Abstract
The main purpose of this study was to explore and examine the rhetorical structure of Iranian and English dentistry research article discussions by means of comparing the move structures presented in the discussion sections of English and Persian dentistry research articles with the purpose of recognizing rhetorical preferences used by English and Persian authors in this particular area. To this end, 100 research articles written by native English writers and native Persian writers were analyzed based on the seven-move model adopted from Yang and Alisson’s (2003) seven-move model to find moves in their discussion sections. Then, frequency and Chi-square tests were used to compare the two corpora. The results of the study demonstrated that Move 2 "Reporting results" and move 1 "Background Information" were presented in a majority of both English and Persian dentistry research articles respectively, while Move 4 Step 4 "Evaluating Results", Move 6 Step 2 "Indicating significance or Advantage" and Move 6 Step 3 "Evaluating Methodology" were absent in both corpora. Another result displayed that a majority of RAs discussions across the two corpora opened with Move 1 "Background Information". The findings of this study have intended to help English for Specific Purposes (ESP) teachers and English as Foreign Language (EFL) instructors to develop materials and to assist their students in writing discussion sections of research articles effectively.

Keywords: Discussion section, Dentistry, Genre analysis, Research article
Introduction

As a medium through which researchers can stay connected with each other to share their knowledge (Trosborg, 2000), genre is “a class of communicative events, the members of which share some set of communicative purposes” (Swales, 1990, p.58). Genre as “a staged, goal-oriented, purposeful social activity in which speakers engage as members of our culture” (Martin, 2001, p.155) is classified based on external criteria in relation to speakers’ purpose and topic (Biber, 1988).

Writing a research article is a laborious and complex task for English as Foreign/Second Language learners who wish to write an academic paper, thesis, etc. in English language. As Hyland (2000) puts it, insufficient knowledge of rhetorical conventions of a language can be stated as one of the language learners and non-native English speakers’ academic problems. Many studies have attempted to compare the rhetorical structures and conventions of the sections of various research articles to compare and evaluate them cross-culturally from the view of generic structures. Hence, there are studies on the abstract section (Behnam and Zamanian, 2013; Ghasempoor and Farnia, forthcoming; Hasrati and Gheituri, 2010; Martín 2003; Salager-Meyer, 1990; Talebzadeh, Ghafar Samar, Kiany and Akbari, 2013), introduction section (Khani and Tazik, 1997; Omidi and Farnia, 2016; Rahimi and Farnia, forthcoming), discussion section (Amnuai and Wannaruk, 2013; Dobakhti, 2016; Ershadi and Farnia, 2015; Hashemi and Gohari Moghaddam, 2016; Peacock, 2002) and conclusion section (Arasyad, 2013) of such articles.

The purpose of the present study is to comparatively examine the rhetorical structure of the Discussion section of research articles in the field of dentistry written in English and Persian. The Discussion section plays a significant role in research articles where the author attempts to share his or her findings to the disciplinary knowledge (Basturkmen, 2012). According to Weissberg and Bucker (1990), authors attempt to inform readers of the results from specific to more general information and help them with how the findings should be viewed and interpreted.
Yet, it is generally understood that the Discussion section is tricky to write for both native and non-native speakers (e.g. Flowerdew, 1999; Swales, 1990; Swales and Feak, 2004). This may be due to writers’ need for meeting the cognitive demands of discussions and have skills for writing in the convincing and argumentative styles (Pojanapunya and Todd, 2011).

Swales (1990, 2004) defines moves are as functional units of different lengths labeled according to given purposes in a text and steps as options writers may select to accomplish moves. A number of studies have explored moves across disciplines and cultures. For example, in a cross-cultural cultural study and using Swales’ (1990) model, Khany and Tazik (2010) compared the genre structure of Introduction and Discussion sections of 23 international and Iranian local research articles in Applied Linguistics sub-disciplines. The findings showed no significant differences regarding the obligatory Moves of Introduction section across the two corpora. Significant differences in the Discussion section, however, were revealed.

In a similar study, Amnuai and Wannaruk (2013) investigated the move structure of English Applied Linguistics research article discussions published in international and Thai journals. Two corpora comprised of 30 Thai research article Discussions and 30 international research article Discussions were analyzed using Yang and Allison’s (2003) move analysis model. Based on the analysis, both similarities and differences regarding the move occurrence, move-ordering patterns, and move cyclicity were found. Significant differences between the two corpora were spotted in their applied steps.

In cross-cultural study, Ershadi and Farnia (2015) examined the rhetorical structures of the discussion sections of computer research articles in English and Persian by adopting Swales’ (1990) eight-move structure. The results of their study showed that move 1, *Background information*, and Move 2, *Statement of Results*, were the most frequently used moves in English corpus while Move 2 was the most frequently used move in

Persian corpus. Moreover, results showed that Move 1 was the opening move in the two corpora.

Research Questions

The purpose of this study is to examine the discussion sections of the dentistry articles in English and Persian articles published in leading English and Persian journals. The research questions addressed in this study are as follows:

1. What are the move structures of the discussion sections of English and Persian dentistry research articles published in English and Persian journals?

2. Is there any significant difference between Persian and English Rhetorical moves which constitute the genre structure of the discussion sections of dentistry research articles?

Methodology

To examine the rhetorical structure of research article discussion sections across two English and Persian languages comparatively, a corpus of 100 research articles in the field of Dentistry were compiled, 50 of which were written in English by native speakers of English and the other 50 were written in Persian by Iranian native speakers of Persian. The articles were published in leading and prestigious journals in English and Persian.

The data analysis comprised of seven major steps: in the first step, an effort was made to select and find leading Dentistry journals in English and Persian. In the second step of the data analysis was the identification of the rhetorical move structures applied in the discussion sections of Dentistry research articles. In accordance with Nwogu's (1997) rigorous definition, a move is "a text segment made up of a bundle of linguistic features (lexical meanings, propositional meanings, illocutionary forces, etc.) which give the segment a uniform orientation and signal the content of discourse in it" (p. 114). The study brought a benefit from such procedure for the move analysis. This definition helps the classification of chunks of the text in terms of their communicative functions in the process of move identification. A move can be classified into one or more steps involving communicative purposes. The analysis of the discussion sections in dentistry research
COMPARATIVE GENERIC ANALYSIS OF DISCUSSION SECTIONS OF ENGLISH AND PERSIAN DENTISTRY RESEARCH ARTICLES BY 1.MASOUMEH KHORRAMDEL & 2. MARYAM FARNIA

articles was carried out in the light of Yang and Allison’s seven move-steps structure (2003). In the last step, to ensure the reliability of the study and also to avoid subjectivity, the corpora were analyzed by two coders.

Yang and Allison’ (2003) seven move-step structure is presented as follows:

Table 1: Yang and Allison’s Seven move-steps structure (2003) for Discussion sections

<table>
<thead>
<tr>
<th>Moves</th>
<th>Move 1 Background Information</th>
<th>Move 2 Reporting Results</th>
<th>Move 3 Summarizing Results</th>
<th>Move 4 Commenting on Results</th>
<th>Move 5 Summarizing the Study</th>
<th>Move 6 Evaluating the Study</th>
<th>Move 7 Deduction from the research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Step 1 Interpreting Results</td>
<td>Step 1 Indicating Limitation</td>
<td>Step 1 Making Suggestions</td>
<td>Step 2 Recommending Further research</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Step 2 Comparing results with Literature</td>
<td>Step 2 Indicating significance or Advantage</td>
<td>Step 2 Recommending Further research</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Step 3 Accounting for Results</td>
<td>Step 3 Evaluating Methodology</td>
<td>Step 3 Drawing Pedagogical Implication</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Step 4 Evaluating Results</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results and Discussion

The data were analyzed based on Yang and Allison’s move model to examine the rhetorical differences in the two corpora. Moreover, following Amnuai and Wannaruk (2013), obligatory, conventional, and optional moves were also identified. If a particular move occurs in every research articles (100%), it is regarded as ‘obligatory’, if the occurrence of a move is below 60%, it is ‘optional’, and if the occurrence ranges from 60-99%, the move is classified as ‘conventional’.
In order to answer the first research question, “What are the move structures of the discussion sections of English and Persian dentistry research articles published in English journals?”, the data were analyzed and the frequency of each move was calculated. A summary of data analysis is presented in Table 2. As Table 2 displays, the findings of English corpus indicated that Move 2 was identified as the most commonly used move with 49 times frequency in English dentistry research articles. The next most dominant move was move 1 which was observed 48 times. Move 4 Step 2 was ranked as the third frequent move with 36 times of frequency in English dentistry research articles. Move 7 Step 2 was placed at the forth occurred move with 23 times of frequency in English dentistry research articles. The presence of other moves in this corpus included move 5 with 11 times frequency and Move 4 Step 3 with 6 times of frequency. Move 3 as well as Move 4 Step 1 and move 7 Step 1 had the same frequency with 4 times of occurrences. Move 6 Step 1 appeared 3 times. Move 7 Step 3 occurred with the less degree of occurrence, which was just 1 time. Move 4 Step, Move 6 Step 2 and Move 6 Step 3 were absent in the English corpus. Thus, English research articles included all moves except Move 4 Step 4, Move 6 Step 2 and Move 6 Step 3.

Findings of the study were not in line with Atai and Fallah's (2004) findings. In their research, all moves in Yang and Allison (2003) move structure were presented in applied linguistic research articles written in English by English native speakers. In their research paper, move 2 reporting results with 40 times frequency, move 4 commenting on results with 33 times occurrence and move 5 summarizing the study with 26 times frequency had the most frequency among English applied linguistic research articles.

Also the results of Persian corpus revealed that move 2 was the most dominant move for 44 discussion sections of Persian dentistry research articles. Move 1 "Background Information" was presented in 41 research articles. Move 4 step 2 appeared 32 times in Persian dentistry research articles. The occurrence of Move 7 Step 2 was 27 times. Move 5 was placed at the next occurred move with 13 times of frequency in Persian dentistry
The remaining moves were classified as the less frequently used move in Persian dentistry research articles: Move 7 Step 1 was appeared 6 times. Move 4 Step 3 was observed in 4 research articles. Move 3 and Move 7 Step 3 had the same frequency with 3 times of occurrences. The Persian corpus as well as the English corpus lacked Move 4 Step 4, Move 6 Step 2 and Move 6 Step 3. Here, it can be concluded that Persian writers like the English writers did not tend to use the last mentioned groups in the writing discussion section of dentistry research articles. The findings of the study were not in agreement with Safnił's (2013) study in which all moves were used in the discussion section of social science and humanities research articles written by Indonesian writers. Atai and Fallah's (2004) findings on the move structure of the discussion section of applied linguistic research articles using Yang and Allison’s (2003) move structure revealed that Persian native speakers do not employ Move 3 and Move 7 in research articles.

Table 2.
Frequency of moves and steps in discussion sections of English and Persian Dentistry research articles

<table>
<thead>
<tr>
<th>Moves and Steps</th>
<th>English RAs</th>
<th>Persian RA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move 1</td>
<td>F.  %</td>
<td>F.  %</td>
</tr>
<tr>
<td>Move 2</td>
<td>48 96%</td>
<td>41 82%</td>
</tr>
<tr>
<td>Move 3</td>
<td>49 98%</td>
<td>44 88%</td>
</tr>
<tr>
<td>Move 3</td>
<td>4 8%</td>
<td>3 6%</td>
</tr>
<tr>
<td>Move 4</td>
<td>48 96%</td>
<td>41 82%</td>
</tr>
<tr>
<td>Move 5</td>
<td>11 22%</td>
<td>13 26%</td>
</tr>
<tr>
<td>Move 2</td>
<td>36 72%</td>
<td>32 64%</td>
</tr>
<tr>
<td>Move 3</td>
<td>6 12%</td>
<td>4 8%</td>
</tr>
<tr>
<td>Move 4</td>
<td>0 0%</td>
<td>0 0%</td>
</tr>
<tr>
<td>Move 5</td>
<td>36 72%</td>
<td>32 64%</td>
</tr>
<tr>
<td>Move 3</td>
<td>6 12%</td>
<td>4 8%</td>
</tr>
<tr>
<td>Move 4</td>
<td>0 0%</td>
<td>0 0%</td>
</tr>
</tbody>
</table>
As for the second research question, "Is there any significant difference between Persian and English rhetorical moves that constitute the generic structure of discussion sections of dentistry research articles?", a chi-square analysis was conducted. The results of the study demonstrated that there is no significant difference across English and Persian discussion sections.

Table 3. Results of Chi-square analysis between English and Persian Corpus

<table>
<thead>
<tr>
<th>Moves</th>
<th>Corpus</th>
<th>df</th>
<th>Asymp sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move 1 Background Information</td>
<td></td>
<td>1</td>
<td>.026*</td>
</tr>
<tr>
<td>Move 2 Reporting Results</td>
<td></td>
<td>1</td>
<td>.531</td>
</tr>
<tr>
<td>Move 3 Summarizing Results</td>
<td></td>
<td>1</td>
<td>1.00</td>
</tr>
<tr>
<td>Move 4 Commenting on Results</td>
<td>Step 1 Interpreting Results</td>
<td>1</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>Step 2 Comparing results with Literature</td>
<td>1</td>
<td>.114</td>
</tr>
<tr>
<td></td>
<td>Step 3 Accounting for Results</td>
<td>1</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>Step 4 Evaluating Results</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Move 5 Summarizing the Study</td>
<td></td>
<td>1</td>
<td>.64</td>
</tr>
</tbody>
</table>
The results of the move analysis of both corpora showed that move 1 was present in English research articles more than the Persian ones. This move was the second high ranked move in the two corpora, while move 2 was the first high ranked move in the two corpora and they are classified as a conventional move in both English and Persian. The findings of the analysis of these two moves indicated that there was no statistically significant difference between the two datasets. The findings of this study are in line with Safnil's (2013) findings. Safnil found that Move 1 and Move 2 are of the most common moves in the discussion sections of social science and humanities research articles written in Indonesian by Indonesian writers. In a comparative study, Salmani Nodoushan (2012) examined the move structures of MA graduate discussion sections and research articles’ discussion sections written by Persian and English speakers. The data were analyzed by Yang and Allison' model. The findings showed that Move 1 was found as a conventional move in terms of Rasmeenin's (2006) framework for classifying moves as obligatory, conventional, and optional.

Move 3 was classified as an optional move. The results showed that there was no significant difference in applying this move by English and Persian writers. The findings of the study are in line with Atai and Fallah's (2004) study. Their findings revealed that move 3 was not the most frequently used move in English and Persian applied linguistic research articles and it is identified as an optional move. The results of the current study are also in agreement with Salmani Nodoushan's (2012) research paper on the move structure. In that research, move 3 was specified as the optional too. In previous studies,
Move 4 Step 1 was classified as an optional move in the two corpora. The results showed that there was no significant difference in applying this move by English and Persian writers. The results were not in agreement with Jalilifar’s (2010) analysis and Fallahi-Moghimi and Mobasher’s (2007) analysis. Their contrastive genre analysis revealed a significant difference in terms of move structure of the discussion section of English and Persian research articles. These findings were not in agreement with Zand-Vakili and Kashani’s (2012) study which showed that those articles written in Persian and those written in English are not significantly different in terms of the functional moves in their discussion sections. The results were not also in agreement with Mazhari’s (2008) study which showed that there is a significant difference between them as far the move frequency is concerned. Move 4 Step 2 was classified as a conventional move in the two corpora. The results showed that there was no significant difference in applying this move by English and Persian writers. The findings of this study were in agreement with Jalilifar’s (2010) study in which move 4 Step 2 displayed conventional between local and international discussion sections. The results of move analysis of both corpora showed that Move 4 Step 2 was presented English research articles more than the Persian ones. Move 4 Step 3 was classified as an optional move in the two corpora. This step was in the sixth place in English research articles and in the seventh place in Persian research articles. The findings of the analysis of this step indicated that there was no statistically significant difference between the two corpora in utilizing this step. In this study, the tendency of English researchers to use Move 4 Step 3 was more than Persian researchers. These findings were in line with Jalilifar’s (2010) study in which, contrary to Iranian writers, non-Iranian writers of ESP had the tendency to put more emphasis on Move 4 Step 3. Move 4 Step 4 was not employed by the writers of the two corpora and accordingly it is classified as an optional move. The findings of the study revealed that there was no statistically significant difference in using this move by writers of English and Persian research articles. The findings of this study correspond to the research
CONTRAPATIVE GENERIC ANALYSIS OF DISCUSSION SECTIONS OF ENGLISH AND PERSIAN DENTISTRY RESEARCH ARTICLES BY 1. MASOUMEH KHORRAMDEL & 2. MARYAM FARNIA
conducted by Atai and Fallah (2004). In their research, Move 4 Step 4 was absent and considered optional in English and Persian applied research articles.

Move 5 was rarely used in both corpora and labeled as an optional move in the current study. The results of the study indicated that there were not any statistically significant differences between the two groups of corpora. The tendency of Persian researchers in using Move 5 was more than English researchers. These findings were not in line with Khani and Tazik’s (2010) study in which the findings showed a significant difference in using this move by writers of English and Persian research articles.

Move 6 Step 1 was classified as an optional move in the two corpora. This step was the less frequent move in Persian corpora. There were no statistically significant differences between English and Persian dentistry corpora in using this step. Both Move 6 Step 2 and Move 6 Step 3 were not employed by the writers of the two corpora and are thus classified as optional moves. Both English and Persian writers had no tendency to use these two steps. The results were not in agreement with Rezaee and Sayfouri (2009) study that showed a significant difference between the use of Move 6 Step 2 and Move 6 Step 3 by writers of English and Persian research articles.

Move 7 Step 1 was classified as an optional move in the two corpora. There was no statistically significant difference between English and Persian dentistry corpora in using this step. The findings of the study were not in agreement with Safnil's (2013) study in which this step was not used in discussion sections of social science and humanities research articles written in Discussion by Indonesian writers. Move 7 Step 2 was also an optional move in the two corpora. There was no statistically significant difference between English and Persian dentistry corpora in using this step. The findings of the study were not in agreement with Safnil's (2013) study in which this step was not used in the discussion sections of social sciences and humanities research articles written in Indonesian by Indonesian writers. Move 7 Step 3 was classified as an optional move in the two corpora. There was no statistically significant difference between English and Persian dentistry corpora in using this step. This step was the less frequent move in
English corpora. The results were not in agreement with Rezaee and Sayfouri’s (2009) study which showed a significant difference between the use of Move 7 Step 3 by writers of English and Persian research articles. The findings of the study demonstrate that there is no statistically significant difference across English and Persian corpora in developing the discussion sections of Dentistry research articles. Martin (2003) and Tahririan and Jalilifar (2004) noted that researchers are highly dependent on their sociocultural factors in their academic writing. As Marefat and Mohammadzadeh (2013) put it, “The influencing factor is not the native language but rather the norms of the community for which the scholar writes (p. 47).” The findings of this study showed that the researchers in the two languages displayed similar patterns in applying moves and steps in the discussion sections of dentistry research articles.

**Pedagogical Implications**

The results of the present study can be used for the genre theory as well as in pedagogy. Samraj (2005) maintains that "the results of previous studies on academic genres have been translated into pedagogical applications" (p. 153). The findings of the study can be applied to familiarize novice researchers with the rhetorical structures found in academic writings among different sub-disciplines. Getting familiarizing with the genre structure of texts can help academics to be more successful writers in educational and academic settings.

The pedagogical implications of the study are to assist Dentistry students to learn norms and well-established rules in developing Dentistry research articles. Insufficient knowledge about the genre and text structures in academic discourse settings will lead to readers’ misunderstanding of texts and text types. According to Hymes (1997), "It is likely that the production of appropriate and relevant materials and syllabi for EAP/ESP courses requires an awareness of the range of genres, the ways in which genres span disciplines and, equally, the ways in which they vary according to discipline and perhaps even to sub-discipline" (p. 333).
From a pedagogical perspective, genres and text structures can aid learners to know and take part in a discourse community. The results of the study present practical and pedagogical implications for teaching the conventions of writing to EFL students and especially for making Persian academics move-sensitive to write English dentistry discussions in an effective way and increasing learners' language awareness as well.

Conclusion

The main purpose of this study was to find out the rhetorical structure presented in dentistry English and Persian research articles. The findings showed that despite the differences in the frequency of moves and steps in the two corpora, these differences were not statistically significant. The findings are believed to help yield solutions for the problems Iranian scholars, in general, and those involved in Dentistry, in particular, have expressed when dealing with writing research articles in English.

The present study does not claim to present an exhaustive list of moves series. Therefore, it is suggested that a larger sample of discussion sections should be used in future cross-disciplinary research.

References


