

## Investigating the Projection of Authorial Identity through First Person Pronouns in L1 and L2 English Research Articles

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### Abstract

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Recent research studies have revealed that academic writings are no longer impersonal. They not only convey the disciplinary content, but also carry a representation of the writer which is called writer identity. One aspect of writer identity is authorial identity the most visible manifestation of which is the use of first person pronouns. L2 writers often fail to use these forms appropriately to express an effective authorial presence in their writings because of the cultural differences between their L1 and L2. Therefore, this study aimed to compare and contrast the use and functions of first person pronouns in L1 and L2 research articles of Applied Linguistics (AL), Mechanical Engineering (ME), and Medicine (MED) in order to highlight both interdisciplinary and intercultural differences. To this end, 90 research articles, 45 L1 and 45 L2, were analyzed. The results of interdisciplinary comparison through Chi-square revealed remarkably higher use of first person pronouns in AL articles. However, functional analysis showed relatively more authorial use of them in MED articles. Moreover, Chi-square analysis of L1 and L2 articles indicated L2 writers' significant underuse of first person pronouns in AL, while in ME and MED the difference was not found to be significant. Also, according to the results of functional analysis, in AL and MED, L2 writers projected higher level of authorial identity than L1 writers, while in ME it was vice versa. It is hoped that the findings of this study would help both EAP learners and teachers increase their awareness about how to use first person pronouns. This awareness would help teachers to address the use of these pronouns in more systematic and organized ways in writing courses, and learners to write more effectively in the target language.

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**Keywords:** Authorial identity, First person pronouns, Research article, Writer identity

### 1. Introduction

In the last three decades academic writing has attracted researchers' increasing attention and interest all over the world. Hyland (2000) mentions two motives for this shift of interest: 1) From a theoretical perspective, this trend has been prompted by the fact that it is writing which produces different characteristics of various disciplines; 2) From a pedagogical perspective, what attracts attention to academic writing is that it is one of the principal responsibilities of academics. Berkenkotter (1991) claims that one of the significant findings of the research on academic writing is that "students entering academic disciplines need a specialized literacy that consists of the ability to use discipline-specific rhetorical and linguistic conventions to serve their purposes as writers" (p. 153). Moreover, Hyland and Hamp-Lyons (2002) assert that it would be very difficult to gain entry into relevant discourse communities without having awareness and competence about their writing practices. According to Swales (1990), every discourse community may use several established ways of communication which give rise to genres.

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From among the different genres of academic discourse community, the genre of Research Article (RA) has attracted researchers' focus of attention relatively more. This may be because of the important role that RAs play in communicating new scientific findings in different fields all over the world. Researchers have studied and analyzed RAs from different perspectives to extract explicit and implicit conventions of this genre so as to help new members develop their competence in it. These studies have covered wide varieties of focuses from moves and strategies (Bhatia, 1999) to rhetorical features (Hyland, 2005). One of the important features of RAs is the expression of writer identity- the picture writers represent from themselves in their writings by their rhetorical choices (Hyland, 2002a). Traditionally, academic writing was seen as largely objective and author-evacuated (Geertz, 1983). It was believed that impersonality emphasizes objectivity, open-mindedness, and the established factual nature of a given activity (Lachowicz, 1981). However, modern approaches consider the academic writing process an act of identity (Hyland, 2005). Hyland (2001) argues that academic writings not only convey disciplinary content, but also carry a representation of the writer. And this self-representation is one of the strategies to claim power and obtain recognition in related discourse communities (Taş, 2010). Ivanić (1998) has extensively discussed the ways through which writers represent themselves, and find themselves represented, by their rhetorical choices. She argues that writers' identities are constructed in the 'possibilities for self-hood' available in the sociocultural contexts of writing. She distinguishes three aspects of identity interacting in writing which she calls the 'auto-biographical self', which is influenced by the writer's life-history, the 'discoursal self', which is the image or 'voice' the writer projects in a text, and the 'authorial self', which is manifested in the extent to which a writer intrudes into a text and claims responsibility for its content. It is the authorial self which is the focus of this study. Projections of authorial self, according to Hyland (2005), have been accomplished through a range of rhetorical and linguistic resources, variously called appraisal (Martin, 2000), evaluation (Hunston and Thompson, 2000), and stance (Hyland, 1999), all of which allow writers to take up positions and express judgments.

A number of researchers have recognized the use of first person pronouns and their corresponding determiners as the most obvious and important way of representing authorial self (Hyland, 2001; Kuo, 1999, Tang and John, 1999). Taş (2010) also maintains that first person pronouns play a crucial role in writers' communication with their audience and construction of authorial identity. Some researchers, inspired by the fact that not all uses of first person pronouns are alike, attempted to identify the different discourse functions that accompany their use in academic writings. Ivanić (1998) was the first one who acknowledged this fact by pointing out that "there is a continuum from not using 'I' at all, through using 'I' with verbs associated with the process of structuring the writing, to using 'I' in association with the research process, and finally to using 'I' with verbs associated with cognitive acts" (p. 307). Ivanić did not expand her idea. Neither did she state the criteria by which she ordered the uses of first person pronouns along this continuum. Tang & John (1999), taking up where Ivanić left, first identified the various roles that first person pronouns can have in academic writings and then ordered them along a continuum in terms of the degree of authorial power they carry. According to Tang & John, ordered from the one having the least to the one having the most powerful authorial presence, the different roles that first person pronouns can take are as follows: 1) 'I' as the representative, 2) 'I' as the guide, 3) 'I' as the architect, 4) 'I' as the recounter of the research process, 5) 'I' as the opinion holder, and 6) 'I' as the originator. Hyland (2002a) came up with a similar taxonomy. He identified five functions accompanying first person pronouns ordering them from the function expressing the least to the one expressing the most authoritativeness: 1) Expressing self-benefits in which writers use author pronouns to include comments on what they have personally gained from the project; 2) Stating a purpose in which writers use authorial pronouns to state their discoursal purposes in order to signal their intentions and provide an overt structure for their texts; 3) Explaining a procedure in which writers use authorial pronouns to elaborate the procedures of conducting the research; 4) Elaborating an argument in which using first person pronouns writers set out a line of reasoning; and 5) Stating results/claims in which writers use authorial pronouns to state the result of their research. Other researchers also attempted to provide similar taxonomies (for example, Harwood, 2005a, Starfield and Ravelli, 2006). In essence they were similar to the previous taxonomies proposed by Tang and John (1999) and Hyland (2002a). Shotton and Gergen (cited in Hyland, 2002a) maintain that identities are constructed from the culturally available discourses which we draw on to communicate. This implies that different cultures construct identity in different ways, with different tools. Therefore, in the case of non-natives writing in L2 chances are that cross-cultural interference will occur.

Similarly, Duenas (2007) specifies that the writer's representation in texts by means of first person pronouns has been found to differ in academic writing according to 1) genre, for instance, between undergraduate projects and journal articles, and between abstracts and RAs; 2) discipline or small culture, for instance, between hard and soft disciplines; and 3) certain national or big cultures. For, researchers from different languages and cultures have analyzed and compared the use and functions of first person pronouns in English academic writings of native and non-native writers to highlight their possible differences (Vassileva, 1998; Sheldon, 2009; Taş, 2008; Hyland, 2002a; Hyland 2002b; Vergaro, 2010; Martinez, 2005). However, no such research has been done analyzing and comparing authorial presence in academic writings of English native-speakers and those of Iranian non-native writers. Therefore, addressing this gap, the aim of this study was to compare and contrast the use and functions of first person pronouns in L1 (written by native writers) and L2 (written by Iranian writers) English RAs of Applied Linguistics (AL), Mechanical Engineering (ME), and Medicine (MED) so as to highlight both interdisciplinary and intercultural differences.

## 2. Corpus of the study

The corpus of this study consisted of 90 RAs: 30 articles in AL, 30 articles in ME, and 30 articles in MED. In each discipline 15 articles were those written by English native speakers (L1) and 15 articles were those written by Iranian non-native writers (L2). Articles were judged to be L1 or L2 considering the authors' names and affiliations. All of the articles were taken from major international journals in each discipline. Having experimental design, having the four rhetorical sections of introduction, materials and methods, result and discussion, and conclusion, and being published in the time range of 2005 to 2013 were the important criteria considered in the selection of articles. Moreover, only the body part of the articles were analyzed; parts such as headings, footnotes, bibliographies, linguistic examples, tables, figures, etc. were all excluded from the corpus. The following table indicates further details about the corpus:

**Table 1: The Corpus of the Study**

L1 RAs	Texts	Words	L2 RAs	Texts	Words
Applied Linguistics	15	103,058	Applied Linguistics	15	64,704
Mechanical Engineering	15	84,243	Mechanical Engineering	15	64,800
Medicine	15	64,685	Medicine	15	57,428
Overall	45	251,959		45	186,932

## 3. Methodology

This study was a corpus-based empirical study in which a collection of natural academic texts were analyzed. Quantitative methodologies were used in estimating the frequency of first person pronouns in the articles. Also, after determining the functions of these pronouns, they were analyzed in terms of the percentages of author pronouns used for each function. In addition to the first person pronouns and their corresponding determiners which were the primary categories of analysis in this study, discourse functions of these pronouns were further categories of analysis to help provide a clearer picture from the differences between the two groups of writers in their projection of authorial identity. Hyland's (2002a) taxonomy of the discourse functions accompanying first person pronouns was used as the model providing the categories of analysis for this study. This taxonomy was chosen for two reasons. First, it was particularly suitable for analyzing RAs as it was originally developed analyzing them. Categories of other taxonomies were developed analyzing other genres of academic writing such as student reports or theses and were inappropriate for analyzing RAs. Second, the categories of this taxonomy did not have the complexity of the ones proposed by Tang and John (1999) and others, and were easy to understand for both the researcher and the readers. Therefore, together with the first person pronouns and their corresponding determiners, their four functions namely stating a goal/purpose, explaining procedure, stating results/claims, and elaborating an argument provided the categories of analysis for this study. The function of expressing self-benefits was omitted because, as Hyland (2002a) himself pointed out, this function does not appear in RAs; It only appears in students' academic writing. For the purpose of the study, the four rhetorical sections of 90 RAs consisting of 438,891 words were analyzed. First, the articles were analyzed to determine the frequency of author pronouns. In order to compare texts with different lengths, the frequency of these pronouns per 10,000 words were calculated.

In addition, in order to determine the significance of the difference between different sets of data in the frequency of first person pronouns, Chi-square analysis was employed. In so doing, after calculating the expected and observed frequencies and using the below formula, the value of Chi-square was calculated and then interpreted using the Chi-square distribution table.

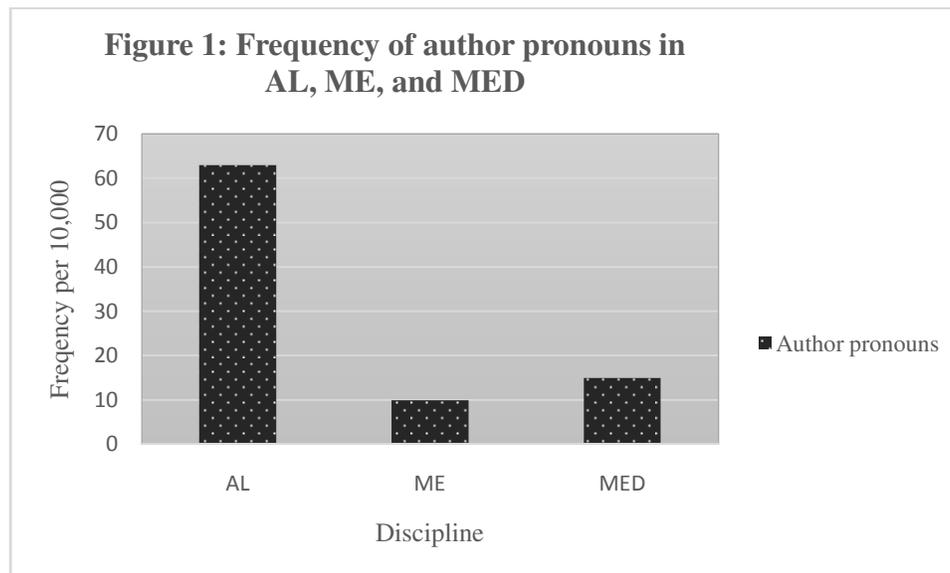
$$X^2 = \sum \frac{(O-E)^2}{E}$$

In the second stage, I focused on the functions accompanying each occurrence of first person pronouns and their corresponding determiners. Through analyzing the contexts in which they were used, their functions were determined. The percentages of the pronouns used for each of the discourse functions were also calculated to compare the degree of authority writers from different disciplines and L1s invested in their writings. Finally, the data were analyzed to answer the research question.

## 4. Results

### 4.1. Author Pronouns in AL, ME, and MED RAs

In this section the aim was to find out whether there is any difference between the articles in the three disciplines of AL, ME, and MED in their use of author pronouns as indicators of authorial identity. The results are presented below. As can be seen in figure 4.1, all of the disciplines under investigation have used some instances of author pronouns to emphasize their presence in their texts and to engage with readers as is typical for any kind of social interaction. Although all of the disciplines have used authorial references, there are still differences between them. There is dramatic difference between AL and the other two disciplines in their use of author pronouns. As for the two disciplines of ME and MED, there is a slight difference between them with MED using a bit more number of author pronouns.



Note: AL = Applied Linguistics, ME = Mechanical Engineering, MED = Medicine

Using the above-mentioned formula, the resulting value of Chi-square for the difference between AL and ME was found to be 38.479. According to the Chi-square distribution table, with  $df=1$  and  $p=0.05$ , the critical value for Chi-square is 3.841. Since the estimated value for Chi-square is greater than that, we can conclude that the overall difference between the two disciplines of AL and ME is statistically considerable. Following the same procedure for the difference between AL and MED, the value of Chi-square was calculated to be 29.538 which, considering the  $p$  value of 0.05 and 1  $df$ , appears to be showing that there is statistically significant difference between writers of AL and MED articles in their overall use of author pronouns. However, for the difference between ME and MED articles, the estimated value of Chi-square was 1, which is less than the critical value with  $p=0.05$  and  $df=1$ .

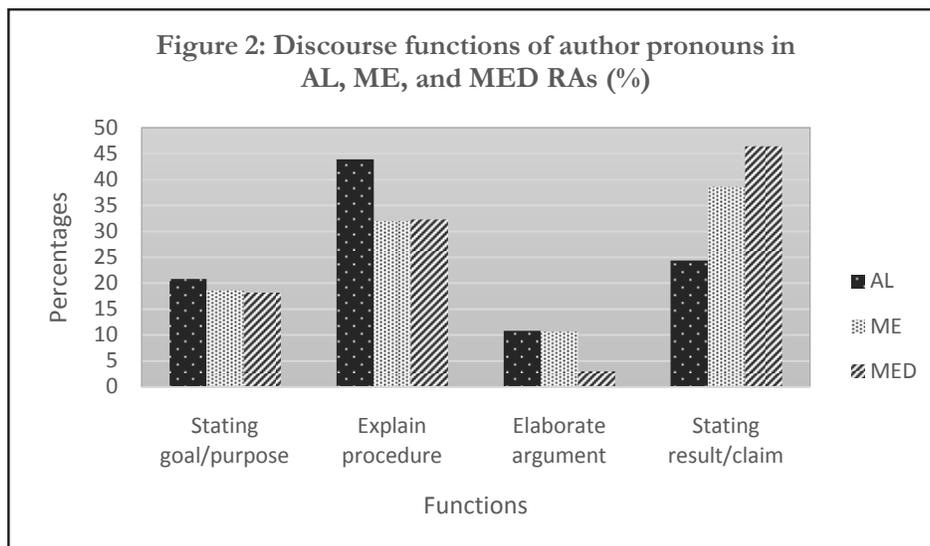
This entails the conclusion that there is no significant difference between writers of ME and MED articles in their overall use of author pronouns. Table 2, presents a detailed comparison of the three disciplines by providing the frequencies of author pronouns in each section of the RAs for each discipline separately. The results are interesting considering the overall comparison of disciplines since the differences among disciplines in specific sections of the articles are not completely in line with the overall differences. In introduction section, the Chi-square value for the differences between AL and ME is 20.48, between AL and MED is 3.878, and between ME and MED is 7.529, which are all greater than the critical value for Chi-square (3.841) with  $df=1$  and  $p=0.05$ . Therefore, the difference between these disciplines in this section is statistically significant.

**Table 2: Frequency of author Pronouns in AL, ME, and MED RAs**

Discipline	Total		Intro		M&M		R&D		Conc	
	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000
AL	647	63	126	41	82	85	256	60	83	94
ME	75	10	18	9	13	6	43	11	1	2
MED	99	15	28	25	8	4	51	16	12	39

Note: AL = Applied Linguistics, ME = Mechanical Engineering, MED = Medicine, Intro = Introduction, M&M = Materials & Methods, R&D = Result & Discussion, Conc = Conclusion

In materials and methods section, the difference between AL and ME as well as between AL and MED is statistically significant with Chi-square values of 68.582 and 73.719, respectively. But, the difference between ME and MED, with the Chi-square value of 0.4, is not significant since it is less than the critical value for the situations where  $df$  is 1 and the  $p$  value is 0.05. In result and discussion section, for the differences between AL and ME, and also AL and MED, the Chi-square values are respectively 33.816 and 25.473, which show that the difference is significant. But, the difference between ME and MED is not significant because of the less Chi-square value (0.925) than the critical value (3.841). Finally, in the conclusion section, the results of Chi-square analysis show that the difference between all disciplines in using author pronouns in this section is significant. For the differences between AL and ME, AL and MED, and ME and MED, the Chi-square values are 88.166, 22.744, and 33.390, respectively, which are all greater than the critical value (3.841) when  $df$  is 1 and  $p$  is 0.05. While the frequency of occurrence of author pronouns is important in determining the level of authoritativeness, we can learn a lot more about authorial identity by investigating the functions accompanying them. Figure 2 compares the use of author pronouns for different functions in the three disciplines of AL, ME, and MED.



Note: AL = Applied Linguistics, ME = Mechanical Engineering, MED = Medicine

As can be seen in the figure, the writers of the three disciplines have used author pronouns almost similarly for stating goal/purpose. Regarding the second function, explaining procedure, ME and MED articles are alike but AL articles have used considerably more percentage of their authorial references for this less threatening function. As for the function of elaborating an argument, there is no difference between the articles of AL and ME, but writers of MED articles have used relatively low percentage of their author pronouns for this high-risk function. For the function of stating result/claim, which carries the highest degree of authority and threat, the writers of MED articles have used the most percentage of authorial references. After them are the writers of ME articles which they, in turn, have used more proportion of their author pronouns for this function than writers of AL articles.

#### 4.2. Author Pronouns in L1 and L2 AL RAs

##### 4.2.1. Frequency of Author Pronouns in L1 and L2 AL RAs

The following table shows the differences between native and non-native writers of English RAs in their use of author pronouns. The data shows that neither native, nor non-native writers consider academic writing impersonal and author-evacuated. More or less, both groups of writers believe in personal engagement.

**Table 3: Frequency of author pronouns in L1 and L2 AL RAs**

Articles	Total		Intro		M&M		R&D		Conc	
	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000
L1 AL	647	63	126	41	82	85	256	60	83	94
L2 AL	54	8	6	2	23	20	18	8	7	1

Note: AL = Applied Linguistics, RA = Research Article, Intro = Introduction, M&M = Materials and Methods, R&D = Result and Discussion, Conc = Conclusion

It is evident from table 3 that the differences between native and non-native writers are quite remarkable in using authorial pronouns in their writings. Not only the overall distribution of the pronouns, but also their distribution in rhetorical sections shows this dramatic difference. For the overall difference between L1 and L2 writers, using the formula mentioned earlier, the value of Chi-square was estimated to be 42.605, which is greater than 3.841 (the critical value for Chi-square with  $df=1$  and  $p=0.05$ ), showing that the overall difference between L1 and L2 writers of AL articles in their use of first person pronouns is statistically significant. Regarding the rhetorical sections separately, the results still show a considerable difference between native and non-native writers. The Chi-square value for the differences between them in introduction, materials and methods, results and discussion, and conclusion sections are 35.373, 40.238, 39.764, and 91.042, respectively. These values are all greater than the critical value of Chi-square when  $df$  is 1 and  $p$  is 0.05, indicating that the differences in the four sections are significant.

##### 4.2.2. Discourse Functions of Author Pronouns in L1 and L2 AL RAs

Table 4.8 below shows the raw number as well as the percentage of the author pronouns used for specific functions in AL RAs. Despite the remarkable difference between native and non-native writers in the raw number of author pronouns used for the two functions of stating goal/purpose and elaborating an argument, the percentages of the pronouns used for them are alike.

**Table 4: Discourse Functions of Author Pronouns in L1 and L2 AL RAs**

Functions	L1 RAs		L2 RAs	
	Raw	%	Raw	%
Stating goal/purpose	135	20.9	11	20.4
Explaining procedure	284	43.9	18	33.3
Elaborating argument	70	10.8	5	9.3
Stating result/claim	158	24.4	20	37
Total	647	100	54	100

Note: AL = Applied Linguistics, RA = Research Article

As for the other two functions, explaining procedure and stating result/claim, the differences are relatively considerable. For the function of explaining procedure which carries a relatively low threat, native writers have used 43.9 percent of the author pronouns, while non-native writers have used 33.3 percent of their author pronouns. But, in the case of the high-risk function of stating result/claim, non-native writers have used more percentage of the author pronouns for this function than native writers: 37 versus 24.4 percent respectively.

#### 4.3. Author Pronouns in L1 and L2 ME RAs

##### 4.3.1. Frequency of Author Pronouns in L1 and L2 ME RAs

The following table shows the distribution of author pronouns in English ME research articles written by English native speakers and those written by Iranian non-native writers. It shows that both native and non-native writers have used more or less instances of author pronouns in their texts, though there are slight differences between them.

**Table 5: Frequency of Author Pronouns in L1 and L2 ME RAs**

Articles	Total		Intro		M&M		R&D		Conc	
	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000
L1 ME	75	10	18	9	13	6	43	11	1	2
L2 ME	26	4	8	6	11	6	7	3	0	0

Note: ME = Mechanical Engineering, RA = Research Article, Intro = Introduction, M&M = Materials and Methods, R&D = Result and Discussion, Conc = Conclusion

As the table indicates, the overall distribution of authorial references is different for the two groups of articles. Native writers have used 10 authorial references per 10,000 words while non-native writers have employed 4. However, the results of Chi-square analysis show that this difference is not statistically significant. Using the mentioned formula, the value of Chi-square is calculated to be 2.571. This value is less than the critical value of Chi-square when  $df$  is 1 and  $p$  value is 0.05 (that is 3.841). Therefore, the overall difference between L1 and L2 writers is not statistically significant. As for the statistical analysis of rhetorical distribution of authorial references, in materials and methods section, there is no difference between L1 and L2 writers, hence no need for Chi-square analysis, too. Also in conclusion section, since the expected frequency was lower than 5, Chi-square analysis could not be applied, though we can judge from the frequencies that the difference is not significant. Yet, for the differences in introduction, the value of Chi-square was equal to 0.6, which is less than the critical value (3.841) with 1  $df$  and 0.05  $p$  value, indicating that the difference is not statistically significant. But, using the same procedure for the differences in results and discussion section, the value of Chi-square was estimated to be 4.571 which is greater than the critical value. Therefore, in this section of ME articles there is a statistically significant difference between L1 and L2 writers.

##### 4.3.2. Discourse Functions of Author Pronouns in L1 and L2 ME RAs

Table 6 shows the raw number of author pronouns used for specific functions as well as the percentage of these pronouns used for each function separately. The table shows that in using authorial references to state goal/purpose and elaborating an argument the two groups of writers have acted similarly while in using them to explain their procedure and to state their result/claim they have acted differently.

For the function of explaining procedure, native writers have used 32 percent of the author pronouns while non-native writers have used 57 percent of them. Also, in the function of stating result/claim, the difference is quite considerable. For this relatively high risk function, native writers have used 38.7 percent of the author pronouns while non-native writers have used 7.7 percent of them.

**Table 6: Discourse Functions of Author Pronouns in L1 and L2 ME RAs**

Functions	L1 RAs		L2 RAs	
	Raw	%	Raw	%
Stating goal/purpose	14	18.6	6	23
Explaining procedure	24	32	15	57.7
Elaborating argument	8	10.7	3	11.6
Stating result/claim	29	38.7	2	7.7
Total	75	100	26	100

Note: ME = Mechanical Engineering, RA = Research Article

#### 4.4. Author Pronouns in L1 and L2 MED RAs

##### 4.4.1. Frequency of author pronouns in L1 and L2 MED RAs

Table 7 shows the frequency of author pronouns in MED English RAs written by native speakers and those written by Iranian non-native writers. In addition to the overall differences, the differences in the rhetorical sections are also indicated by the raw numbers of author pronouns as well as their frequency per 10,000 words.

**Table 7: Frequency of Author Pronouns in L1 and L2 MED RAs**

Articles	Total		Intro		M&M		R&D		Conc	
	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000	Raw	Per 10000
L1 MED	99	15	28	25	8	4	51	16	12	39
L2 MED	114	20	17	19	8	4	75	26	14	74

Note: MED = Medicine, RA = Research Article, Intro = Introduction, M&M = Materials and Methods, R&D = Result and Discussion, Conc = Conclusion

In MED, non-native writers have employed more instances of authorial references than native writers in writing their RAs. They have used 114 instances of first person pronouns which is equal to 20 when normalised to the text length of 10,000 words, while native writers have used 99 instances of them which is equal to 15 when normalised to the same text length. However, the results of Chi-square analysis indicated that this difference is not statistically significant. For their difference, the obtained value for Chi-square is 0.714, which is less than the critical value for Chi-square when  $df$  is 1 and the  $p$  value is 0.05. For the differences between native and non-native writers in introduction section, the value of Chi-square is estimated to be 0.818, which is less than the critical value when  $df$  is 1 and  $p$  is 0.05, showing that in this section the difference between L1 and L2 writers of MED articles is not significant. As for the materials and methods section, both groups have used author pronouns 8 times in their writings, whose frequency per 10,000 words is 4 for both native and non-native writers. Therefore, there is no need for statistical analysis to show the lack of significant difference between L1 and L2 writers in this section. For the differences in results and discussion section, again the Chi-square value (that is 2.380) is less than the critical value with  $df$  of 1 and  $p$  value of 0.05 (that is 3.841), demonstrating the insignificance of the difference between L1 and L2 writers. However, in conclusion section, the difference has proved to be significant. The obtained Chi-square value for the difference in this section is 10.840, which is greater than the critical value, showing the significance of the difference between L1 and L2 writers in this section of MED articles.

#### 4.4.2. Discourse Functions of Author Pronouns in L1 and L2 MED RAs

The following table shows the raw number of times author pronouns have been used for the discourse function together with their percentages in L1 and L2 MED articles separately. The table reveals that the two groups of writers use author pronouns in different ways for different functions.

**Table 8: Discourse Functions of Author Pronouns in MED RAs**

Functions	L1 RAs		L2 RAs	
	Raw	%	Raw	%
Stating goal/purpose	18	18.2	15	13.2
Explaining procedure	32	32.3	29	25.4
Elaborating argument	3	3	7	6.1
Stating result/claim	46	46.5	63	55.3
Total	99	100	114	100

Note: MED = Medicine, RA = Research Article

For the function of stating goal/purpose and explaining procedure, native writers appear to use some more percentage of their authorial references. However, in the other two functions non-native writers have overtaken native writers. They have used 6.1 percent of self-references to elaborate an argument while native writers have used only 3 percent of author pronouns for this function. They have also used 55.3 percent of the total authorial references for stating their results or claims while native writers have employed 46.5 percent of them for this function. In all, native writers have used more percentage of their authorial references for the two relatively low-risk functions of stating goal/purpose and explaining procedure, whereas non-native writers have used more percentage of their author pronouns for the two relatively high-risk functions of elaborating an argument and stating result/claim.

## 5. Discussion

### 5.1. Author Pronouns in AL, ME, and MED RAs

In this study, the use of first person pronouns and their corresponding determiners was investigated in AL, ME, and MED RAs. The results of Chi-square analysis revealed that the overall frequency of author pronouns in AL is remarkably higher than the other two disciplines. While regarding ME and MED, the difference was not statistically significant. First of all, use of sufficient cases of first person pronouns in all of the three disciplines under investigation suggests that article writers do not take their writings as an impersonal prose, but they consider human agency as an integral part of academic writing (Hyland, 2002b). Moreover, by using authorial references, writers in all the three disciplines admit that academic writing is a social practice (Harwood, 2005b). The variations between disciplines in their frequency of first person pronouns reflects the fact that writers of articles in different disciplines have different ways of conducting and reporting research and persuading their readers to accept their ideas. Obviously, AL is not in the same group of knowledge with ME and MED. Knowledge making and conducting research in AL is substantially different from that of ME and MED. Scholars have divided knowledge into soft sciences and hard sciences. In hard sciences the setting of the experiment and the variables are more controlled and materials and procedure can be closely measured. Therefore, writers play down their role in research reports and strengthen the objectivity of their interpretations. By so doing, they suggest that the results of the study would be the same irrespective of the individual conducting it. Soft sciences, on the other hand, have quite different rhetorical stance. Establishing an appropriate identity and maintaining an effective degree of engagement with audience are valuable strategies in soft sciences. In soft knowledge domain, arguments are less precisely measurable and clear-cut than in the hard knowledge domain. Also the variables are less controlled. As a result, successful communication is dependent on the author's ability to project an impression of confidence and authority. Now, the differences between disciplines in using author pronouns can be explained resorting to the nature of disciplines falling either in the realm of hard or soft sciences. Since ME and MED are considered hard sciences, writers in these disciplines make less use of authorial references to further highlight the phenomenon under study and present their findings objectively. In other words, since writers in these disciplines deal with facts and controlled variables, there is no need for them to get strongly behind their claims and ideas to make their audience accept them. AL, on the other hand, belongs to soft knowledge domain and like all disciplines in soft sciences does not have firm theoretical foundations. Therefore, this discipline requires more persuading tools to attract the attention and acceptance of the audience.

For, writers of AL articles make more use of first person pronouns to show their confidence and authority in their field and to signal their competence to their audience. Rhetorical distribution of author pronouns shows that writers have used author pronouns in all sections of the articles though there are differences both across sections and among disciplines. The differences across sections are due to the different rhetorical functions each section serves in the article. But, the differences between disciplines is because of the differences in their nature. In rhetorical sections, the results of Chi-square analysis showed the significance of the difference in all of the sections between AL and the other two disciplines in their use of first person pronouns. Writers of AL articles have used remarkably more authorial references in all sections. This can also be explained by referring to the nature of this discipline. Since it is a soft science with no firm theoretical foundation and uncontrolled variables, writers take more authorial stance throughout their texts to catch the readers' attention and persuade them. The most striking difference between AL and the other two disciplines is in materials and methods section, where ME and MED articles are not significantly different. In this section, the steps taken to conduct the research are discussed (Swales, 1990). Here, there is not that much room for using author pronouns for high-risk functions. The use of authorial reference in this section of AL articles is 14 times more than ME and 21 times more than MED articles. This remarkable difference can be explained by considering the fact that in AL, because of the nature of the discipline, there are a wide range of methods available for conducting a particular research and it is the researcher's decision to pick one from among others. Therefore, by using authorial references writers want to emphasize their role in choosing specific procedures. With a relatively lower intensity, it is also the case with conclusion section where writers of AL articles do this same job by mainly using author pronouns for reviewing the important methodological decisions leading to specific results. Despite the insignificant difference between writers of ME and MED articles in their overall use of authorial references, the results of Chi-square analysis revealed that in introduction and conclusion sections the difference is significant.

In both sections, MED articles have made more use of these pronouns. It can be inferred from this result that since in introduction section the purpose of the study is stated (Swales, 1990), writers of ME articles tend to announce their purposes in more impersonal terms than writers of MED articles. Moreover, in conclusion section where writers discuss their important methodologies and findings (Swales, 1990), writers of MED articles tend to make themselves more visible. Broadly, the findings mentioned above support the fact that rhetorical conventions of self-reference are influenced by a disciplinary community's beliefs and social practices. These findings are in line with Hyland's (1999, 2001, 2002a, 2003) findings which state that the use of first person pronouns differ in academic texts according to the nature of disciplines. Another aspect in which the author pronouns were investigated in AL, ME, and MED RAs was the rhetorical functions accompanying author pronouns. In this part the purpose was to find out the differences in the level of authoritativeness writers in each discipline are willing to project through using first person pronouns. The results of functional analysis revealed that writers of AL articles expressed the lowest degree of authorial identity in their writings, despite their highest use of author pronouns. In AL, writers used most of the authorial references to explain procedures and state their purposes both of which are non- or low-risk functions. On the other hand, in ME and MED, writers used author pronouns mostly to state their results and elaborate an argument. The high use of author pronouns for explaining procedure in AL may be because of the importance choosing specific methods has in this field. Unlike ME and MED which has relatively determined set of materials and methods for conducting a research, in AL, researchers have a lot of ways through which they can do their research and it is their own choice to use the method they see fit. Therefore, by using author pronouns writers of AL articles want to highlight their personal role in choosing specific methods and remind their readers that things could have been done differently in the hands of other people. Writers of ME and MED articles, on the other hand, do not have a wide range of materials and methods to choose from in order to conduct their research and tend to make themselves visible in arguments and interpretation of the results. Regarding ME and MED articles, the writers have used nearly the same percentage of their author pronouns for each of the four functions. This result is a further evidence for the similarity of the natures of the two disciplines; that they both belong to the domain of hard sciences.

## 5.2. Author Pronouns in L1 and L2 AL RAs

The results of analyzing the frequency of author pronouns in L1 and L2 AL articles revealed that both native and non-native writers make use of author pronouns in their texts. This finding shows that neither group of writers consider academic writing objective and impersonal. However, as the results of Chi-square analysis indicated, there are broadly remarkable differences between Anglo-American and Iranian writers.

The overall distribution of authorial references in L1 articles is almost 8 times more than that in L2 articles. This extreme underuse of first person pronouns by Iranian writers might be related to the cultural beliefs which have been upheld for long in Iranian community. Since using authorial reference exposes the writers to relatively more criticism and carries the elements of risk and threat in itself, by avoiding to use these pronouns they want to protect themselves from being criticized. Another reason might be rooted in the writers' first language. Although there is no empirical evidence for it, an informal review of Persian articles shows that Iranian writers mostly prefer passive voice in reporting their research in their first language. Transferring this habit to writing activities in English might be another source of avoiding author pronouns. Separate comparison of L1 and L2 articles' rhetorical sections also indicated statistically considerable differences between the two groups of writers. The most frequent use of author pronouns in L1 articles was in conclusion section while in L2 articles this section had the least occurrence of these pronouns. This shows the preference of native writers to restate the important methodological decisions and findings of their research using author pronouns whereas non-natives have done this invisibly. The results of functional analysis of author pronouns also displayed considerable differences between Anglo-American and Iranian writers. Although the numbers of author pronouns used for stating purpose and elaborating an argument are remarkably different in L1 and L2 articles, the percentages of the pronouns used for them are roughly the same. This means that when Iranian writers choose to use author pronouns, which they rarely do compared with L1 writers, they use them appropriately for these functions. Regarding the two functions of explaining procedure and stating result/claim, there are fairly significant differences between native and non-native writers. L1 writers have used relatively more percentage of authorial pronouns to explain their procedure while L2 writers have employed more percentage of them to state their results/claims. It can be explained in this way that for native writers choosing specific materials and methods over other possible materials and methods is an important personal decision and they want to take responsibility for their selection by using author pronouns, whereas Iranian writers tend to use authorial references to state their result/claim projecting higher level of authorial identity in their writings. The native writers' higher use of first person pronouns for explaining procedure has also been documented by Sheldon (2009).

### 5.3. Author Pronouns in L1 and L2 ME RAs

The results of data analysis revealed that both native and non-native writers of ME RAs make use of author pronouns. This shows that for both groups of writers personal presence is an important aspect of academic writing. This is interesting since ME has always been thought of as the typical discipline of hard sciences in which objectivity and impersonality are greatly emphasized. Though there is difference between native and non-native writers of ME articles in their overall frequency of first person pronouns, the results of Chi-square analysis indicated that this difference is not statistically significant. This similarity in the use of authorial references might be related to the overall low use of such pronouns in L1 ME articles. The results of comparing L1 and L2 rhetorical sections demonstrated that except for result and discussion section the differences between native and non-native writers are not statistically significant. In result and discussion section native writers used author pronouns almost four times more than non-native writers. In this section, which discusses the findings and methodological decisions leading to them (Swales, 1990), native writers prefer to highlight their responsibility and stand firmly behind their findings while non-native writers tend to play down their role. The reason for this might be that L2 writers distance themselves from their findings so as to avoid the possible criticisms. The results of functional analysis of ME articles revealed that native writers project higher level of authorial identity than their non-native counterparts. The two groups of writers acted similarly in using author pronouns for stating purpose and elaborating an argument. This implies that Iranian L2 writers, when choosing to use author pronouns, use them appropriately for these two functions. However, there is a remarkable difference between them in using these pronouns for the two functions of explaining procedure and stating result/claim. According to the data obtained from the corpus, writers of L2 articles tend to use authorial references mostly for explaining procedure which is a low-risk function while native writers prefer to use them for stating their results and making claims. This difference distinguishes L1 and L2 writers. Since stating result or claim is a high-risk function, L2 writers avoid taking the risk to be criticized or challenged by others through using impersonal structures, and prefer to be seen with a more, as Hyland (2002a) puts, 'innocuous' function, that is, explaining procedure. Yet, native writers prefer to take responsibility for their results and claims by personally standing behind their propositions. This finding is in line with Hyland's (2002a) findings which demonstrated higher level of authoritativeness in L1 English articles.

#### 5.4. Author Pronouns in L1 and L2 MED RAs

The results of analyzing L1 and L2 MED articles showed that both native and non-native writers make use of first person pronouns in their texts though there are some differences between them. Considering normalized frequencies, non-native writers used author pronouns more than native writers, but the difference was not statistically remarkable as the results of Chi-square analysis revealed. This can be explained considering the relatively less frequent use of first person pronouns by native writers in this discipline compared with other disciplines. As the results of this study revealed, Iranian writers tend to keep low use of first person pronouns in all disciplines, while native writers, depending on the nature of the discipline, change their level of authorial presence. Therefore, this insignificant difference is mostly related to native writers' less frequent use rather than non-native writers more frequent use of authorial references. This similarity is interesting since it has always been documented that native writers use first person pronouns more frequently than their non-native counterparts (Martinez, 2005; Hyland, 2002a; Molino, 2010). Separate investigation of L1 and L2 MED articles' rhetorical sections showed higher use of author pronouns by non-native writers. Although the results of Chi-square analysis confirmed the significance of difference only in conclusion section where non-native writers used more authorial references than native writers. Since in conclusion section the most important findings of a study are presented (Swales, 1990), we can say that non-native writers project higher level of authorial identity by making themselves more visible in this section. However, it should be noted that overuse of author pronouns may lead to unnecessary intervention in texts, damaging the smooth flow of information between writer(s) and reader(s). Therefore, writers should attempt to keep an appropriate level of personal presence in texts. The results of functional analysis revealed projection of higher level of authorial identity in L2 articles. Native writers used more percentage of their authorial references to state purposes and to explain procedure. Again, we end up to Sheldon's (2009) finding that native English writers are more "methodologically conscientious" than non-native writers. On the other hand, non-native writers tended to use more percentage of their first person pronouns to elaborate an argument and state results/claims. For native writers choosing particular materials and methods and taking particular steps were an important personal decision while for non-native writers the results were more important. Although no study, at least to my best knowledge, in the literature has directly investigated L1 and L2 MED articles, other studies of native and non-native writers' use of first person pronouns have always demonstrated the underuse and unadventurous use of author pronouns by non-native writers (Hyland, 2002a; 2002b; Martinez, 2005; Molino, 2010). But, according to the findings of this study, Iranian writers of MED articles used significantly more author pronouns in conclusion section and projected higher level of authorial identity than native writers throughout their texts. This shows the tentative nature of the findings and more studies might be needed to arrive at a relatively firm conclusion.

#### 5.5. Pedagogical Implications

This study provided further evidence that academic writing is no longer impersonal and objective, and that constructing an effective authorial identity, for which one of the established ways is the use of first person pronouns, is crucial for academic texts. RAs of all disciplines make use of first person pronouns although the extent to such explicit intrusion varies between disciplines. This finding has very important implications for EAP teachers: that they cannot teach their learners to write effectively by still encouraging objectivity and impersonality, and that they should teach learners not to use a single set of rules concerning the use of author pronouns in all disciplines. Personal presence in articles should be encouraged but not in the same level for different disciplines. It is suggested that by addressing this issue in writing courses, teachers increase the learners' awareness about this issue and arm them with appropriate ways of making themselves visible and of projecting authorial identity in their texts. Another important finding of this study was in some aspects the similarity, and in some others the remarkable difference between L1 and Iranian L2 writers in their use of first person pronouns. These findings can serve to provide information for teachers on the areas of difficulty for learners in using these pronouns to project an effective level of authorial identity. Once the problematic areas are recognized, teachers can address them in writing courses and help learners learn the appropriate ways of intrusion into their texts in order to strengthen their role in their research and gain acceptance for their claims. The findings of this study can be useful for EAP learners, too. They can use the information provided in this study on the differences and similarities between native and non-native writers to increase their awareness about the use of first person pronouns in terms of both their frequency and functions in different fields and incorporate them into their academic writing activities.

However, they should be cautious not to overuse author pronouns as it is likely when they first start to focus on them, since its overuse is as detrimental to the construction of an effective academic argument as their underuse can be.

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