Move analysis of the conclusion sections of research papers in Persian and English

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Abstract

The structure of the conclusion sections in Research Papers (RPs) is of significance in academic writing. The conclusion section in spite of providing an outline of the article, states other essential components, such as recommendations, implications and statements of possible lines of future research. This paper analyses the conclusion parts of Persian and English Research papers published in international journals. To meet this end 20 RPs were selected from two fields including Civil Engineering and Applied Linguistics. The Conclusion sections of the papers were examined for their moves based on Yang and Allison’s (2003) model of moves. The frequency analysis of the moves showed slight differences among the moves employed and with regards to the Chi-Square tests, no significant differences were observed between the Conclusion sections of Applied Linguistics and Civil Engineering RPs regarding the moves employed as well as between Persian and English RPs. The study yields a richer understanding of the conclusion structure of research articles and offers ESP/EFL instructors and researchers, insights which can be used in the instruction of the conventions or expectations of academic writing. Novice writers and non-native students can benefit from it, mainly because it helps them eliminate their writing dilemmas and assists them to take part in international discourse communities.

Keywords: conclusion section, contrastive move analysis, genre analysis, research articles

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1. Introduction

In genre analysis, research papers (RPs) as a type of academic genre have received much focus (Swales, 1981, 1990). In genre analysis a macro genre incorporates various sub-genres. For instance, in a macro-genre such as a research paper, there are several sub-genres that can be observed in most papers including abstract, introduction, review of literature, methodology, conclusion, etc., moreover; every sub-genre encompasses several moves which reveals the intention of the linguistic terms in that section. A move is described according to Richard and Schmidt (2002) as an element with a specified purpose which is presented in a written text. In addition, the analysis of moves has extensive focus in Contrastive Rhetoric, which studies cultural variations in the structure of discourse. The author’s cultural background may cause variations in the rhetorical structures of texts and ESL teaching programs must consider such variations (Li, 2011). With regards to structural variations in articles among languages, authors should be aware of the cross-linguistic differences in academic texts in order to succeed in publishing their work in the international community. Santos (1996) mentions that ‘a move is regarded as a stage in a particular genre with a specific communicative purpose which in turn serves the communicative purpose of that particular genre’ (p.485).

According to Hyland (2008), Swales is well known, because of his work in 1981 concerning move structure of research papers. The introductions of RPs among the other parts in articles, have been studied to the largest extent (Swales, 1981, 1990); additionally, other parts which have been studied are the Results (e.g. Brett, 1994) and the Discussion parts (e.g. Kanoksilapatham, 2005), in RPs regarding sociology, history, and political sciences (Holmes, 1997), in financial, business, and economics papers (Lindeberg, 1994), as well as other sciences (Berkenkotter & Huckin, 1995). Swales (1990) suggests that Discussion and results sections in articles are usually combined, but he has not presented a move structure for the final sections.

A study conducted by Yang and Allison’s (2003), who examined the organizational pattern of twenty articles in the field of Applied Linguistics in terms of the moves and steps employed. They realized three frequent moves, i.e. summarizing and evaluating the results as well as making deductions from the study based on the findings. While Yang and Allison’s (2003) study was new when it was conducted at that time, it was not without short-comings such as not using any previous well known model, and unrepresentative number of articles in their study. A study carried out by Morales (2012), who used Yang and Allison’s (2003) model to investigate moves employed in RP conclusions sections written by Japanese and Filipino authors. They noticed that intercultural variation existed in the application of the moves of Japanese and Filipino authors. In particular, Filipino researchers indicated the contributions of their research to the existing body of knowledge and the Japanese employed a brief summary concerning the major facts of the research. Vakili and Kashani (2012) conducted a contrastive move analysis and investigated the abstract and introduction of Persian and English research articles. The findings of their study showed that, whereas the moves stated by Hyland (2000) and other researchers entirely pertained to English papers, some variations were perceived in Persian papers. Jahangard, Rajabi and Khalaji (2014) used Dadley-Evans’s (1994) model to make a comparison of moves in Persian and English RPs in two fields of Applied linguistics and Mechanical Engineering. The frequency and Chi-Square analysis did not reveal significant differences between the moves used in the discussion section of RPs in Applied Linguistics and Mechanical Engineering. Models such as Dadley-Evans’s model have been used for analyzing the discussion parts of RPs and the shortcomings of the model have been reported by the authors. In a study conducted by Abarghooeinezhad and Simin (2015), a comparison was made between Persian and English electronic engineering research papers in terms of the moves in abstract sections. 50 abstracts were analyzed based on Santos (1996) and AntMover software genre analysis models. The results revealed that Persian and English abstract section moves did not fully correspond to Santos’s model and some variations were reported between the Moves used by Persian and English authors. Moreover, Maswana, et al. (2015) investigated the complete structure of 67 engineering articles from five sub-disciplines including computer engineering, environmental engineering, structural engineering, chemical engineering, and electrical
engineering, based on Swales’ move framework (1990). The findings showed that the moves of the abstract, introduction, and conclusion sections across all sub-disciplines were conventional.

The present study makes use of a well-known move model called Yang and Allison’s (2003) model for the conclusion parts in RPs.

2. The Purpose of the Study

Regardless of numerous studies conducted on the analysis of RP genres and its sections, most of the studies have analyzed RPs written in English. According to the literature little research has investigated Persian research articles in terms of their sub-genres in general and the conclusion section in particular. In a study conducted by Jahangard, et.al. (2014) which was based on Dudley - Evans’s (1994) move model, the discussion and conclusion parts together were considered as one move. Peacock (2002) stated that the model needed major revisions and improvement. According to Yang and Allison (2003) the conclusion section is regarded as a distinct move apart from the discussion. Therefore, this study is different from others in that it investigates merely the conclusion section as a separate component of RPs through the use of Yang and Allison’s (2003) model as a framework to analyze the move structures. Thus, the main objective of this article is to analyze the moves in the conclusion sections of research papers written in English and Persian in the fields of Civil engineering and Applied linguistics based on Yang and Allison’s (2003) model, to see whether there is any difference between Persian and English as well as between the two fields in terms of the use of the moves.

Hence, this article tends to answer the following questions:

1. Is there variation between Persian and English authors regarding move application in the Conclusion parts of RPs? Is the difference significant?

2- What moves are used in the conclusion parts of Applied Linguistics and Civil Engineering RPs? Is there a significant difference between them?

3. The Framework of the Study

According to Sandoval (2010) one of the parts in RPs which is difficult to write and authors spend a considerable amount of time writing is the conclusion section. He noted that conclusion sections present an outline of the research as well as implications and recommendations. Yang and Allison (2003) have offered a series of moves for academic paper’s conclusion sections and introduced a three-move scheme along with the corresponding move steps for conclusion sections in all articles. The move structure is presented in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Yang and Allison’s Conclusion framework (2003)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move Steps</td>
</tr>
<tr>
<td>Move 1 – Summarizing the study</td>
</tr>
<tr>
<td>Move 2 – Evaluating the study</td>
</tr>
<tr>
<td>1. Indicating significance/advantage</td>
</tr>
<tr>
<td>2. Indicating limitations</td>
</tr>
<tr>
<td>3. Evaluating methodology</td>
</tr>
<tr>
<td>Move 3 – Deductions from the research</td>
</tr>
<tr>
<td>1. Recommending further study</td>
</tr>
<tr>
<td>2. Drawing pedagogic implication</td>
</tr>
</tbody>
</table>

As can be observed in Table 1, three moves including ‘summarizing and evaluating the study’ and ‘deduction from the study’ are identified in the conclusion section. Move 2 incorporates 3 steps, including ‘indicating significance, limitations, and evaluating methodology’. And finally move 3, consists of two steps which are ‘recommending further study’ and ‘drawing conclusion’.
Moreover, Yang and Allison (2003) have given definitions and examples for all moves. The examples include phrasal or clausal components that they found in their corpus. The definitions of the moves along with their example are as follows:

- **Summarizing the study**: in move 1, authors state a brief explanation of the major points and the overall results from the perspective of the research (e.g. *The research presented in this paper offers..., in summary*).

- **Evaluating the study**: In move 2, authors evaluate the study by
  1. Expressing the limitations of the study (e.g. The present study has raised a number of interesting differences, however a larger corpus is required to establish how far they can be generalized...),
  2. Indicating the contributions of the study (e.g. What is new in your study is the links you try to find with school performance, and within family dynamics of the accommodation process...)
  3. Evaluating the methodology (e.g. ...He performed very well in the experiment, but it is questionable whether his experimental data represent the strategy she would employ outside of the laboratory).

- **Deductions from the research**: in move 3, authors suggest what can be done to solve the problems acknowledged by the study,
  1. Recommending further research (e.g. Further research might be conducted within a single discipline to specify the degree of variability according to sub-discipline...) or
  2. Drawing pedagogic implications (e.g. The findings of this research may have pedagogical implications for teaching ...)” (pp. 382-383).

4. Method

4.1 Procedure and the Corpus

The present study uses qualitative content analysis, to examine the moves in the conclusion sections according to Yang and Allison’s (2003) move framework. The researchers selected one field from each of the soft and hard sciences. The selection of the hard and soft sciences was based on the standard classification of ‘hard’ and ‘soft’ disciplines (Biglan, 1973). Based on this categorization, the researchers conducted the analyses on RPs of Applied linguistics and Civil engineering, which are an ideal representative of soft and hard sciences. The Corpus consists of 20 research articles pertaining to the fields of Applied linguistics and Civil Engineering, 10 articles in each field, 10 of which were selected using simple random sampling from SID (Scientific International Database), the greatest comprehensive up-to-date data bank in Iran, which includes the latest scientific journals in Iran (see http://www.SID.com) written by Persian authors and another 10 were selected in the same manner from Science Direct website written by English authors. (See Appendix)

Descriptive statistics and Chi-Square was used to show whether significant differences exist between the moves used in the Conclusion parts of RPs. The unit of analysis was multiple sentential units which were assigned to one move or step. All articles included in the corpus had identifiable introduction, method, results, discussion and conclusion sections. In order to explore the distinction between Persian and English papers in terms of the conclusion moves, the conclusion parts of the articles in each language were compared according to Yang and Allison’s (2003) model.
4.2. Intra-rater Reliability

After the initial analysis the samples were examined again within a three weeks interval and intra-rater reliability was calculated to ensure that the moves were properly identified. Cohen’s Kappa coefficient statistic (1960) was employed to compute Kappa Measure of agreement. The intra-rater agreement values were 0.90 and 0.85, for English and Persian RPs respectively, with a significance value of $p< .0005$.

5. Results and Discussion

To answer the first research question, the moves were counted in the conclusion parts of RPs and their frequency was calculated (the results are shown in Table 2). The findings revealed that there are slight differences in the frequency of moves employed in English and Persian RP conclusion sections. According to Table 2, in Persian articles the ‘summarizing the study’ move was detected in all 10 research papers, then ‘indicating significance/advantage’ and ‘Drawing pedagogic implication’ steps were found important with the frequency of 7. ‘Recommending further study’ step was only met in 4 Persian articles. The steps ‘indicating limitations’ and ‘evaluating methodology’ were totally ignored. With regard to English articles, the 3 moves of ‘summarizing the study, indicating the significance/advantage, and drawing pedagogic implication’ were found important in all articles. 3 and 2 English articles out of 20 also had the ‘indicating limitations and evaluating methodology’ moves respectively. Therefore, the results of the comparison showed that Persian and English RPs are slightly different with regard to the moves and steps in their conclusion parts.

In a nutshell, the findings revealed the importance of the ‘summarizing the study’ move in both English and Persian RPs which is in line with Jahangard, et.al. (2014) study. It seems that the authors in both groups may consider that indicating the main findings and significance of the study is an obligatory component in the conclusion section of RPs, since by stating the main points of the study, the researcher makes it easier for readers to follow their thinking and enables them to understand the core content of the article without perusing the entire paper. As stated by Kanoksilapatham (2005) if a specific move exists in every article, it is considered as ‘obligatory’, move occurrence below 60 % is considered as ‘optional’, and the move will be regarded as ‘conventional’ if it ranges from 60-99%.

| Table 2. Percentage of moves and steps in Persian and English Research Papers |
|-------------------------------------------------|----------------|----------------|
| Moves and Steps                                  | Persian Papers | English Papers |
| Move 1 – Summarizing the study                   | 10            | 10            |
| Move 2 – Evaluating the study                    |                |                |
| 1. Indicating significance/advantage             | 7             | 10            |
| 2. Indicating limitations                        | 3             | 7             |
| 3. Evaluating methodology                        | 2             | 5             |
| Move 3 – Deductions from the research            |                |                |
| 1. Recommending further study                    | 4             | 8             |
| 2. Drawing pedagogic implication                 | 7             | 10            |

The point that Persian and English authors considered Step 1 in Move 2 in the conclusion parts of RPs as an obligatory section may have reference to Sandoval (2010) words, which suggested that authors, presenting the advantage of their research, try to create reliability, therefore making them reliable scholars in their own field. Figure 1 depicts a more lucid account of the moves used by Persian and English authors. The data in Figure 1 shows that English authors use Steps 2 and 3 of move 2, limitations and evaluating the study, in comparison with
Persian authors which attained no percentage. This corroborates the results obtained in Jahangard, et.al. (2014) study to some extent in that in his study only 2 Persian articles out of 20 indicated limitations, however; his model did not have the ‘evaluation of the study’ move. This might be due to the fact that some Persian authors might consider that Evaluating the study might not be a very important section in the conclusion part, hence they leave this less significant step out.

The frequency of steps 1 and 2 in Move 3 in the English corpus (19% and 23%) was much greater than in the Persian corpus (14% and 25%) which is the shortcomings of Persian RPs. Since students and other members of academic communities need to write and publish RPs and attract audience’s attention to the article, mentioning the value of the study by indicating recommendations and practical implications for the community and pedagogy should be a vital component in Persian RPs.

In order to observe whether between both groups significant difference existed in their use of the moves, a Chi-Square test was run to specify if Persian and English authors had used different moves. According to Table 3, the statistical results indicated that there was no significant difference between the two groups with regards to the moves employed, $X^2(5, N=71) = 4.420, p>.05$.

<table>
<thead>
<tr>
<th>Move 1 (Summarizing the study)</th>
<th>Move 2 (Indicating limitations)</th>
<th>Move 2 (Indicating significance/advantage)</th>
<th>Move 3 (Drawing pedagogic implications)</th>
<th>Move 3 (Recommend further study)</th>
<th>Move 2 (Evaluating methodology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage in English RAs</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Percentage in Persian RAs</td>
<td>50%</td>
<td>25%</td>
<td>20%</td>
<td>15%</td>
<td>15%</td>
</tr>
</tbody>
</table>

![Figure 1. The moves and steps employed in Persian and English RPs](image)

To answer the second research question concerning what moves are used in the conclusion parts of Applied Linguistics and Civil Engineering RPs, a frequency count was done in both fields by the researchers. According to Table 4 move 6, i.e., Indication of the limitations and evaluation of methodology, have 3% and zero frequency in Civil Engineering respectively, since in hard sciences there are relatively quantitative and fixed set of procedure, in addition the methodology and measurements in hard sciences are much more precise and results may be
quoted in which the uncertainties, i.e. the SEMs are billionths of a second which suggests wider possible applications of their method. Therefore, such frequency for engineering sciences regarding the use of these two steps is quite plausible.

However the very moves have the percentage of 5% in Applied Linguistics which shows slight variations between the two fields.

Table 4. Percentage of moves and steps in Applied linguistics and Civil engineering RPs

<table>
<thead>
<tr>
<th>Moves and Steps</th>
<th>Applied Linguistics RPs</th>
<th>Civil Engineering RPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move 1 – Summarizing the study</td>
<td>10 24%</td>
<td>10 33%</td>
</tr>
<tr>
<td>Move 2 – Evaluating the study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Indicating significance/advantage</td>
<td>9 22%</td>
<td>8 27%</td>
</tr>
<tr>
<td>2. Indicating limitations</td>
<td>2 5%</td>
<td>1 3%</td>
</tr>
<tr>
<td>3. Evaluating methodology</td>
<td>2 5%</td>
<td></td>
</tr>
<tr>
<td>Move 3 – Deductions from the research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Recommending further study</td>
<td>8 20%</td>
<td>4 13%</td>
</tr>
<tr>
<td>2. Drawing pedagogic implication</td>
<td>10 24%</td>
<td>7 24%</td>
</tr>
</tbody>
</table>

Figure 2 depicts the moves employed in both fields more clearly.

Like the previous section, the first frequent move is Move 1 (summarizing the study). Based on Figure 2 the difference in the frequencies is quite notable in the two fields with regard to Step 1 in move 3, i.e., recommending further study, which has been employed 8 times (20%) in Applied Linguistics RPs; it is worthy of notice that for Civil Engineering RPs is 4, that is 7% lower. The recommending further study step corresponds to move 9 in Jahangard, et.al, (2014) study in which similar results were obtained that is, Persian articles had a higher frequency. Moreover, Applied linguistics also had a higher frequency in terms of drawing pedagogical implications with the frequency of 10. This puts forward that Applied linguistics researchers are in fact more eager to generalize the results than their civil Engineering counterparts. In earlier studies the use of such a step was different in its frequency. For instance, it occurred 53.33% in biochemistry hard science (Kanoksilapatham, 2005). In a computer science corpus it occurred at a frequency of 58.82 % (Posteguillo, 1999) and in ElMalik and Nesis’s (2008) research occurred 40 % in the discussions of English Medical RPs. In the soft science, such as Applied linguistics the frequency of this step was 70 % (Amirian et al., 2008) and in Peacock’s (2002) research it was 73 % in Applied linguistics. In short, the findings of earlier study indicate disciplinary variation since authors in the soft sciences are more willing to recommend further research than those in the hard sciences.
Like the preceding section, a chi-Square test was employed to determine whether significant difference exist in both fields with regard the use of moves. As indicated in Table 5, no significant difference exists between the two fields, X2 (5, N =71) = 2.749, p>.05.

<table>
<thead>
<tr>
<th>Table 5. Chi-Square Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
</tr>
<tr>
<td>Pearson Chi-Square</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
</tr>
<tr>
<td>N of Valid Cases</td>
</tr>
<tr>
<td>a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .83.</td>
</tr>
</tbody>
</table>

The overall results indicated that, ‘summarizing the study’ in the conclusion section was the most frequent move in RPs. This move was also a frequent in Swales (1990) and Holmes (1997) studies. Moreover, the “findings of the study” move was compulsory in a research carried out by Amirian et al. (2008). It can be mentioned that this move is a vital move in conclusion sections for all RPs.

The conclusions of RPs present a complex array of moves and steps. According to Yang and Allison (2003) the chief objective of the conclusion part is to summarize the overall study by stating the results, evaluating and stating probable lines of future study, in addition; specifying implications for learning and teaching. Authors differ in elaborating their conclusion sections, hence suggesting that this is a section of the research article genre, which still needs to be examined and attention should center on the practices and processes of academic writing.

4. Conclusion

The objective of this study was to compare and examine the moves in the Conclusion sections of RPs in two disciplines of Applied Linguistics and Civil Engineering as well as Persian and English RPs following the framework based on Yang and Allison’s (2003) model. The overall picture emerging from the study was that chi-square test revealed no significant difference between Persian and English researchers as well as between the two disciplines in their use of the moves. However, descriptive statistics showed slight differences in the application of the moves. The most frequent move in both groups and fields were ‘summarizing the study and ‘indicating significance’ of the study. The conspicuous variations between the two corpora were the application of steps 2 and 3 in Move 2 (indicating limitations and evaluating methodology) which are mainly optional moves usually observed in some RPs. An issue which could have changed the findings of the study is that due to time pressure and available resources the researchers could not include more articles from each disciple in the analysis. And a corpus of 20 articles, might have been small, therefore; further research is vital and might reveal different results. Although results of this study may provide accounts as far as conclusion steps and moves are concerned, further study is needed to examine intercultural variation in the RPs conclusion parts written by Persian and English researchers.

The move structure of the conclusion sections of other disciplines and courses pertaining to the composition of RPs may be examined. Today, Iranian instructors, and students increasingly publish articles in English language journals and this study might assist instructors and their students whose aim is to succeed in writing this component of genre. Moreover, the present study is concerned with written discourse analysis. To examine reader’s expectations and more socio-cultural factors in writing academic RPs, the use of surveys and interviews with authors and members in the disciplinary community would be helpful in future studies.
Important pedagogical implications can be derived from the findings of the study. Integrating the genre of RP in the curriculum would be useful for EFL/ESL instructors. According to Hyland (2002) for students to thrive in academic writing and to be a member of the academic community, they need to be aware and attentive to the generic organization set by the academic discourse community and learn the structural complexities of RPs. Bahatia (1997) mentioned that non-native students, especially those who are under pressure to publish in reputable international journals and novice writers who wish to generate their RPs effectively will benefit from genre analyses. Thus, noticing the move structure of RPs, principally the conclusion part that mostly functions to summarize the study by highlighting the results, evaluating and stating further study as well as presenting recommendations and implications, will enable students to organize their RPs effectively.

References


**Appendix**

Ten English Research Articles Selected from Science Direct Website:

**Applied Linguistic Articles**


**Civil Engineering Articles**


Ten Persian Research Articles Selected from SID:

**Applied Linguistic Articles**

1- رضوانی، ر و زمانی، گ. (1391). ارزیابی هم ترازی آزمون های سراسری، محترأ کتاب ها و اهداف آموزشی رشته ی آموزش زبان انگلیسی بر اساس اهداف آموزشی اندوسن و کرونتول. فصلنامه پژوهشی رهیافته در مدیریت آموزشی. سال سوم، شماره سه.

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**Civil Engineering Articles**

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