Promoting the Status of an Academic Language: Participant Interaction

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Abstract This study investigates the distribution of forms and functions of meta-discursive devices in research articles (RAs) in Persian across three academic disciplines (i.e., Sociology, Education, and Medicine) and compares the results with English and Spanish RAs. Data consist of 36 research articles, 12 in each discipline, resulting in 100,677 words (Sociology = 44,942, Education = 38,169, and Medicine =17,566). The sample RAs were chosen based on the taxonomy of disciplines, ranking of the journals, empirical nature of the articles, and their publication date. The reflexive model of metadiscourse (Ädel A, Metadiscourse in L1 and L2 English. John Benjamins Publishing, 2006) was used in order to determine and classify the metadiscourse markers in terms of both form and function. This resulted in a total of 1001 tokens in the three disciplines. Findings showed that the RAs in Sociology and Education have higher density in terms of metadiscourse markers than RAs in Medicine. Further examination of the results showed that the ratio of using Personal to Impersonal metadiscursive devices in Persian was one to ten, which is strikingly different from both English and Spanish. The authors suggest that, in order for academic Persian to establish its position as an effective and persuasive language in a larger academic community, it should show more participant interaction and writer-reader involvement. Finally, it is emphasized that linguistic policies of academic Persian should be implemented in a way that they direct it towards a more writer-responsible language along the writer-reader responsibility continuum.

Keywords Metadiscourse · Academic writing · Interaction · Research article · Rhetoric · Language policy

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1   Introduction

Writing an academic text is more than just putting together one's thoughts and applying the correct grammatical rules in the target language. In addition to using language to refer to the experimental world in an academic paper, one should be aware of how to use language to organize the text, guide the reader, and create an engaging and interactive piece of work. The latter applications of language fall within the scope of metadiscourse. Metadiscourse is a term which has been defined and used differently by scholars. Vande Kopple (1985) considers it as a non-propositional linguistic element which signals the presence of the writers in the text as they help their readers to "organize, classify, interpret, evaluate, and react" towards what is written about the subject matter (p. 83). According to this view, metadiscourse is mainly being used for organizational, interpretive, and evaluative purposes in a text. However, there are other researchers who consider metadiscourse as having a wider scope. Hyland (2005), for example, describes metadiscourse as "the self reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or speaker) to express a viewpoint and engage with readers as members of a particular community" (p. 37). The viewpoint adopted by Hyland stretches the boundaries of metadiscourse significantly. It not only includes the organizational function of metadiscourse in a text, it also considers the interactive, commentary, and attitudinal functions of this linguistic device in academic discourse.

The different applications of metadiscouse in academic and non-academic discourse are discussed extensively in the literature These include rhetorical (e.g., establishing coherence and logic), social (e.g., interaction between the writer and reader and making bonds between participants), organizational (e.g., walking the reader through the text), and pedagogical (e.g., enhancing reading/listening comprehension and recall) functions (Chaudron & Richards, 1985; Crismore & Vande Kopple, 1997; Hyland, 2004; Mauranen, 1993; Vande Kopple, 1988). Despite the fact that metadiscourse has received a lot of attention in the past, it is not still fully explored (Ädel, 2006). Hyland (2017) has also emphasized that "conceptions of metadiscourse, and individual studies themselves, are more usefully seen as contributing different aspects to our understanding of discourse" (p. 19). More research is still needed to underpin different functions of metadiscourse, especially in less studied languages. This chapter aims at exploring the conventions of metadiscourse in Persian academic discourse. This paper, more specifically, investigates the distribution of forms and functions of metadiscourse across three academic disciplines (i.e., Sociology, Education, and Medicine) in Persian. To pursue this goal, we use Ädel's (2006) reflexive model of metadiscourse which mainly considers "guidance" and "interaction" as the primary functions of metadiscourse. The current research is among the pioneering studies on Persian which explores the variation of metadiscourse in this language using a reflexive model. We hope that the findings of this paper will provide some guidelines for language educationists and language policy makers as to how improve academic Persian in order to communicate more effectively and establish its position in a larger academic community. The outline of this

chapter is as follows. The second section introduces academic language in general. The different approaches to metadiscourse followed by the reflexive model used in this study are presented in the next two sections. The following section will review studies related to metadiscourse in Persian. The methodology used in this study makes the next section of this chapter. The results and findings followed by general discussion and conclusion will make up the last two parts of this paper.

2   Academic Language

The term academic language started to be used in the past 40 years when Cummins (1979) made a distinction between basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP). He found that (English) language learners spend little time on acquiring basic conversational skills while a different register of the same language (i.e., academic) proved to be quite challenging and time consuming for the same language learners. He suggested that language proficiency is not a uniform construct. This means that a unidimensional model of general or global language proficiency cannot account for all aspects of language use or performance. According to him, academic language is what people *do* with language rather than grammatical features used in the text. Cummins stated that "the essential aspect of academic language proficiency is the ability to make complex meanings explicit in either oral or written modalities by means of *language itself* rather than by means of contextual or paralinguistic cues (e.g. gestures, intonation, etc.)" (Cummins, 2000, p. 69, emphasis in the original text). Cummins' approach to academic language was not specifying the linguistic features used in this register. Therefore, it is hard to apply his view in language classrooms where educators need to know specific features of academic language before they start teaching it (See Ranney, 2012 for further discussion).

In more recent years, scholars have started to shift their attention from BICS/CALP distinction to academic language per se. The first motives behind this shift was the abundance of rhetorical features shared between social and academic registers (Schleppegrell, 2001). The earliest studies which focused on academic language mainly investigated the vocabulary of academic discourse. These studies simply focused on the occurrence of lexical forms in academic language aiming at providing an account of distributional frequencies of the lexical items in the target language. This was done at the cost of missing sentential and discoursal dimensions of academic language.

The second reason for academic language receiving a lot of attention was the advances made in the fields like composition studies, second language writing, and contrastive rhetoric. Contrastive rhetoric started by Kaplan (1966) and developed later as an approach to examine the discourse and rhetoric. Kaplan assumed that each language and culture has rhetorical patterns and categories which are unique to themselves. He suggested that the differences in writing could reflect cultural and educational trainings. Since that time, this approach has had a major influence on

areas such as EFL/ESL and academic language teaching in university settings (Connor et al., 2008). One of the contributions of this approach to the field of academic writing is that it opened new research topics where academic discourse could be compared across different languages and disciplines. For example, the functional categories (e.g., hedges, boosters, attitude markers, and engagement markers) and different components (e.g., moves, steps) of different genres (e.g., research articles, lab reports, or grant proposals) have been the major topics of research in the last two decades or so (Connor & Mauranen, 1999; Myers, 1989). One of these rhetorical features which has been widely discussed and researched in the field of academic discourse is metadiscourse. The following section presents different approaches to this rhetorical device in academic language.

3 Different Approaches to Metadiscourse

Due to the fuzzy nature of metadiscourse, there is a wide spectrum of perspectives towards metadiscoursal studies.[1] This could range from a narrow text-centered view in one end to a broad interpersonal view in the other end (Hyland, 2017). The simplest approach to metadiscourse views it as *metatext* which includes discoursal expressions refereeing only to the internal structure of the text and its purpose (Mauranen, 1993). Sentence (1) provides an example:

(1) jɒftehɒje in motɒleʔe neʃɒn nædɒd ke tædʒvize tizɒnidin piʃ æz æmæl bɒʔese kɒheʃe dærd pæs æz æmæle septoplɒsti dær bimɒrɒn miʃævæd.

The findings of *this study* did not show that preoperative tizanidine administration reduces postoperative pain in septoplasty in patients. (MED_3, S131)

In sentence (1), the author is explicitly referring to the whole text by using the term *this study*. This illustrates using a metadiscourse marker by the writer as a signpost to guide the reader with the text. On the other end of the continuum, there are scholars who took an "integrative" approach where metadiscourse not only refers to guiding the readers throughout the text and its organization, but also it "involves the personalities, attitudes and assumptions of those who are communicating" (Hyland, 2005, p. 3). The integrative approach adopts Halliday's three levels of linguistic (meta-)function in its model, namely the ideational, the interpersonal and the textual levels. In the Systemic Functional Grammar (SFG) proposed by Halliday (1973), metadiscoursal items have both interpersonal and textual functions. As for the interpersonal function, the writer makes himself/herself visible in the text through expressing his/her personal attitudes and feelings or starting a dialogic conversation with the reader. The textual function is fulfilled by providing landmarks and signposts throughout the text to organize the text and guide the reader. Ädel (2006) criticizes that the SFG-inspired model uses the original terminology used in Halliday's SFG (i.e., "interpersonal" and "textual") in a different

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[1] See Hyland (2017) for the fuzzy nature of metadiscourse in academic discourse.

way which could be a source of confusion. Moreover, she states that contrary to the researcher's expectation that consider the interpersonal and the textual functions as the "twin main functions" of metadiscourse, these two are not at the same level in the SFG-inspired model.[2] She takes a "reflexive" approach and develops a new model for metadiscourse which adds personal discourse functions into the model. The following section presents Ädel's (2006) model which is also adopted in the current study.

4 Ädel's Reflexive Model of Metadiscourse

There are competing models for metadiscourse in the field of applied linguistics. One of the reasons for such a diversity is that the existing approaches draw on different linguistic theories to develop their models. In contrast to integrative approach discussed above, the reflexive model initially started by Mauranen (1992, 1993) and further developed by Ädel (2006) is mainly based on Jakobson's (1998) three functions of language: the expressive, the directive, and the metalinguistic. The corresponding component of these language functions in the speech event are the *writer*, the *reader* and the *text/code.* According to Ädel, the reflexive metadiscourse includes at least the following three aspects: (1) how scholarly writers refer to themselves, (2) how they relate and speak to their readers, and (3) how they refer to their own texts. As for the first aspect, research has shown that scientific disciplines vary from each other in terms of how authors use first person singular *I* or exclusive first person plural *we* to refer to themselves. There are some fields in English which favor using self-reference to refer to the author of the paper while there are other fields which mainly stick to impersonal style (Hyland, 2005). In addition to disciplines, there are some studies which have shown different tendencies of languages (e.g., English, Finnish, Spanish) for using expressions referring to the author (Mauranen, 1993; Salas, 2015; Williams, 2012).

The second aspect is related to creating a dialogue and establishing relationship with the readership. This could be performed either through using directives or inclusive pronoun *we*. Similar to exclusive pronouns, research has shown that the extent and functions of inclusive *we* vary both across disciplines and languages (Harwood, 2005; Taki & Jafarpour, 2012). The last aspect of reflexive metadiscourse refers to the textual features or metatext which talk about the text itself. In fact, this is the most basic function of metadiscourse which includes items in discourse which refer to the internal structure of the text, its organization, and purpose.

In the reflexive model of Ädel, metadiscourse is all interpersonal and divided into two main categories: "metatext" and "writer-reader interaction". Metatext is "described as metadiscourse that guides the reader through the text or comments on the use of language in the text. ...'Writer-reader interaction', on the other hand, is

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[2] Read Ädel (2006, pp. 16–17) for further details and evaluation of SFG-inspired model.

METADISCOURSE

METATEXT   WRITER-READER INTERACTION

Impersonal   Personal   Personal

Text/Code-   Participant-   Writer-   Reader-   Participant-   Reader-

Oriented   Oriented   Oriented   Oriented   Oriented   Oriented
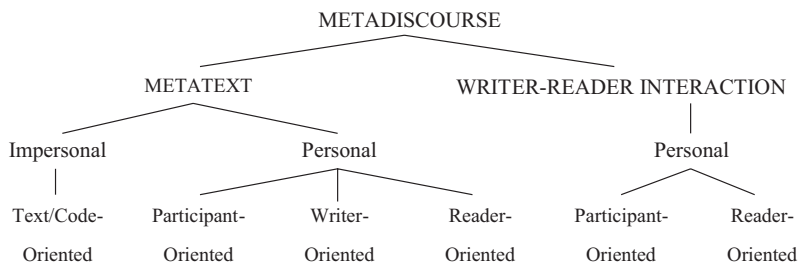
Fig. 1 Reflexive model of metadiscourse. (Adapted from Ädel, 2006, p. 38)

described as metadiscourse that is used by the current writer to interact with her imagined reader in ways that create and maintain a relationship with the reader" (Ädel, 2006, pp. 183–184). Both "metatext" and "writer-reader interaction" are further divided into Personal and Impersonal categories. Figure 1 below presents Personal and Impersonal configurations of 'metatext' and 'writer-reader interaction' in Ädel's (2006) reflexive model.

Ädel's (2006) reflexive model extends the concept of metadiscourse from the text to the writer of the text and its imagined reader. She argues that the reflexive model as a functional model exhibits more consistencies and is more precise compared to the reflective model. One of the main advantages of this model is that it includes the writer and reader in their contextualized roles as writer and reader. Ädel (2006: 182) emphasizes that "by including both the writer and the reader, we can draw a distinction between primarily writer-oriented and primarily reader-oriented material". The other advantage of reflexive metadiscourse model is establishing criteria for identifying metadiscourse units. These include explicitness or self-awareness of text, contextuality, current text, and writer/reader qua writer/reader. Ädel's non-integrative approach allows a precise identification of micro-level discourse functions. This provides the researcher with a more accurate picture of the metadiscourse phenomenon compared to other broader perspectives which include stance and evaluation in their models. Toumi (2009) has made an attempt to modify Ädel's (2006) model to render it more applicable to research article genre. He uses a different classification for reflexive metadiscourse categories by including two subcategories of high versus low explicit reflexivity in his model. These two subcategories still contain instances which are identical to the original model. Moreover, the second difference in Toumi's model is that it does not "consider personality as a metadiscursive category rather it regards it as a characteristic of the metadiscourse unit" (p. 72). This means that if one of the elements in the unit is classified as personal, the whole unit is categorized under reflexive personality. The changes proposed by Toumi to the model are minor and not very substantial. In the current study, the original model developed by Ädel is adopted due to its wider application which allows a cross-studies comparison.

5 Academic Persian and Metadiscourse

The majority of studies investigating the metadiscourse strategies in Persian have mainly examined this linguistic device either cross-linguistically (e.g., Persian vs. English) or have explored its application by Persian native speakers using English as L2 and compared it with English native speakers across different disciplines (Abdi, 2009; Ariannejad et al., 2019; Falahati, 2004, 2007; Mozayan et al., 2018; Rahimpour & Faghih, 2009; Salar & Ghonsooly, 2016; Shokouhi & Baghsiahi, 2009; Taki & jafarpour, 2012; Zarei & Mansoori, 2011). In one of the earliest studies on this topic, Falahati (2004, 2007) investigated the distribution of forms and functions of hedging in academic research articles in Persian and English across three disciplines (i.e., psychology, chemistry, and medicine) to see how writers use this device differently across languages and fields. The findings of this study showed that the English writers use hedges almost 61% more than Persian writers. The English psychology and Persian medicine research articles were found to be the most heavily hedged disciplines. The results also showed that the discussion sections of research articles (RAs, henceforth), in general, favor more hedges than the introduction section. The author used both epistemological and interpersonal significance of hedging in academic discourse to account for the difference in the frequency of hedges across the two languages. Rahimpour and Faghih (2009), in another study, examined metadiscourse in the discussion section of ninety Persian and English research articles in applied linguistics. The English articles were written both by native and non-native speakers. They examined a subset of metadiscourse categories proposed by Hyland (2004) which included transitions, frame markers, endophoric markers, evidentials, code glosses, hedges, boosters, attitude markers, engagement markers, and self-mentions. The first five items in this list are interactive metadiscourse and the rest are classified as interactional metadiscourse. Their results showed that the authors in the two languages used interactive metadiscoursal factors significantly more than interactional ones. Moreover, English authors employed interactional metadiscourse more than Persian writers while frame markers and code glosses were used more by Persian native speakers. In another study, Ariannejad et al. (2019) investigated a number of interactional metadiscourse markers, namely hedges, boosters, and attitude markers in 100 research articles (50 in Persian and 50 in English) in the field of architecture. The general findings of their study showed that the English-language writers used more metadiscourse markers compared to Persian-language writers. The former group used hedges and boosters significantly more than Persian authors while attitude markers were used in Persian articles more than English articles. The different writing styles across the two groups is explained in terms of different nature of the two languages as being either writer-responsible or reader-responsible. They explained that the higher application of the markers and signposts in English articles is for guiding readers in the text and helping them understand the authors' interpretations while readers in Persian, as a reader-responsible language, are expected to disclose the intended meanings of the

author and discover the relationship between different units of the text which results in lower frequency of interactional metadiscoursal markers.

In a similar study, Jalilifar (2011) used Hyland's (2004) model and investigated two subtypes of metadiscourse (i.e., hedges and boosters) in the discussion section across psychology and applied linguistics RAs in Persian and English as L1 and L2. The results showed that the authors used these two pragmatic devices differently in terms of their frequency, type and function across languages and disciplines. The English native writers used hedges almost two times more than Persian writers where the hedges used by the former group were mainly reader oriented. The boosters were reversely used more by Persian authors compared to English native authors. The two disciplines showed close correspondence in terms of using the two rhetorical devices due to both representing soft fields. In order to explain the existing differences across Persian and English rhetorical systems, the author states that "while in Persian writing, a reader-responsible language, writers use a less hedged discussion and readers are assumed to infer much from the text, English texts, writer responsible, allow more hedges in discussion and guide readers through the text" (p. 184). The reviewed literature shows that metadiscourse has received good amount of attention in Persian; however, these studies have mainly focused on this rhetorical feature across both English and Persian. Moreover, they have primarily applied a subset of Hyland's (2004) metadiscourse model in their studies. To the best of our knowledge, there is no study using a reflexive model of metadiscourse to analyze research articles in Persian across distinct academic disciplines. To this end, this research uses a reflexive metadiscourse model to investigate the employment of metadiscursive markers for establishing a relationship between the writer, the reader, and the text across three academic disciplines in Persian (i.e., Sociology, Education, and Medicine). In the current study, we try to address the following three research questions:

Q1: What are the lexical and grammatical markers (i.e., forms) which signal the presence of metadiscourse in academic Persian discourse?

Q2: What are the functions of lexical and grammatical markers which signal the presence of metadiscourse in academic Persian discourse?

Q3: Are there any differences between the three disciplines (i.e., Sociology, Education, and Medicine) in terms of the frequency of metadiscursive markers and their functions?

In order to address the questions in the study, we used the methodology which is presented in the next section.

6   Methodology

6.1   Data Selection Criteria

The research articles used in this study come from three disciplines: Sociology, Education, and Medicine. This decision was made in order to make sure that the selected articles represent different disciplines across the academy. Becher's (1989) classification was used for choosing the disciplines. According to this taxonomy, disciplines are divided into hard and soft fields. Hard fields include sciences and engineering while soft sciences include humanities and social sciences. After selecting the disciplines, the next step was to choose the journals from which articles were supposed to be selected for the analysis. A few experts in each field were consulted and were asked to nominate highly ranked journals in their disciplines. Moreover, we considered the rankings of the journals from which we selected the articles. These journals were mainly ranked as"علمی" *scientific* by the Iranian Ministry of Science, Research, and Technology (MSRT)[3] which is a top ranking for academic journals. Twelve articles were selected in each discipline, making 36 in total (12 articles * 3 disciplines = 36).

The articles for the analysis were chosen based on different criteria. First, only empirical papers with Swales' (1990) Introduction, Method, Result and Discussion (IMRD) rhetorical sections were selected. In the current study, we only analyzed the metadiscursive expressions in the introduction and discussion sections of research articles. This is due to the fact that it is these two sections which are the most rhetorical parts in research articles (Hyland, 2000; Mauranen, 1993; Vassileva, 2001). In sociology articles, the introduction section was decided to be any parts appearing before the method section. In this field the introduction section is divided into subsections such as parts providing theoretical and empirical reviews of previous studies. All abstracts, footnotes, long quotations, endnotes, and reference lists in the RAs were deleted before analysis. In the current paper, no attempt is made to compare the metadiscourse markers across introduction and discussion sections.

The second criterion for selecting the articles was the date of publication. The articles used in the corpus were all limited to those published within the last ten years. It is assumed that time influences the style of the writers and we tried to take this variable into account (See Appendix A for the complete list of articles). Table 1 presents the total number of articles, words, as well as the mean number of words per articles across the three disciplines.

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[3] This is the highest rank assigned to scholarly research journals in Iran by the MSRT.

Table 1 Corpus description

Discipline	Number of articles	Number of words	Mean number of words per article
Sociology	12	44,942	3745
Education	12	38,169	3180
Medicine	12	17,566	1463

6.2   Procedures

The main goal of this study is to identify and classify the linguistic units which act as metadiscoursal expressions. In order to follow this goal, the introduction and discussion sections of all research articles were read carefully and all the metadiscoursal expressions were identified, annotated and then registered both in the pdf files and an Excel file for quantitative and qualitative analyses. The reflexive model of metadiscourse proposed by Ädel (2006) was used in this study. This model divides metadiscourse into two main categories of "metatext" and "writer-reader interaction". Metatext is divided further into four subcategories: text oriented, reader-oriented, writer-oriented, and participant-oriented. Text-oriented metadiscoursal expressions are further divided into four groups: reference to the text/code, phoric markers, discourse labels, and code glosses. Sentences (2)–(4) are provided as the representative for writer-oriented, participant-oriented, and text-oriented categories, respectively.

(2) dær jek tæhɢɪɢi ke dærbɒreje æbʔɒde edʒtemɒʔije rævɒnʃenɒxtije kotulegi ændʒɒm ʃode bud jeki æz ʃerkætkonændehɒ tædʒrobei ke dær modæte dʒostodʒuje kɒr dɒʃte rɒ bɒzgu kærde ke dær indʒa eʃɒre mikonim.

In a study of the social-psychological dimensions of dwarfism, one participant recounted an experience he/she had while looking for a job, which *we refer* to here. (SOCIO_11, S641)

(3) eʔmɒle in ʃive tænhɒ zæmɒni movædʒæh væ moʔtæbær xɒhæd bud ke dær jek doreje zæmɒnije moæjæn bɒ goruhi æz ʃɒerɒn jɒ ædibɒn movɒdʒeh bɒʃim ke ʃɒʔer jɒ nevisændei bozorg rɒ be ostɒdi jɒ be mænzæleje olguje ædæbije xod pæzirofte væ sonæte ædæbije monsædʒem væ tæɢribæn jekdæsti rɒ ʃekl dɒde bɒʃænd.

The implication of this method will be justified and valid only when in a certain period of time *we encounter* a group of poets or writers who have accepted a great poet or writer as a master or as their literary model and have formed a coherent and almost uniform literary tradition. (EDU_11, S755)

(4) dær edɒme, nætɒyedʒe bærxi æz in pæʒuheʃɒ rɒ be tore moxtæsær morur mikonim.

In the following, *we review* briefly the results of some of these studies. (EDU_12, S771)

After identifying both the form and function of the metadiscourse markers, the raw frequencies of the tokens representing them in the three academic disciplines were counted separately. Since the number of words was not evenly distributed in the three sub-corpora, we also calculated the relative frequencies of metadiscourse

markers per 1000 words. The fact that metadiscourse is a pragmatic category means that the same item could function as metadiscourse or not. In order to ensure that the tokens were coded reliably, all items were read and examined in their sentential contexts to make sure that they are functioning as metadiscourse. The second author of this paper coded all the tokens in this study. The challenging units (almost 5% of the total tokens) were highlighted in an excel file and were examined further by the first author of this paper later. In order to determine the number of metadiscourse markers/units in our corpus, we followed Ädel's (2006) method. This included counting the smallest linguistic units which signaled the presence of metadiscourse. Each grammatical sentence could contain more than one metadiscourse marker. Sentence (5), for example, contains two tokens each representing specific subcategory of text-oriented metadiscourse (i.e., *Discourse Label* and *Reference to Text*).

(5) <u>hædæf æz in pæʒuheʃ</u> tæhlile ʃekɒfe kejfiæte xædæmɒte ɒmuzeʃe mædʒɒzi væ hozuri æz didgɒhe dɒneʃdʒujɒn bud.

<u>The purpose of this study</u> was to analyze the gap between the quality of virtual and face-to-face education services from the students' perspective. (EDU_1, S157)

The following section presents the results and findings of the study.

7   Results and Findings

In this section, the results of lexical and grammatical markers (i.e., forms) which signal the presence of metadiscourse in academic Persian are presented along with their functions. These results are given across the three disciplines (i.e., Sociology, Education, and Medicine) in order to highlight the differences across academic fields. In most of the tables, the raw frequency and relative frequency (i.e., frequency per 1000 words) are presented together. This is because the size of corpora across the three disciplines is different. Moreover, the relative frequency allows one to have cross-studies comparison. Table 2 shows the total distribution of metadiscourse markers across the three disciplines. According to this table, the relative frequencies of metadiscourse markers in Sociology and Education RAs are 10.7 ($n = 482$) and 10 ($n = 384$), respectively. The rate of application of metadiscourse markers in Medicine RAs is 7.7 ($n = 135$). This result shows that the number of metadiscursive devices used by sociologists and educationists similarly is greater than medical specialists. Such a pattern could be explained by considering the nature of both education and sociology disciplines as soft sciences. Salas (2015) in

Table 2 Raw and relative frequency of metadiscourse markers across the three disciplines

Discipline	Frequency	F per 1000 words
Sociology	482	10.7
Education	384	10
Medicine	135	7.7
Total	1001	NA

Table 3 Raw and relative frequency of Personal and Impersonal metadiscourse across three disciplines

Discipline	Personal		Impersonal	
	Frequency	F per 1000 words	Frequency	F per 1000 words
Sociology	53	1.18	429	9.55
Education	31	0.81	353	9.25
Medicine	4	0.23	131	7.46
Total	88	NA	913	NA

her study on research articles in Spanish has reported that the total frequencies of metadiscourse markers in linguistics, economics, and medicine RAs are 11, 7.71, and 7.75, respectively. The results of our study remarkably mirror the ones presented by Salas once we divide the disciplines based on their soft or hard nature. Hyland (1998) has also reported that the density of metadiscourse in marketing articles is 20% more than biology, astrophysics, and applied linguistics.

Table 3 presents the raw frequency and relative frequency (per 1000 words) of Personal and Impersonal metadiscourse across the three disciplines. The density of Personal metadiscourse used by sociologist is the highest (1.18, $n = 53$) while Medicine RAs use the lowest rate of this category (0.23, $n = 4$) and Education RAs fall in between (0.81, $n = 31$). As for the Impersonal metadiscourse, the authors in Sociology (9.55, $n = 429$) and Education (9.25, $n = 353$) use the highest rate of Impersonal metadiscourse while writers of Medicine use the lowest rate (7.46, $n = 131$) across the three disciplines. The occurrence of Impersonal metadiscourse in the three academic disciplines is very similar to the total metadiscourse presented in Table 2. This means that the two disciplines of Sociology and Education show similar pattern in the density of Impersonal metadiscourse which make them distinct from RAs in Medicine. The Personal metadiscourse, on the other hand, shows a considerable variability across the three disciplines. It is this category which is employed by authors very differently across the three disciplines.

As for the ratio of Impersonal to Personal metadiscourse markers, Persian writers use Impersonal metadiscourse markers much more than Personal ones. Sociology RAS show the lowest ratio (almost 8 times) while Medicine RAs have the highest ratio (almost 32 times).

Table 4 below presents the results of Personal and Impersonal metadiscourse taken from two other studies. The first set of results come from English RAs of biology, astrophysics, applied linguistics, and marketing (Hyland, 1998) and the second set are Spanish results from RAs in linguistics, economics, and medicine (Salas, 2015). Due to a different taxonomy used in the English study, its results are not directly comparable to the results of the current study. The English results are presented here to provide a cross-disciplinary comparison for using Personal versus Impersonal metadiscourse markers and their relevant subcategories.[4] The noticeable

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[4] Please note that Hyland uses the terms "textual" and "interpersonal" metadiscourse which are roughly parallel to Impersonal and Personal categories in the current study.

Table 4 Frequency of Personal and Impersonal metadiscourse (per 1000 words) in English and Spanish

Language and (Discipline)	Personal	Impersonal
English (Biology)	19.9	40.1
English (Astrophysics)	22.0	38.1
English (Applied Linguistics)	31.0	31.1
English (Marketing)	37.0	36.6
Spanish (Linguistics)	4.94	7.06
Spanish (Economics)	2.95	4.77
Spanish (Medicine)	3.06	4.69

Adapted from Hyland (1998) and Salas (2015)

higher rate of metadiscourse in this language is due to additional categories such as *hedges, emphatics*, and *attitude markers* existing in the taxonomy used in the study. Please note that the numbers presented in Table 4, similar to the current study, are frequency per 1000 words.

In general, Table 4 shows that both English and Spanish authors, similar to Persian authors, use Impersonal metadiscourse markers more than Personal ones. However, the variability across these two categories in the same discipline is much greater in Persian compared to Spanish and English. In fact, the total ratio of using Impersonal to Personal metadiscourse markers in Persian is greater than 10 whereas this ratio for Spanish and English is 1.5 and 1.3, respectively. There is more balance between the employment of Personal and Impersonal metadiscourse markers by both English and Spanish authors compared to Persian authors. Persian writers use personal metadiscourse markers considerably much less than their English and Spanish colleagues. Another noticeable difference here is that the rankings for the density of using Personal and Impersonal metadiscourse markers in English in the same discipline changes while this ranking stays the same in Persian. This means that while Persian sociologists used the highest rate of both Personal and Impersonal metadiscourse and Persian medical specialists used these two categories the least, the English biologists and astrophysicists used the lowest rates of Personal metadiscourse while they used the highest rates regarding Impersonal metadiscourse. From this perspective, the Persian authors show similar pattern to Spanish authors; however, the density of Personal metadiscourse markers compared to Impersonal ones in the same discipline in the two languages is remarkably different.

Further investigation of Personal metadiscourse in Persian shows that there are two major functional categories used by the authors in the three disciplines. The first category is self-mentions (i.e., referring to the writer/author) and the second is reference to the participants (i.e., both the writer and the reader). Education RAs contain writer-mentions almost two times more than the other two disciplines. The writers in all disciplines did not use any personal pronouns such as "من" *I* or "ما" *we* in the subject position, rather the self-mentions were only realized through using words such as "محققان" *researchers* or "پژوهشگر" *researcher*. The exclusive personal pronoun "ما" *we* was only used in genitive structures accompanying other words such as "در

تحقیق ما" *in our research*. The majority of self-mentions (i.e., almost 75%) are made by attached verbal suffixes. Persian is a pro-drop language which allows the subject of the sentence to be dropped without losing its reference (See Salas, 2015, for a similar case in Spanish). Sentence (6) provides an example for the self-mention realized through verbal ending.

(6) hæmɒngune ke gofte ʃod hædæf æz ændʒɒme in tæhɢiɢ ɒn bud ke be fæhme biʃtæri æz mæʔluliæt væ tædʒɒrobe æfrɒde dɒrɒje mæʔluliæte dʒesmɒni <u>dæst jɒbim</u>.

As mentioned, the purpose of this study was <u>*to gain*</u> a better understanding of disability and the experiences of people with physical disabilities. (SOCIO_11, S695)

The limited number of self-mentions in the corpus of current study suggests that Persian writers do not show their presence explicitly and they are mainly invisible in the text. These writers mainly tend to employ a strictly impersonal style.

The micro-level analysis revealed that when the writer was in focus, the Persian authors used specific discourse functions. Table 5 below presents the frequency of different discourse functions related to the writer's presence across the three disciplines. The total results show that sociologists show the highest rate of writer-oriented metadiscourse realization in their text (047, *n* = 21) followed by educationists (0.21, *n* = 8) and medical specialists (0.17, *n* = 3). According to this table, the discourse functions at work mainly included *Introducing Topic, Saying, arguing, Clarifying*, and *Contextualizing*. The Persian writers mainly use this category when they want to introduce what is going to come in their articles or bringing up the topics which are important for the readers. Ädel (2006) has also mentioned that *Introducing Topic* is a very common function of personal metadiscourse in her academic English corpus.[5] Moreover, she has mentioned that the English authors in her study employed a wide range of discourse functions including *Reminding, Exemplifying*, and *Focusing*. These discourse functions were absent in the RAs written by Persian authors. These writers used only a subset of discourse strategies available in the academic discourse when compared to the English authors.

Salas (2015) has reported the frequency of writer-oriented metadiscourse in her study for linguistics, economics, and medicine as 2.58, 2.02, and 1.20, respectively. Hyland (1998) has also reported that for the category *Person Markers*[6] in his study, the RAs in biology, astrophysics, applied linguistics, and marketing show the rate of 2.4, 5.3, 2.9, and 4.4, respectively. This confirms that Persian writers in the three disciplines have less tendency to present themselves in their text compared to English and Spanish authors. English and Spanish authors are noticeably more visible in their texts compared to Persian authors. This makes the English and Spanish academic discourse more interactive and engaging than the Persian academic discourse which could lead to a stronger relationship and tighter bonding between the writer and the reader in both English and Spanish texts compared to Persian texts.

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[5] Ädel's (2006) corpus is based on the argumentative essays written by both English native speakers (L1) and Swedish learners of English as L2.

[6] Hyland (1998) defines *Person Marker* as an explicit reference to the author(s).

Table 5 Distribution of the discourse functions of writer-oriented metadiscourse across three disciplines

Functions	Aligning Perspectives	Introducing Topic	Arguing	Concluding	Contextualizing	Imagining Scenarios	Clarifying	Saying the Reader	Hypothesizing about the Reader	Appealing to the reader	Total
Sociology	1	9	1	2	1	0	3	4	0	0	**21 (0.47)**
Education	0	1	1	0	1	0	0	5	0	0	**8 (0.21)**
Medicine	0	0	3	0	0	0	0	0	0	0	**3 (0.17)**
Total	1	10	5	2	2	0	3	9	0	0	

The second functional category under Personal metadiscourse found in this study was participant-oriented metadiscourse. Table 6 shows the frequency of various functions of this category across the three disciplines. According to this table, Sociology RAs contains the biggest number of this category (0.71, n = 32), followed by Education (0.60, n = 23), and Medicine (0.06, n = 1). According to this table, the most frequent discourse functions when the writer brings the reader into the dialogic scene are *Aligning Perspective* followed by *Arguing* and *Contextualizing.* This ranking is strikingly different from the one reported by Ädel (2006). She has reported *Appealing to the Reader*, and *Anticipating Reader's Reaction* as the top two discourse functions used by American native writers in her corpus. The results of our study show that the functional category *Anticipating Reader's Reaction* even has not been used by the Persian writers. Crismore (1989) has pointed out that anticipating the reader's reaction is a central function in metadiscourse. The considerate writer should always foresee the reaction of the reader to their texts and the probable objections raised by them (Ädel, 2006). It seems that Persian authors do not pay special attention to the imagined reader and do not plan to address the objections or counterarguments raised by the reader regarding the writer's claims in the text.

The Persian sociologists and educationists have predominately used *Aligning Perspective* as the main discourse function in their RAs. They have mainly used attached verbal suffixes corresponding to inclusive *we* in order to make the reader involved in their text and fulfil the function. According to Ädel (2006), the primary goal of *Aligning Perspective* function is to have the reader take the writer's perspective and agrees with his/her arguments regarding some issues. The writers of RAs in Persian have usually used this function in conditional sentences. Moreover, the topics which are discussed in such sentences are usually non-controversial so that the chance of being accepted gets higher. Sentences (7) and (8) show that the writers are inviting the readers to share with them the same perspective regarding a topic which is not very controversial.

(7) lezɒ æɡær bexɒhim nomreje honærdʒujɒn rɒ be dɒneʃ væ tævɒnɒʔije ɒnhɒ dær dærse mæzkur nesbæt dæhim mitævɒn goft in honærdʒujɒn dær dærshɒje mæhɒræti væ kɒrɡɒhi nomerɒti behtær kæsb kærdeænd, jæʔni nesbæt be dærshɒje næzæri movæfæɡijæte biʃtæri dɒʃteænd.

Therefore, *if we want to attribute* the students' score to their knowledge and ability in the mentioned course, we can say that these students have obtained better scores in skill courses and workshops, that is, they have been more successful than theoretical courses. (EDU_6, S482)

(8) emruze ʃɒhedim ke dær besjɒri æz zæminehɒ kenɒr gozɒʃtæn væ be hɒʃije rɒndæne in æfrɒd tæʔædʒob bærængiz næbude væ be næhve besjɒr gostærdei suræt migiræd.

Today *we see* that in many areas it is not surprising to exclude and marginalize these people and it is done very widely. (SOCIO_11, S643)

Table 6 Distribution of the discourse functions of participant-oriented metadiscourse across three disciplines

Functions	Aligning Perspectives	Arguing	Contextualizing	Imagining Scenarios	Clarifying	Saying	Hypothesizing about the Reader	Appealing to the reader	Total
Sociology	20	1	4	0	2	1	1	3	**32 (0.71)**
Education	13	5	1	3	0	0	0	1	**23 (0.60)**
Medicine	0	1	0	0	0	0	0	0	**1 (0.06)**
Total	33	7	5	3	2	1	1	4	

The other discourse functions used in participant-oriented metadiscourse were *Arguing*, *Contextualizing, Appealing to the Reader*, and *Imagining Scenarios*. The fact that Persian authors use participant-oriented metadiscourse when arguing for or against something is unexpected. Sentence (9) provides an example to illustrate this function.

(9) bænɒbærin kæm budæne mizɒne hæmbæstegi mijɒne bærxi æz moælefehɒje huʃe kælɒmie kudækɒne piʃdæbestɒni bɒ nomreje roʃde zæbɒne ɒnhɒ rɒ mitævɒn ingune todʒih nemud ke entezɒr mirævæd bɒ æfzɒjeʃe sene in goruh æz noɒmuzɒn hæmbæstegie biʃtæri mijɒne nomreje huʃe kælɒmi væ roʃde zæbɒnie ɒnhɒ rɒ ʃɒhed bɒʃim.

Therefore, the low level of correlation between some components of verbal intelligence of preschool children with their language development score can be explained by the fact that as they age, we expect *to see* more correlation between the score of verbal intelligence and their language development. (EDU_9, S575)

Salas (2015) has reported that participant-oriented metadiscourse has been used differently by the Spanish authors. The linguists used the highest rate of this category (i.e., 1.13) while medical specialists and economists used it at the lower rate of 0.43 and 0.36, respectively.[7] Hyland (1998) has reported that the rates of occurring Relational Markers[8] in English biology, astrophysics, applied linguistics, and marketing RAs are 0.7, 1.4, 2.5, and 3.3, respectively. These results indicate that both Spanish and English authors on average make more attempts to establish relationships and interact with their audience compared to Persian writers. Ädel (2006) has also stated that the relationship between the writer and the reader is emphasized in the English texts, especially by the discourse function *Appealing to the Reader*. This metadiscourse function is ranked average-low in the Persian RAs while it is ranked very high in the argumentative essays written in American English reported by Ädel (2006).

Table 7 presents the results for Impersonal metadiscourse markers. The total results show that sociologists use the highest rate of Impersonal metadiscourse (9.55, n = 429) while medical specialists use the lowest rate (7.46, *n* = 131). The Spanish linguists, economists and medical specialist are reported to use this category 7.06, 4.77, and 4.69, respectively (Salas, 2015). These results show that soft sciences such as sociology, education, and linguistics are more dense in terms of Impersonal metadiscourse markers compared to hard sciences like medicine. Further examination of Impersonal metadiscourse markers showed that there are

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[7] Please note that Salas (2015) has used two subcategories of *Relational Marker* and *Reference to the Participants* to refer to participant-oriented metadiscourse. The numbers reported here are the collapsed results.

[8] This category is defined as markers which "explicitly refer to or build relationship with the reader" (Hyland 1998, p. 442). This category is considered to be equivalent to participant-oriented metadiscourse in the current study.

Table 7 Distribution of different categories of Impersonal metadiscourse across three disciplines

Functions	Discourse labels	Phorics	Code Glosses	Reference to text	Total
Sociology	208 (4.63)	53 (1.18)	72 (1.60)	96 (2.14)	429 (9.55)
Education	181 (4.74)	45 (1.18)	12 (0.31)	115 (3.01)	353 (9.25)
Medicine	59 (3.36)	4 (0.23)	6 (0.34)	62 (3.52)	131 (7.46)
Total	448	102	90	273	

four major functional categories as *Reference to Text, Code Glosses, Discourse Labels*, and *Phorics* existing under this category. The highest rate of functional category across the three disciplines was *Discourse Labels* (n = 448) while the lowest rate was *Code Glosses* (n = 90). The medical specialists used the highest rate of *Reference to Text* (3.52) and educationists employed the most *Discourse Labels* (4.74) across the three disciplines. English and Spanish writers use the functional category *Phorics* among the top two in the list, while this category is ranked the second from below in the Persian RAs (Ädel, 2006; Salas, 2015). Ädel describes *Phorics* as the road signs which point to different portions in the current text at different times. Hyland (1998) states that this functional category "play[s] an important role in making additional ideational material salient and therefore available to the reader in aiding the recovery of the writer's argumentative intentions". (p. 443). The fact that Persian authors make use of this functional category less than English and Spanish authors suggest that unveiling the argumentations made in the text may not be the primary goal of the Persian writers.

Further investigation of the four major functional categories of Impersonal metadiscourse revealed that each has some subcategories. Table 8 presents the discourse functions which are employed under each subcategory. The densities of subcategories *Adding, Enumeration, In/Direct Code Glosses*, and *Whole Text* are highest in all subcategories. In general, the results in this section showed that the distribution of metadiscousre in Persian is very specific and does not follow the existing patterns in Spanish and English. While the density between Personal and Impersonal metadiscourse in English and Spanish was relatively balanced, Persian RAs were quite skewed in terms of the distribution of these two categories. This means that Persian authors are less visible in their texts compared to English and Spanish writers. As a result, there is less interaction and probably less guidance provided to Persian readers. Our findings also showed that sociologists and educationists use Impersonal metadiscsourse markers similarly, but they get separate from each other when it comes to using Personal metadiscsourse. The results indicated that Persian authors use only a subset of metadiscursive features available in academic discourse. The following section presents the discussion of this study.

Table 8 Distribution of different subcategories of Impersonal metadiscourse across three disciplines

Functions	Discourse Labels					Phorics						Code Glosses		Reference to Text		Total
	Adding	Exemplifying	Saying $ Defining	Concluding	Introducing T	Arguing Point	Current Point	Beginning & Ending	Enumerators	Reviews	Previews	Direct Code Glosses	Indirect Code Glosses	Whole Text	Sub Text	
Sociology	70	40	13	76	3	5	0	6	30	5	12	36	36	76	21	429
Education	80	20	12	46	10	14	0	4	19	3	19	7	5	103	11	353
Medicine	35	8	1	13	2	0	0	1	1	1	1	2	4	61	1	131
Total	185	68	26	135	15	19	0	11	50	9	32	45	45	240	33	

8   Discussion and Conclusion

The spread of a given language or its registers could happen either by social or communicative needs. The social needs are created as a result of receiving socioeconomic benefits or achieving political integration. The communicative needs, on the other hand, are created because the newly generated knowledge should be transmitted via effective and persuasive mediums (Garcia, 2012, p. 2). This means that in order for a variety of language to occupy the position of academic register, it needs to have specific features to meet the needs of the larger target academic community. The findings of the current study showed that the academic register of Persian does not fully employ rhetorical resources to achieve communicative objectives. The results showed that the application of Personal metadiscourse compared to Impersonal metadiscourse in Persian texts is remarkably lower than that of English and Spanish. This means that explicit reference to both the writer and the reader in the Persian texts is not enough and this makes the academic discourse in this language less interactive and more impersonal. Moreover, the results of our research showed that Persian authors use functional categories of Impersonal metadiscourse like phorics less than English and Spanish authors. This means Persian authors provide less signs to the reader for their navigation through the text. Hyland (2017) emphasizes that "metadiscourse refers to how we use language out of consideration for our readers or hearers based on our estimation of how best we can help them process and comprehend what we are saying" (p. 17). This implies that writers are responsible towards their readers when more clarification, guidance, and interaction is needed. In order to account for the unexpected lack of both interaction and the presence of the writer/reader in academic Persian texts, one could argue that this is due to the nature of this language defined as a reader-responsible rather than a writer-responsible language. Hinds (1987), in his seminal work on the typology of languages, found that in some languages like English it is the writer who is primarily responsible for effective communication while in some other languages like Japanese this responsibility is on the side of the reader. More recent studies have shown that both Spanish (Mur Dueñas, 2011; Salas, 2015) and Persian (Jalilifar, 2011; Pishghadam & Attaran, 2012), similar to Japanese, are reader-responsible languages. This means that writers in these languages tend to leave the responsibility to the readers to interpret the content and to make relationships between different parts of the texts. This could also result in using less metadiscourse markers by the Persian as well as Spanish authors.

The results of our study showed that Persian, a reader-responsible language, does not show the same distribution of metadiscursive markers as Spanish, which is also classified as a reader-responsible language. While both these two languages show lesser density for metadiscursive devices which makes them a reader-responsible language versus English, a writer-responsible language with higher density, both Persian and Spanish diverge from each other as to how metadiscourse markers are distributed. Our results showed that the ratio of using Personal to Impersonal metadiscourse in Persian was one to ten whereas this ratio was one to two for Spanish.

This means that Spanish is a more interactive language compared to Persian despite the fact that both of these languages are classified as reader-responsible languages. This indicates that terms such as *reader-responsible* and *writer-responsible* languages are very loose terms which cannot reflect the actual rhetorical practices performed by a particular academic community. The classification of languages categorically either as reader-responsible or writer-responsible language conceals the rhetorical habits and activities practiced by the academic community. The findings of the current study showed that the academic register of Persian lacks participant interaction. This means that Persian academic writers and language policy makers need to pay special attention to this important rhetorical feature lacking in the actual practices among the target discourse community.

Despite such shortcoming, the current status of academic Persian and the extent of rhetorical features used in this register could still satisfy the primary needs of the smaller and particular discourse community. But if academic Persian is to establish its position in a larger discourse community among competitive Middle Eastern languages, it needs to provide researchers with a rich strain of rhetorical strategies and choices. The findings of this study showed that academic Persian texts used in this study lack interpersonal resources in terms of the writer and the reader involvement. The literature has emphasized that in order to win the community's acceptance and create a powerful and persuasive text, keeping a good balance between *objective information*, *subjective evaluation* and *interpersonal negotiation* as a powerful convincing factor in social construction of knowledge is needed (Abdollahzadeh, 2011; Bazerman, 1988; Kuhn, 1972). The results of our analysis showed that the Persian authors were rarely visible in their texts and the readers did not receive enough references. For promoting the existing status of academic Persian, therefore, we suggest that the Persian academic community should aim for pushing the current position of academic Persian on the continuum of writer-reader-responsibility towards a writer-responsible language. This means that the participant interaction and the involvement of both the writer and the reader in Persian texts should be increased. This could be achieved by implementing linguistic policies which direct the academic register of Persian towards such a goal. The enforcement of such policies will provide more chance for academic Persian to establish itself as strong medium of communication among a larger academic community including both native and L2 users.

We need to mention that the data used in this study included only the introduction and discussion sections of the RAs. This may suggest that the peculiar distribution of metadiscourse markers found in this study is due to the nature of corpus. Since the density of rhetorical devices in the introduction and discussion sections is highest (Hyland, 2000; Mauranen, 1993; Vassileva, 2001), it is very unlikely that including the other two sections (i.e., methodology and result) of the RAs will change the distributional patterns found in this study. To sum up, we tried to find the features and strategies which could promote the status of Persian as an academic language in this chapter. We showed that interpersonal aspects and greater involvement of the writer and the reader in the text are the boundaries which need to be extended in academic Persian.

Appendix: The List of Articles Used as the Corpus for This Study

سبک زندگی شهری و مشارکت اجتماعی شهروندان سالمند اهوازی؛ یک پیمایش منطقهای

sæbke zendegie ʃæhri væ moʃprekæte edʒtempʔie ʃæhrvændɒne sɒlmænde æhvɒzi; jek pejmɒjeʃe mæntæɢei

Urban Lifestyle and Social Participation of Elderly Citizens of Ahvaz; A Regional Scaling, SOCIO_1

طلاق عاطفی؛ علل و شرایط میانجی

tælɒɢe ɒtefi; elæl væ ʃærɒjete miɒndʒi

Emotional Divorce; Causes and Conditions of Mediation, SOCIO_2

بررسی احساس منزلت اجتماعی سالمندان: مقایسۀ سالمندان مقیم در مراکز نگهداری شهر مشهد با سالمندان غیرمقیم

bæresie ehsɒse mænzelæte edʒtempʔie sɒlmændɒn: moɢɒjeseje sɒlmændɒne moɢim dær mærɒkeze negæhdɒrie ʃæhre mæʃhæd bɒ sɒlmændɒne ɢejre moɢim

Assessing the Sense of Social Status of the Elderly: Comparison of the Elderly Living in Care Centers in Mashhad with Non-resident Elderly, SOCIO_3

مطالعه کیفی پدیده خشونت خانگی علیه زنان

motɒleʔeje kejfie pædideje xoʃunæte xɒnegi ælæjhe zænɒn

A Qualitative Study of the Phenomenon of Domestic Violence Against Women, SOCIO_4

مطالعه تجربه زیسته کودکان و نوجوانان در خانواده هایی با والد زندانی

motɒleʔeje tædʒrobeje zisteje kudækɒn væ nodʒævɒnɒn dær xɒnevɒdehɒʔi bɒ vɒlede zendɒni

Study of Lived Experience of Children and Adolescents in Families with Imprisoned Parents, SOCIO_5

(خوابگاه دانشجویی و آسیب های اجتماعی دختران (مورد مطالعه: خوابگاه های دانشجویی دانشگاه های دولتی

xɒbgɒhe dɒneʃdʒui væ ɒsibhɒje edʒtemaʔie doxtærɒn (morede motɒleʔe: xɒbgɒh-hɒje dɒneʃdʒuie dɒneʃgɒh-hɒje dolæti)

Student Dormitory and Social Harms for Women (Case Study: Dormitories of Public, Universities), SOCIO_6

تحلیل جرم شناختی خود-دگرکشی، با تأکید بر خود-دگرکشی انگیزشی

tæhlile dʒorm ʃenɒxtie xod-degærkoʃi, bɒ tæʔkid bær xod-degærkoʃie ængizeʃi

Criminological Analysis of Murder-suicide, with Emphasis on Motivational Murder-suicide, SOCIO7

برساخت اجتماعی هم باشی بر اساس تجربه زیسته نمونه ای از هم باشان

bærsɒxte edʒtemɒʔie hæmbɒʃi bær æsɒse tædʒrobeje zisteje nemunei æz hæmbɒʃɒn

Social Constructivism of Cohabitation Based on Lived Experience of Cohabitants, SOCIO_8

.جامعه اطلاعاتی و جرائم نوظهور: تلاشی جامعه شناختی در تبیین قربانیان تعرض سایبری در شهر تهران

dʒɒmeʔeje etelɒʔɒti væ dʒærɒʔeme nozohur: tælɒʃi dʒɒmeʔe ʃenɒxti dær tæbʔine ɢorbɒniane tæʔæroze sɒjberi dær ʃæhre tehrɒn

Information Society and Emerging Crimes: A Sociological Effort to Explain Victims of Cyber Assault in Tehran, SOCIO_9

بررسی تاثیر شبکه های اجتماعی و مشارکت بر محرومیت اجتماعی زنان مورد مطالعه: زنان شهر ارومیه

baresie tæsire ʃæbækehɒje edʒtemɒʔi væ moʃɒrekæt bær mæhrumiate edʒtemɒʔie zænɒn morede motɒleʔe: zænɒne ʃæhre orumie

Investigating the Effect of Social Networks and Participation on Social Deprivation of Women: Women in Urmia, SOCIO_10

داغ ننگ و هویت اجتماعی: بررسی موردی عوامل اجتماعی داغ ننگ زننده بر افراد دارای معلولیت جسمانی آشکار در شهر رشت

dɒʁe næng væ hoviate edʒtemɒʔi: baresie moredie ævɒmele edʒtemɒʔie dɒʁe næng zænænde bær æfrɒde dɒrɒje mæʔluliate dʒesmɒnie ɒʃkɒr dær ʃæhre ræʃt

Stigma and Social Identity: A Case Study of Stigmatizing Social Factors on People with Visible Physical Disabilities in Rasht, SOCIO_11

بررسی و تحلیل فضایی جرائم مواد مخدر در کلان شهر تهران (مورد مطالعه: منطقه2 شهرداری تهران)

bæresi væ tæhlile fæzɒʔie dʒærɒʔeme mævɒde moxæder dær kælɒn ʃæhre tehrɒn (morede motɒleʔe: mæntæɡe do ʃæhrdɒrie tehrɒn)

Spatial Analysis of Drug Crimes in the Metropolis of Tehran (Case study: District 2 of Tehran Municipality), SOCIO_12

تحلیل کیفی آموزش مجازی و حضوری؛ دانشگاه امیرکبیر

tæhlile kejfie ɒmuzeʃe mædʒɒzi væ hozuri; dɒneʃɡɒhe æmir kæbir

Qualitative Analysis of Virtual and Face-to-face Education; Amirkabir University of Technology, EDU_1

طراحی و اجرای الگوی یادگیری مبتنی بر نمونه سازی و تاثیر آن بر یادگیری مفاهیم و کنش های نمونه سازی

tærɒhi væ edʒrɒje olguje jɒdɡiri mobtæni bær nemunesɒzi væ tæsire ɒn bær jɒdɡirie mæfɒhim væ koneʃɒje nemunesɒzi

Designing and Implementing a Sample-based Learning Model and its Impact on Learning the Concepts and Actions of Sampling, EDU_2

فراتحلیل اثربخشی مشاوره گروهی راه حل‌محور در مدارس ایران (1386–96)

færɒtæhlile æsærbæxʃie moʃɒvereje goruhie rɒhehælmehvær dær mædɒrese irɒn (hezɒro sisæedo hæʃtɒdo ʃeʃ tɒ nævæedo ʃeʃ)

Meta-analysis of the Effectiveness of Solution-oriented Group Counseling in Iranian Schools (2007–2017), EDU_3

تعیین ویژگی های الگوی مطلوب برنامه درسی زبان آموزی دوره ابتدایی از دیدگاه معلمان

tæʔine viʒeɡihɒje olguje mætlube bærnɒmeje dærsie zæbɒnɒmuzie doreje ebtedɒʔi æz didɡɒhe moʔælemɒn

Determining the Characteristics of the Desired Model of Elementary School Curriculum for Language Learning from the Perspective of Teachers, EDU_4

بررسی مسائل و مشکلات مرتبط با تدوین و سازماندهی محتوای کتاب های عربی دوره متوسطه از دیدگاه معلمان و دانش آموزان شهر یاسوج

bæresie mæsɒʔel væ moʃkelɒte mortæbet bɒ tædvin væ sɒzmɒndehie mohtævɒje ketɒbhɒje æræbie doreje motevæsete æz didɡɒhe moælemɒn væ dɒneʃɒmuzɒne ʃæhre jɒsuj

A Study of Issues and Problems Related to Compiling and Organizing the Content of High School Arabic Textbooks from the Perspective of Teachers and Students in Yasuj, EDU_5

ارزشیابی آمادگی تحصیلی و عملکرد نهایی هنرجویان در رشته الکتروتکنیک شاخه فنی و حرفه ای

ærzeʃjɒbie ɒmɒdegie tæhsili væ æmælkærde næhɒʔie honærdʒujɒn dær reʃteje elekeroteknik ʃɒxeje fani væ herfeʔi

Evaluation of Academic Readiness and Final Performance of Students in the Field of Electrotechnics, Technical & Vocational Training Branch, EDU_6

رابطه خوش بینی تحصیلی و جهت گیری هدف شغلی با رضایت شغلی معلمان

rɒbeteje xoʃbinie tæhsili væ dʒæhætgirie hædæfe ʃoɢli bɒ rezɒjæte ʃoɢlie moʔælemɒn

The Relationship between Academic Optimism and Career Goal Orientation with Teachers' Job Satisfaction, EDU_7

بررسی اثربخشی برنامه آموزش مهارتهای زندگی بر بهبود خودکارآمدی و جراتورزی در دانش‌آموزان پایه اول متوسطه

bæresie æsærbæxʃie bærnɒmeje ɒmuzeʃe mæhɒræthɒje zendegi bær behbude xodkɒrɒmædi væ dʒɒrʔæt væzri dær dɒneʃɒmuzɒne pɒjeje ævæle motevæsete

Evaluation of the Effectiveness of Life Skills Training Program on Improving Self-efficacy and Courage in First Grade High School Students, EDU_8

رشد زبان کودک پیش دبستانی و رابطه آن با هوش کلامی، غیرکلامی و هوش کلی

roʃde zæbɒne kudæke piʃdæbestɒni væ rɒbeteje ɒn bɒ huʃe kælɒmi, ɢejre kælɒmi væ huʃe koli

Preschool Child Language Development and its Relationship with Verbal and Nonverbal Intelligence and General Intelligence, EDU_9

خودکارآمدی تحصیلی به عنوان میانجیگر ارتباط کمال گرایی خود-مدار و اضطراب امتحان

xodkɒrɒmædie tæhsili be onvɒne mijɒndʒigære ertebɒte kæmɒlgærɒie xodmædɒr væ ezterɒbe emtehɒn

Academic Self-efficacy as a Mediator of the Relationship between Self-centered Perfectionism and Test Anxiety, EDU_10

"ارزشیابی محتوای درس تاریخ ادبیات دوره دوم متوسطه بر اساس دو مولفه "ساختار" و "تحقق اهداف پیش بینی شده

ærzeʃjɒbie mohtævɒje dærse tɒrixe ædæbiɒte doreje dovome motevæsete bær æsɒse do moælefeje "sɒxtɒr" væ "æhdɒfe piʃbini ʃode".

Evaluating the Content of the History of Literature Course in the Second Year of High School Based on the Two Components of "Structure" and "Achievement of Predicted Goals", EDU_11

پیش بینی عملکرد دانش آموزان در حل مسئله های کلامی ریاضی با توجه به متغیرهای شناختی، فراشناختی و عاطفی

piʃbinie æmælkærde dɒneʃɒmuzɒn dær hæle mæsʔælehɒje kælɒmie riɒzi bɒ tævædʒʒoh be moteɢæjerhɒje ʃenɒxti, færɒʃenɒxti væ ɒtefi

Predicting Students' Performance in Solving Mathematical Verbal Problems According to Cognitive, Metacognitive and Emotional Variables, EDU_12

ژن نیتریک اکسید سنتاز اندوتلیال با دیابت نوع دو و نفروپاتی دیابتی G894T ارتباط پلی مورفیسم

ertebɒte polimorfisme dʒi hæʃtsædo nævædo tʃɒhɒr ti ʒene nitrik asid sentɒz endotelial bɒ diɒbete noʔe do væ nefropɒtie diabeti

Association of endothelial nitric oxide synthase gene G894T polymorphism with type two diabetes and diabetic nephropathy, MED_1

بررسی بیان ژن سه گیرنده آدرنرژیک آلفا ۱، ۲ و بتا ۲ سلول های کومولوس تخمدان زنان نابارور با پاسخ ضعیف تخمدانی کاندید لقاح آزمایشگاهی

baresie bæjɒne ʒene se girændeje ɒdrenerʒike ɒlfa jek, do væ betɒ do selulhɒje kumuluse toxmdɒne zænɒne nɒbɒrvær bɒ pɒsoxe zaʔife toxmdɒnie kɒndide leɢɒhe ɒzmɒjeʃɢɒhi

Evaluation of gene expression of three adrenergic receptors in infertile women with poor ovarian response, candidate for IVF, MED_2

بررسی اثربخشی پیش داروی تیزانیدین خوراکی در کاهش درد پس از جراحی سپتوپلاستی

bæresie æsærbæxʃie piʃɒruje tizɒnidine xorɒki dær kɒheʃe dærde pæs æz dʒærɒhie septoplɒsti

The efficacy of oral tizanidine in reducing pain after septoplasty, MED_3

پلاسمایی مرتبط با حاملگی در بیماران سندرم کرونری حاد و مقایسه آن با مارکرهای تروپونین قلبی و کراتین A بررسی سطح پروتیین کیناز MB

bæresie sæthe poroteʔine ɒ pelɒsmɒʔi mortæbet bɒ hɒmelegi dær bimɒrɒne sæn-drome koronerie hɒd bɒ goruhe kontorol væ mocɒjeseje ɒn bɒ mɒrkerhɒje teropo-nine ɢælbi væ kerɒtine kinɒz em bi

Comparison of pregnancy-associated plasma protein-A, troponin and creatine kinase-MB levels in acute coronary syndrome, MED_4

وارونگی رحم پس از یائسگی: گزارش موردی

vɒrunegie ræhem pæs æz jɒʔesegi: gozɒreʃe moredi

Uterine inversion in postmenopausal age: Case report, MED_5

تاثیر مصرف خوراکی عصاره جلبک آفانیزومنون فلوس آکوا بر ترمیم زخم های پوستی تمام ضخامت در موش صحرایی

tæʔsire mæsræfe xorɒkie osɒreje dʒolbæke ɒfɒnizomenon flos ɒkuɒ bær tær-mime zæxmhɒje pustie tæmɒme zexɒmæt dær muʃe sæhrɒʔi

The effect of oral Aphanizomenon flos-aquae extract on excisional wound heal-ing, MED_6

بررسی فراوانی عفونت های قارچی سطحی و جلدی و برخی عوامل موثر بر آن در بیماران مراجعه کننده به درمانگاه پوست بیمارستان 22 بهمن شهر مشهد طی سال های 93-1392

bæresie færɒvɒnie ofunæthɒje ɢɒrtʃie sæthi væ jeldi væ bærxi ævɒmele moʔæser bær ɒn dær bimɒrɒne morɒdʒeʔe konænde be dærmɒngɒhe puste bimɒrestɒne bist-odoe bæhmæne ʃæhre mæʃhæd teje sɒlhɒje hezɒro sisædo nævædo do tɒ nævædo se

Frequency of Superficial and Cutaneous Fungal Infections and the Affecting Factors in Patients Referred to Dermatology Clinic of 22th Bahman Hospital in Mashhad between 2013–2014, MED_7

مقایسه ازوفاژکتومی با تعبیه لوله ژژونوستمی و بدون لوله ژژونوستمی

mocɒjeseje ezofɒʒektomi bɒ tæʔbijeje luleje ʒeʒonostomi væ bedune luleje ʒeʒonostomi

Comparison of Esophagectomy with and without Placement of JejunostomyTube, MED_8

بررسی شیوع زایمان زودرس و عوامل مرتبط با آن در زنان باردار مراجعه کننده به بیمارستان بنت الهدی شهر بجنورد

bæresie ʃojuʔe zɒjmɒne zudræs væ ævɒmele mortæbet bɒ ɒn dær zænɒne bɒrdɒre morɒdʒeʔe konænde be bimɒrestɒne bentolhodɒje ʃæhre bodʒnurd

Prevalence and affecting factors on preterm birth in pregnant women Referred to Bentolhoda hospital- Bojnurd, MED_9

مقایسه اثربخشی و عوارض دو ترکیب دارویی میدازولام-کتامین و میدازولام-فنتانیل جهت انجام سدیشن در عمل جراحی کاتاراکت در بزرگسالان

mocɒjeseje æsærbæxʃi væ ævɒreze do tærkibe dɒruʔie midɒzolɒm ketɒmin væ midɒzolɒm fentɒnil dʒæhæte ændʒɒme sedejʃen dær æmæle dʒærɒhie kɒtɒrɒkt dær bozorgsɒlɒn

The comparison of efficacy and complications of two premedication agents, midazolam-ketamine and midazolam-fentanyl in adult patients who underwent cat-aract surgery, MED_10

بررسی هورمون ها و بیان ژن کلاسترین در بیماران آزواسپرم غیرانسدادی

baresie hormunhɒ væ bæjɒne ʒene kelɒsterin dær bimɒrɒne ɒzuesperme ɢejre ensedɒdi

Hormonal profiling and clusterin gene expression in non-obstructive azoospermic patients, MED_11

پیش بینی بیماری مولتیپل اسکلروزیس با استفاده از رویکردهای داده کاوی جنگل تصادفی و ماشین بردار پشتیبان بر اساس الگوریتم ژنتیک

piʃbinie bimɒrie moltipl eskolerozis bɒ estefɒde æz rujkærdhɒje dɒdekɒvie dʒængæle tæsɒdofi væ mɒʃine bordɒre poʃtibɒn bær æsɒse ælgoritme ʒenetik

Prognosis of multiple sclerosis disease using data mining approaches random forest and support vector machine based on genetic algorithm, MED_12

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