how to comprehend and, if necessary, produce academic prose. One intention of this study is to investigate the contrastive properties of Move structure of genre of research article introduction in English and Persian. In the following study, the question is whether Rhetorical differences presented in English and Persian Mechanical research articles are powerful enough to claim that they are of different genres. Furthermore, we try to find where they are different, what the differences are, and how we can help Iranian Mechanical Engineering students to write their English research article based on the genre of English Mechanical research articles.

In experimental parts of this study, rhetoric is confined to (a) *Move* and (b) *step structures* of research article introduction (as elaborated by Swales, 1990) We intend to determine, solely in terms of Move and step structure of introduction section of Mechanical Research Article of English and Persian.

### 1.1 Background

Writing research reports published as journal articles has been proved a difficult task for non-native speakers of English. University students' *need* to both comprehend and produce academic prose of various related disciplines has led to this belief that non-native researchers need instruction on how to write various section of a journal article, (Dudley- Evans, 1994; Mustafa, 1995; Swales, 1990). Research article rhetorical structure in so many fields should primarily be identified precisely so that they may be taught to students to enable them to cope with their academic reading and writing assignments; nevertheless, before starting to find differences we need a model to help us understand, describe, and explain the genre itself. This need has brought genre analysis into the pedagogical scene. Genre Analysis can be of great help to our instructors to make learners well-aware of how genres differ from and within each other and "how they can go about discovering these differences" (Flowerdew, 1993: 306).

An elaboration on the concept of genre analysis seems indispensable here.

Bhatia 1993 describes genre as "...a recognizable communicative event characterized by a set of communicative purposes identified and mutually understood by the members of the professional or academic community in which it regularly occurs", (p.14). Each Genre comprises of some **Moves**, which are defined as the elements shaping a particular genre, each carrying part of the total communicative purpose of that genre.

According to Connor and Mauranen 1999, essentially a Move in a text is a functional unit, used for some identifiable rhetorical purpose. Some Moves are obligatory, some others are optional, and genre analysis manifests the partial frequency of Moves comprising a genre. It is worth mentioning that *Move Analysis* is just one part of *Genre Analysis*, which is the focus of this study. This study aims to

discover to what extent the Move structure of English and Persian research article introductions in Mechanics are identical or different. An awareness of the presence or absence of such differences and similarities will certainly help us in English for specific purposes (ESP) as well as in teaching nonnative researchers to write acceptable research articles. The results revealed by this study can be fruitful for instructors who embark upon teaching non-native researchers who need to know how to write English Science Articles. Additionally, there is a question of whether the organizations of scientific texts are the same in English and Persian research article introductions of Mechanical Engineering.

### 1.2 Research Question

This study attempts to answer the following question:

1. Are there any significant differences between the **Moves** of English and Persian introduction section of Mechanical Engineering research articles?
2. Are there any significant differences between the **Steps** of English and Persian introduction section of Mechanical Engineering research articles?

## 2. The method and the Corpus of the Study

Sixty recent research article introductions in English and Persian were randomly selected from nine English Mechanical journals and nine Persian Mechanical journals. The English journals are: 1) Journal of Fluid Mechanics, 2) Journal of Engineering Mechanics, 3) Engineering Fracture Mechanics, 4) Mechanics Research Communications, 5) International Journal of Pressure Vessels and Piping, 6) Journal of Non-Newtonian Fluid Mechanics, 7) Probability Engineering Mechanics, 8) International Journal of Heat and Fluid Flow, 9) and Mechanism and Machine theory. The Persian journals are: 1) Majale Elmi e Khodro, 2) Nashriye Elmi Pajuheshi e Esteghlal, 3) Majale beinolmelali Olum e Mohandesi, 4) Mohandesi e Mechanic, 5) Nashriye Daneshkadeh Mohandesi e Daneshgah e Ferdosi, 6) Majale Daneshkade Fani e Daneshgah e Tabriz, 7) and Nashriye Pajuheshie Mohandesi e Mechanic e Iran 8) sana'at e khodro 9) nashriye daneshkade mohandesi .

### **2.1 Criteria for Article Selection**

To choose the articles, the following criteria were taken into account. First, due to dynamic nature of genre, the corpus was restricted to a period of six years (1999-2004) to control for rapid changes within any of the languages.

Second, to guard the naturalness of sampling, the length of article introductions was not controlled.

Third, the articles were chosen based on the table of randomization. A procedure of data collection Following Swales' (1990), CARS (Creating a Research Space) model, Move Analysis was conducted to collect the necessary data. To begin with, to find the communicative purpose of each sentence, the texts were carefully read sentence by sentence, because sentences were considered the unit of analysis and communicative purpose was the identifying feature of each Move (Bhatia, 1993, 1997; Dudley-Evans, 1994; Henry & Rosebury, 1998; Holmes, 1997; Kay & Dudley-Evans, 1998; Mustafa, 1995, and Swales, 1990).

The processes which we went through was Move Analysis which is to determine the number and types of Moves and Steps comprising each text. Move and Step Analysis was performed for both languages. Here, a word of caution seems essential. This type of analysis is based on subjective judgment, that is, the Move Analysis procedure, which is presented here, is not fixed and different researchers may determine and classify the Moves in a different way. Consequently, to have reliable results, the corpus was rated two times by the rater, to check for the inter-rater reliability of the study. To check for the inter-rater reliability, another rater rated the corpus independently. The analysis procedure had been described to the second rater in a session and she was asked to study the review of related literature. At a later stage, the results of the of the rater's analysis were compared.

### **2.2 Design**

The design studied the following areas across the introduction section of English and Persian research articles: (a) the significance of the frequency of Moves and (b) their Consequential Steps; (c) and the Linguistic Features of the Moves in English and Persian

research articles. The schematic representations of the design for Move and Step frequency are:

Move	Move 1	Move2	Move 3
<b>Journals</b>			
<b>Mechanics (English)</b>			
<b>Mechanics (Persian)</b>			

Move 1: Establishing a territory  
 Move 2: Establishing a Niche  
 Move 3: Occupying the Niche  
 Step 1.1: Claiming Centrality  
 Step 1.2: Making topic generalization  
 Step 1.3: Reviewing items of previous research  
 Step 2.1A: Counterclaiming  
 Step 2.1B: Indicating a gap  
 Step 2.1C: Question-raising  
 Step 2.1D: Continuing a tradition  
 Step 3.1A: Outlining Purposes  
 Step 3.1B: Announcing present research  
 Step 3.2: Announcing principle findings  
 Step 3.3: Indication research article structure

### 3. Results

In the first stage, the researcher worked on the corpus to find the Move and their consequential Steps on the Introduction section of English and Persian Mechanical Engineering Articles.

In the second stage, *Chi-square tests* were run to answer the first and second question. At the end the *inter-rater* and *intera-rater* correlation was computed to check the reliability of the results.

## Move and Step Frequency

**Table 1:** Move frequency of article introductions

Moves	M1	M2	M3
English	58	39	55
Persian	57	42	57

**Table 2:** Step frequency of moves in the article introductions

Steps	1.1	1.2	1.3	2.1A	2.1B	2.1C	2.1D	3.1A	3.1B	3.2	3.3
English	35	48	40	11	37	0	0	28	35	6	20
Persian	39	47	38	1	40	0	0	19	31	12	3

It should be borne in mind that sum of Step Frequency of any Move for each article does not equal the corresponding Move Frequency. This is supported by the reason that in the corpus, more often, a Move consisted of more than one Step. Chi-square tests were run to find answer to the first question.

**Table3:** The result of Chi-square indicating the significant difference of move frequency across the corpus

Significant	.05
D.F	2
X2. Value	.104
X2. Critical	5.99

The result of Chi-square tests show that the null hypothesis number one, which states that *there is no significant difference between the Moves of English and Persian Introduction Section of Mechanics in terms of frequency, is confirmed.*



**Table 4:** The chi-square indicating the significant difference of step frequency in the Moves across the corpus

Significant	.05
D.F	2
X2. Value	23.511
X2. Critical	15.5

The result of chi-square tests show that *there is a significant difference* in terms of frequencies across the two languages, meaning that null hypothesis number two, which states that *there is no significant difference between the Steps of English and Persian Introduction Section of Mechanics in terms of frequency* is rejected. This means that there is a significant difference between Step Frequency of English and Persian articles.

The Chi-square tests were run to check the inter-rater and inter-rater reliability in this study.

Tables below show the inter-rater and inter-rater correlation of the results.

**Table 5 :** Move frequency, first rating

Moves	M1	M2	M3
English	58	39	55
Persian	57	42	57

**Table6:** Step frequency, first rating

Steps	1.1	1.2	1.3	2.1A	2.1B	2.1C	2.1D	3.1A	3.1B	3.2	3.3
English	35	48	40	11	37	0	0	28	35	6	20
Persian	39	47	38	1	40	0	0	19	31	12	3

**Table7:** Move frequency, second rating

Moves	M1	M2	M3
English	56	41	53
Persian	55	40	55

**Table8:** Step frequency, second rating

Steps	1.1	1.2	1.3	2.1A	2.1B	2.1C	2.1D	3.1A	3.1B	3.2	3.3
English	33	45	41	10	35	0	0	28	33	6	21
Persian	40	45	39	1	38	0	0	17	30	11	5

**Table9:** Move intera-rater correlation

	English	Persian
Significant	.05	.05
D.F	2	2
X2. Value	.109	.003
X2. Critical	5.99	5.99

**Table10:** Step intera-rater correlation

	English	Persian
Significant	.05	.05
D.F	8	8
X2. Value	.229	.758
X2. Critical	15.5	15.5

As we can see there is no statistical difference between first time and second time of rating, that is, there is intera-rater correlation for both move and step analysis.

**Table11:** Move frequency, second rater

Moves	M1	M2	M3
English	49	37	58
Persian	58	40	52

**Table12:** Step frequency, second rater

Steps	1.1	1.2	1.3	2.1A	2.1B	2.1C	2.1D	3.1A	3.1B	3.2	3.3
English	30	36	42	8	34	0	0	29	32	5	17
Persian	40	42	39	0	39	0	0	18	33	9	6

**Table13:** Move inter rater correlation

	English	Persian
Significant	.05	.05
D.F	2	2
X2. Value	.674	.169
X2. Critical	5.99	5.99

**Table14:** Step inter rater correlation

	English	Persian
Significant	.05	.05
D.F	8	8
X2. Value	1.761	1.818
X2. Critical	15.5	15.5

Again we can assert that there is no significant difference between first rater and second rater's rating, that is, the data has inter-rater correlation.

#### 4. Findings and theoretical implications

The result of this study may shed some light on the textual staging of the introduction sections of English and Persian Mechanical Engineering Journal research Articles. This study can also provide proofs for validity of swales' (1990) CARS (Creating a Research Space) model. The findings revealed that the introduction

section of a journal article serves a set of communicative purposes that can be presented in specific order:

- 1) Establishing a Territory, 2) Establishing a Niche, 3) Occupying the Niche.

In addition, the findings revealed that the *Moves* of the introduction section are not of equal frequency, but are somehow similar in the two languages. That is, *Move one* appeared to be the most frequent one across the English corpus, with frequency of 57. *Move three* places second, with frequency of 55, while *Move two*, with the frequency of 39, is the least frequent *Move* to be presented in English corpus. In Persian corpus, *Move one* and *Move three* were the most frequent *Moves*, both with frequency of 42.

Moreover, the results of this study suggest that, the structure of the introduction section varies in English and Persian Journal articles. That is, introduction sections of English articles tend to demonstrate a step frequency, which is different from introduction section of Persian articles.

In addition, the results of this study may be of great benefit and value if Persian Mechanical Engineering researchers tend to send the report of their research to English Mechanical Journals and have a tendency to be aware of the generic conventions of introduction section of their field.

Finally, the findings of this study may also have some implication for ESL (English as a Second Language) teachers, especially for those teachers who are teaching English style and genre of writing papers to Mechanical Engineering Students.

In sum, this study demonstrates the purposes that an introduction section serves along with the textual staging associated with each communicative purpose (*Move*) of introduction section.

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