

Language Policy

Abbas Aghdassi *Editor*

Perspectives on Academic Persian

 Springer

Language Policy

Volume 25

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The last half century has witnessed an explosive shift in language diversity not unlike the Biblical story of the Tower of Babel, but involving now a rapid spread of global languages and an associated threat to small languages. The diffusion of global languages, the stampede towards English, the counter-pressures in the form of ethnic efforts to reverse or slow the process, the continued determination of nation-states to assert national identity through language, and, in an opposite direction, the greater tolerance shown to multilingualism and the increasing concern for language rights, all these are working to make the study of the nature and possibilities of language policy and planning a field of swift growth. The series will publish empirical studies of general language policy or of language education policy, or monographs dealing with the theory and general nature of the field. We welcome detailed accounts of language policy-making - who is involved, what is done, how it develops, why it is attempted. We will publish research dealing with the development of policy under different conditions and the effect of implementation. We will be interested in accounts of policy development by governments and governmental agencies, by large international companies, foundations, and organizations, as well as the efforts of groups attempting to resist or modify governmental policies. We will also consider empirical studies that are relevant to policy of a general nature, e.g. the local effects of the developing European policy of starting language teaching earlier, the numbers of hours of instruction needed to achieve competence, selection and training of language teachers, the language effects of the Internet. Other possible topics include the legal basis for language policy, the role of social identity in policy development, the influence of political ideology on language policy, the role of economic factors, policy as a reflection of social change. The series is intended for scholars in the field of language policy and others interested in the topic, including sociolinguists, educational and applied linguists, language planners, language educators, sociologists, political scientists, and comparative educationalists.

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Series Editor's Foreword

Language Policy Book Series: Our Aims and Approach

Recent decades have witnessed a rapid expansion of interest in language policy studies as transcultural connections deepen and expand all across the globe. Whether it is to facilitate more democratic forms of participation, or to respond to demands for increased educational opportunity from marginalised communities, or to better understand the technologisation of communication, language policy and planning has come to the fore as a practice and a field of study. In all parts of the world the push for language policy is a reflection of such rapid and deep globalisation, undertaken by governments to facilitate or diversify trade, to design and deliver multilingual public services, to teach less-commonly taught languages and to revitalise endangered languages. There is also interest in forms of language policy to bolster new and more inclusive kinds of language based and literate citizenship.

Real world language developments have pushed scholars to generate new theory on language policy and to explore new empirical accounts of language policy processes. At the heart of these endeavours is the search for the resolution of communication problems between ethnic groups, nations, individuals, authorities and citizens, educators and learners. Key research concerns have been the rapid spread of global languages, especially English and more recently Chinese, and the economic, social and identity repercussions that follow, linked to concerns about the accelerating threat to the vitality of small languages across the world. Other topics that have attracted research attention have been persisting communication inequalities, the changing language situation in different parts of the world, and how language and literacy abilities affect social opportunity, employment and identity.

In the very recent past language diversity itself has been a popular field of study, to explore particular ways to classify and understand multilingualism, the fate of particular groups of languages or individual languages, and questions of

literacy, script and orthography. In this complex landscape of language change efforts of sub-national groups and national to reverse or slow language shift have dominated concerns of policymakers as well as scholars. While there is a discernible trend towards greater openness to multilingualism and increasing concern for language rights, we can also note the continued determination of nation-states to assert a singular identity through language, sometimes through repressive measures.

For all these reasons systematic, careful and critical study of the nature and possibilities of language policy and planning is a topic of growing global significance.

In response to this dynamic environment of change and complexity this series publishes empirical research of general language policy in diverse domains, such as education, or monographs dealing with the theory and general nature of the field. We welcome detailed accounts of language policy-making which explore the key actors, their modes of conceiving their activity and the perspective of scholars reflecting on the processes and outcomes of policy.

Our series aims to understand how language policy develops, why it is attempted, how it is critiqued, defended and elaborated or changed. We are interested in publishing research dealing with the development of policy under different conditions and the effect of its implementation.

We are interested in accounts of policy undertaken by governments but also by non-governmental bodies, by international corporations, foundations, and the like, as well as the efforts of groups attempting to resist or modify governmental policies.

We will also consider empirical studies that are relevant to policy of a general nature, for example the local effects of transnational policy influence, such as the United Nations, the European Union or regional bodies in Africa, Asia and the Americas. We encourage proposals dealing with practical questions of when to commence language teaching, the numbers of hours of instruction needed to achieve set levels of competence, selection and training of language teachers, the language effects of the Internet, issues of program design and innovation.

Other possible topics include non-education domains such as legal and health interpreting, community and family based language planning, and language policy from bottom-up advocacy, and language change that arises from traditional forms of power alongside influence and modelling of alternatives to established forms of communication.

Contemporary language policy studies can examine the legal basis for language policy, the role of social identity in policy development, the influence of political ideology on language policy formulation, the role of economic factors in success or failure of language plans or studies of policy as a reflection of social change.

We do not wish to limit or define the limits of what language policy research can encompass and our primary interest is to solicit serious book length examinations, whether the format is for a single authored or multi-authored volume or a coherent edited work with multiple contributors.

The series is intended for scholars in the field of language policy and others interested in the topic, including sociolinguists, educational and applied linguists, language planners, language educators, sociologists, political scientists, and comparative educationalists. We welcome your submissions or an enquiry from you about ideas for work in our series that opens new directions for the field of language policy.

Series Editors

Professor Joseph Lo Bianco, AM, University of Melbourne, Australia

Professor Terrence G. Wiley, Arizona State University, USA

Notes on Transliteration

Contributions in this volume offer a flexible and diverse range of transliteration systems. This is because strict regulations—either of IPA, ALA-LC, or any other systems—cause technical issues in chapters with a particular focus and a need for a limited frame of analysis. Authors had the freedom to use their selected terms either in the original Persian or in a transliterated format. Whereas many chapters followed IPA, others had a choice to exercise otherwise. Assuming that potential readers for this volume will come from a plethora of academic backgrounds, in many cases, chapters offer a reader-centered and accessible text.

Acknowledgments

This work would not have been possible without the dedication and commitment of the contributors from different countries and institutions. I feel indebted to them all for their trust in this work and their patience in different stages. I am very thankful to the series editors, Joseph Lo Bianco and Terrence G. Wiley, who welcomed the idea of this volume. Three peer reviewers, who remained anonymous, kindly read the work, and suggested constructive feedback. I thank them. Here, I would like to sincerely appreciate the editorial support, which I received from the Springer team. Very special thanks go to Ms. Natalie Rieborn, editor of language education, and her assistant Ms. Helen van der Stelt, both of whom quite professionally supported the flow of this work.

Dr. Shohreh Shahsavandi deserves special mention here because she was the first professor to link me up with applied linguistics when I was a freshman back in 2005–8. In 2011, Prof. Robert Phillipson was unbelievably kind to accept me in Copenhagen Business School (CBS) for several hours on a Sunday morning. His gift of several books and a friendly ride from and to the airport are memories I will not forget, not to mention the theories of *linguistic imperialism* and *language rights*, which are still echoing in my mind. I cannot finish this part without referring to a dear teacher, Mr. Hasan Vahedian, whose role in my life would last forever.

I am grateful for my parents—particularly for my mom—who dedicated their whole lives and ceaseless prayers for me. A constant support in my life is my wife. She is the only and lonely person with tons of positive feedback and patience for many ideas, even when I know chances are slim in a project. I express my heartfelt gratitude to all of them.

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Abbreviations

AI	Artificial Intelligence
APPL	Academy of Persian Language and Literature
BICS	Basic Interpersonal Communicative Skills
CA	Contrastive Analysis
CALP	Cognitive Academic Language Proficiency
CARS	Create-A-Research-Space
CEFR	The Common European Framework of Reference
CFP	Call for Papers
CLT	Cross-Language Transfer
CUP	Common Underlying Proficiency
DF	Document Frequency
DIY	Do-It-Yourself
EAP	English for Academic Purposes
EBSCO	Elton B. Stephens Company
EDU	Education
EFL	English as a Foreign Language
EGAP	English for General Academic Purpose
ELT	English Language Teaching
EMS	Eight-Move Structure
ESAP	English for Specific Academic Purposes
ESL	English as a Second Language
GA	Genre Analysis
GFN	German FrameNet
G-FOL	German Frame-Semantic Online Lexicon
IDF	Inverse Document Frequency
IMRD	Introduction, Method, Result and Discussion
IPA	International Phonetic Alphabet
IPuMPrC	Information-Purpose-Methods-Products-Conclusion
L1	First Language
L2	Second Language
LAP	Language for Academic Purposes

LIH	Linguistic Interdependence Hypothesis
Lx	Language x
Ly	Language y
MD	Metadiscourse
MED	Medicine
MHME	Ministry of Health and Medical Education (Iran)
MMs	Metadiscourse Markers
MSRT	Ministry of Science, Research, and Technology (Iran)
N	Number of Documents in a Corpus
NP	Noun Phrase
PAP	Persian for Academic Purposes
PFL	Persian as a Foreign Language
PLLs	Persian Language Learners
PP	Prepositional Phrase
PP	Prepositional Phrase
PSL	Persian as a Second Language
PSP	Persian for Specific Purposes
RA	Research Articles
REMs	Reader Engagement Markers
SAMT	<i>Sāzmān-e-Motāle‘eh va Tadvīn-e Kotob-e Olūm-e Ensāni-e Dāneshgāh’hā</i>
SFG	Systemic Functional Grammar
SFN	Spanish FrameNet
SLA	Second Language Acquisition
SOCIO	Sociology
SweFN ++	Swedish FrameNet
TF	Term Frequency
TF-IDF	Term Frequency - Inverse Document Frequency
W	Weight
WHO	World Health Organization

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Introduction: Perspectives on Academic Persian



Abbas Aghdassi

*Be nām-e Khodāvand-e jān o kherad
Kaz īn bartar andīsheh barnagzarad.*

Shāhnāmeḥ

Hakīm Abu'l-Qāsem Ferdowsī Tūsī

Abstract The concept of academic English, which caters to both practice and theory, is well discussed. However, for other languages with huge academic actors/markets—e.g., the Persian language market with an existing body of 1260 Persian-only academic journals—few studies offer insights on what academic could mean in terms of genre(s), style(s), and discourse(s). The current chapter supposed that a solid understanding of academic Persian will not only help the academics, but also practitioners like aggregators, publishers, and policy-makers. This chapter suggested that long-term policies of academic Persian necessitate separate local, national, regional, and international policies—each of which requires their particular sets of policy, politics, and polity. The author argued that while the first two (i.e., policy and politics) played their role—though with some confusion—in the contemporary status of Persian, polity never shaped language planning. Some notes regarding the structure of this edited volume and a summary of contributions were also included in the chapter.

Keywords Academic Persian · PAP · Language planning · Policy · Politics · Polity

The idea of what academic Persian is, first came to me when I was finishing an introduction to a previous book, *Persian Academic Reading* (2019). “What is academic Persian?” I asked myself. Should we anticipate academic-ness in a language

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that has long been known as a language of literary prose and poetry? Does Persian have manifest and specific features that differentiate its academic and non-academic discourse? Did the time come to speak of Persian as a foreign Language (PFL), Persian as a Second Language (PSL), Persian for Academic Purposes (PAP), and Persian for Specific Purposes (PSP), or should such concepts continue living in an English-only world? These questions and many others signaled the necessity to invite various disciplines and approaches, which will help open the way to new analyses beyond linguistics discourse and offer a myriad of applied interdisciplinary solutions. This, of course, requires the efforts and contributions of many future scholars and cannot be covered in a single volume.

I, therefore, decided to share these questions. A proposal was drafted and sent to the publisher, which welcomed the idea after the proposal was reviewed by three anonymous peer-reviewers—to whom I express my gratitude. I am glad that the call received attention from various scholars worldwide, though the scope of the volume and its limitations allowed me to shortlist a few manuscripts only.

The question of the nature of academic Persian becomes more relevant when one knows there are tight competitions among major Middle Eastern players in terms of academic status, position, and ranking. Given that authorities in these languages endeavor to produce and thus emphasize their academic discourse, languages like Persian, Turkish, and Arabic have no choice but to move towards new styles and genres to produce quality academic texts. In Iran only, as of October 2020, there were 1366 peer-reviewed journals under Ministry of Science, Research, and Technology (MSRT) and 436 peer-reviewed journals under Ministry of Health and Medical Education (MHME). The former publishes 1109 journals in Persian, while the latter has 151 active journals in Persian. In other words, a total of 1260 peer-reviewed journals are published in Persian, which includes bi-monthly, quarterly, and semi-annual titles. These titles are strictly required to follow conventional patterns of academic writing and publishing. How could academics, both inside and outside of Iran, produce scholarly works in Persian, while few works studied and analyzed features of *academic* Persian?

Studies on the Persian language and linguistics have attracted much attention and great contributions have been made; however, several areas and questions remain unanswered. Although the available literature discusses the literary aspects of Persian exhaustively—examples are numerous works on Persian poetry and prose—and recently volumes on pedagogical areas of teaching Persian to non-Persian speakers were published, not much has been done so far in terms of *academic* Persian. Even in pedagogy, some areas are left untouched.

With the influx of some south-/west Asian students to the Iranian universities, new pedagogical questions and needs are raised, which differ significantly from the previous ones. If once instructors of Persian mirrored their classroom experience with language learners of English-, German-, French-speaking backgrounds, whose proficiency level was crafted based on meticulous curriculum designs and philologic traditions of former Iranologists, the new markets demand pedagogical analyses and strategies to answer the needs of short-spanned learners of Persian with no solid foundation in basic Persian. Interestingly, this generation of learners includes

many M.A. and Ph.D. Arabic-speaking students, whose urgent needs are more often *academic*. Now that new issues of more analyses of academic Persian are raised, more examples are due.

At the time of writing this work, the literature is scant on numerous technical issues that scholarly services for academic Persian require. Metadata indexing, abstracting, crawling algorithms, bibliometrics, citations, and visibility are becoming burning issues for service providers (e.g. publishers and aggregators) and policy-makers (e.g. academic officials). Yet, few studies, if any, provide timely suggestions for these market demands. Let us imagine that an academic aggregator like Elton B. Stephens Company (EBSCO) likes to offer the experiences it had with the *Arab World Research Source: Al-Masdar* for Persian sources. Does the literature inform about technical intricacies, or does it offer any moderate solutions? Assuming that such a repository or database is made, are there any models to easily analyze the metadata in such a database and provide probable bibliometrics for local and regional practitioners?

Another example is artificial intelligence (AI) solutions for the translatability of academic texts in Persian. What particular criteria define machine-learning level(s) of academic-ness so for the translator web-services to avail the output data? The scenario here is not complex since in languages like English, the frequency of academic terms, and their probable web of compounds and structures, based on corpus studies, rank the words and their possible designations so for the service providers not to face issues in translatability. In the case of Persian, the accuracy level for machine translation (MT) needs more future studies. What this issue has to do with the academic genre(s) of a language could be questioned here. The connections between genre/syntactic variations and linguistic complexity have been extensively studied (e.g., Ströbel et al., 2018; Carney et al., 2014; Staples et al., 2016). Of note is to decode complexity, which means to define a genre for a machine or system. A recent study showed how inaccurate google translation for Persian could be when it comes to similar adjectives (Oraki, 2015). Now the question is if a corpus analysis of frequent adjectives in academic Persian can help disambiguate similarities. Stated differently, defining and designating the realms of academic Persian as a semi-/distinct genre, seems to accelerate the integration of this language with some existing solutions. Although conceptual labels like register or genre might not be surface elements (and thus easy to recognize), it is essential to have an understanding of their boundaries so to improve AI solutions.

To talk about an academic language and its features, one expects to see local, national, regional, and international sets of plans. As for the local and national levels, it can be argued that Persian follows its academic norms and conventions—of course somewhat vaguely, since there is no clear definition of what academic Persian is and, more importantly, *what it is not*. However, in the case of regional and international frameworks, linguistic plans for academic Persian remain less defined, if not completely ignored. It could be argued that, for academic Persian, the absence of clear linguistic plans in local and national levels, and particularly in regional and international areas, has its roots in linguistic and/or language policy, politics, and polity—to borrow an Aristotelian term.

Numerous discussions exist on language policy, very few on language politics, and even fewer on language polity. Definitions seem due here. *Polity* refers to “a particular form or system of government,” an example of which is “civil polity,” while politics sets the discourse and/or representation, where one will find the contexts and values. The terms policy offers a solution to the problems, and therefore, might include techniques, decisions, and strategies. In brief, the polity means the prospect and the way of a structure, with the politics as the process and the formation, and the policy as the solution for the two.

Among the key features of polity, one may notice the (institution and the structure of) *norms*. It should be noted that a polity, regardless of its interactions and inter-dependence on both policy and politics, incorporates a wider spectrum; that is, it dominates both policy and politics. In the words of McConnel (1991), who borrows from Fishman, language polity will include “broader works of international scope.” To add to his words, language polity comprises of the *prospect* and the *way* of a particular language in the international scope. Although scholars like Akbari (2020) argued that “[language planning] is more planning for a polity using *the excuse of* a language than *for* a language,” as if language polity, *per se*, never existed, it does not seem accurate to separate polity from language planning.

Given the importance of language polity, I would like to ask if language planning for the Persian language has ever offered a polity, as such. There is no room in this introduction to cover this question, but to the best of my knowledge, language polity is (and was) not a part of language planning for Persian, much less *academic* Persian. Naturally, no language polity results in a set of disorganized language politics in terms of actors and resources. The absence of polity is a good signal of policy confusion, if not disarray in language planning.

Examples can be the existing domestic reductionist views on language policy, which is more often reduced to decision-making about possible interactions with foreign languages and how they influence the mother tongue. One can see that in the case of the Persian language, how confusions in language politics and policy, due to the absence of a clear language polity, lead to various disparities in areas like attitudes towards neologism. In neologism, competing ideas exist from puritanism and prescriptivism, to descriptivism and pragmatism, whose solutions remain isolated, if not completely alien, to the practitioners. That is why, in the words of McConnel (1991, p. 84) the result of macro politics, “appears to be both sensitive to context and applicable to a wide variety of settings, viz. vertically on a macro-micro spectrum and horizontally on an inter-polity, inter-cultural basis.”

This edited volume is a modest proposal to open new doors to numerous future studies on polity, politics, and policy in the Persian language, especially academic Persian. Contributions in this volume offer a range of different views. Given the interdisciplinary nature of the contributions, I did not follow a strict categorization. Broadly, the chapters in the first half lean more towards theories and concepts, while the second half covers more practical areas in academic Persian. That said, each chapter shares connections and similarities with the other half of the volume. The chapters, therefore, should be read independently.

Reza Rokoe, in Chap. 2, *Historical Grounds for a Rational Grammar in Academic Persian*, discussed and reviewed the history of rational grammar so to show how the history of Persian may accelerate the possibility of an academic approach. His view of an “educated language,” which suggested to accommodate the needs of the public offered a new perspective.

Seyed Hassan Talebi and **Javad Fallahi**, in Chap. 3, *Amendments to Linguistic Interdependence Hypothesis: Moderating Role of Affective variables in L1 (Persian)-L2 (English) Academic Reading Relationship*, tried to extend possible horizons in Cross-language transfer. They employed a critical content analysis to address the particularities of developing L1-L2 literacy in the context of Iran with a reference to basic interpersonal communicative skills (BICS), cognitive academic language proficiency (CALP), and linguistic interdependence hypothesis (LIH) and the notion of multi-competence. They offered a novel proposal to elevate the construct of interdependence to one which can integrate affective variables that moderate the relationship between L1 and L2 reading at cognitive level.

Mehrdad Vasheghani Farahani, in Chap. 4, *Writer-reader Interaction in Written Discourse: A Comparative Corpus-based Investigation of Metadiscourse Features in English and Persian Academic Genre*, tried to unearth the distributional patterns of metadiscourse features as well as investigating writer-reader interaction in an academic written genre in English and Persian languages. He developed a corpus using Sketch to suggest that the English contained more interactive and interactional metadiscourse features than the Persian. Due to the numerical differences and the distributional pattern(s) of metadiscourse features, he concluded that the way interaction between writer and reader was constructed differed in both languages.

Hossein Davari in Chap. 5, *One Concept, Many Names! Analyzing a Serious Challenge Lying ahead of the Formation of Academic Persian Vocabulary*, reviewed the status of vocabulary in Academic Persian or Persian for academic Purposes (PAP) to show that this area suffered from a lack of consistency in academic vocabulary selection and use. The result of such inconsistency in the view of the author was that many texts faced glaring inconsistency in the selection and use of Persian equivalents for the related academic concepts.

Asmaa Shehata, in Chap. 6, *Neologisms in Contemporary Persian Approved by the Academy of Persian Language and Literature: A Case Study of Epidemiology Terms*, offered a different view. The author followed a corpus analysis to show how the approved terminologies by the Academy of Persian Language and Literature (APPL) in the field of epidemiology reveal a mixed success. The author argued that the Academy needed to work more on equivalent terms of concepts that are dominated by foreign terms such as *test* and *vāksan*.

Hussein Meihami, in Chap. 7, *The Promises of Action Research to Develop Persian for Academic Purposes Teachers' Professionalism*, developed a model to address action research in education programs for PAP teachers. The author considered education programs for PAP teachers an engine to develop critical thinking abilities, reflective practices, and consciousness-raising through collaboration among different genres related to PAP.

Reza Falahati and **Mahya Shojaei**, in Chap. 8, *Promoting the Status of an Academic Language: Participant Interaction*, used a reflexive model of metadiscourse to investigate the distribution of forms and functions of metadiscursive devices of research articles (RAs) in sociology, education, and medicine. They showed that the RAs in Sociology and Education have higher density in terms of metadiscourse markers than RAs in Medicine and suggested 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.

Leila Rahmati Nejad and **Masood Ghayoomi**, in Chap. 9, *Application of Frame Semantics to Teach Persian Vocabulary to Non-native Speakers*, addressed the extent of the appropriateness of frame semantics to teach Persian vocabulary to non-native speakers. They selected the verb *shodan* as a complex and controversial Persian verb and discussed its semantic properties within frame semantics to determine its senses to create a frame semantic model to be used for teaching. The authors discussed the requirements to construct the Persian FrameNet. They concluded that detailed and organized information about each sense in a frame of a Persian word made it possible for language learners to increase their attention during the learning process and make a better classification of the information in their brain to find out about the relations between the senses along with similarities and dissimilarities between them. Also, the application of frame semantics such as Persian FrameNet would facilitate the learning Persian vocabulary for non-native speakers.

In Chap. 10, **Chiew Hong Ng** and **Yin Lin Cheung** discussed *Academic Writing for Academic Persian: A Synthesis of Recent Research*. The authors used the method of qualitative meta-synthesis of 40 empirical studies specifically on academic writing in Persian in refereed journals, book chapters, and conference proceedings published during the period of 2005–2020. Theoretically and pedagogically, the findings from the comparisons contribute to our understanding of styles and genres specific to academic writing for Academic Persian. They concluded that researchers and educators engaged in academic writing for Academic Persian needed to take account of the web of complexity both in writing for publication and teaching academic writing styles.

Maryam Sadat Ghiasian in Chap. 11, *Moving Forward in Writing a Persian Academic Text: an Introduction to Cohesive Devices*, extracted her numerous samples from medical, basic sciences, humanities, and social sciences. Findings showed the crucial role of cohesive devices and grammatical metaphors in approving and publishing an article. The author concluded that a professional academic text, apart from its genre, is determined by several discursive instruments such as cohesion, grammatical metaphor, and two/three words conjunctives clusters.

Masoomeh Estaji and **Leila Kia Shemshaki**, in Chap. 12, *Representations and Uses of Conjunctions in Persian Learners' Academic Writings: The Predictive Power of Saadi Foundation Writing Rubric*, examined the type, frequency, and accuracy of conjunction use in a collection of Persian learners' academic essays. They graded Persian learners' essays based on the Saadi Foundation writing rubric. They showed that the use of conjunctions, both in terms of number and type, increased as language levels raised, while there was no significant relationship

between language level and the use of low-frequency conjunctions or the correct application of these conjunctions. They concluded that the predictions made at different levels regarding discourse conjunctions were not entirely comprehensive.

Before ending this introduction, I want to reinforce the importance of multi-/inter-disciplinary approaches to issues in the Persian language and linguistics. The emerging needs (and the markets) of our times do not wait for long-established classical trends and boundaries of linguistics. Of course, disciplinary boundaries are still shaping many disciplinary identities, which makes it hard, if not impossible, for scholars of various fields to embrace scholarly works and projects that stand outside of their latent field identity. More often, this trend hinders *experts* to embrace new challenges since a territorial identity ring in scholars' minds.

I hope that scientists and researchers from various backgrounds and disciplines read this volume and find it interesting. Surely, by reading the current volume many more questions will arise, which I hope would make a sizable part of future scholarship on the Persian language and linguistics.

Mennat Khodāy rā bar pāyān-e īn ketāb.

Abbas Aghdassi

Abkouh, Mashhad, Iran

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Historical Grounds for a Rational Grammar in Academic Persian



Reza Rokoe

Abstract The postulate at the core of this research is that today's Persian not only has the ability to translate rational and philosophical ideas, but that it has been able to create an intelligent and self-aware language due to its intrinsic capabilities. Thus, in this paper, we show that Persian, on the one hand, is an educated language that can be used as a tool of thought, and on the other hand, that it can gain a new universality. This latter goal has already been attained by neology, but more importantly, Persian grammar should be reviewed so as to create an intelligent language that can be as companion of thought. The past of the Persian language as seen in literary and philosophical writings as well as its modern reconstruction through the translation, fiction and poetry movements is another reason for Persian dynamism and many men of letters have tried to transcend this language in their works. The use of historical data opens a promising future for an intelligent Persian language, both by grasping the people's language and with the help of the Academy of language.

Keywords Persian language · Rational language · Smart language · Language evolution

1 Introduction

Mohammad Ali Foruqi (1877–1942), who wrote the first part of his book, *History of Philosophy in Europe* [*Sayr-e hekmat dar orūpā*] in 1931, i.e. four years before the foundation of the first Academy of language in Iran, paves the way for the modernization of the vocabulary by the Academy (Farhangestān, 1940). His writing is a blatant example of modern Persian writing, albeit in a traditional linguistic system. In his era, three aspects of modern Persian writing have brought this language to the attention of Iranians in Iran, in accordance with the knowledge and ideas of the

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time, and announcing today's world. The first endeavors of renovated writing are represented by Sa'id Nafisi (1896–1966) in the field of literary history, Mohammad Ali Jamālzādeh (1892–1899) in the domain of fiction and Ahmad Kasravi (1890–1946) in the area of history. We identify as a second trend the translation movement, to which we can link the translators Mahmud Sanā'i (1919–1985) and Hasan Lotfi (1920–1999) and the translators and thinkers Manučehr Bozorgmehr (1911–1986), Mir Šamsuddin Adib Soltāni (1932-) and Dāriuš Ašuri (1938-). In a last phase, mature modern Persian writing is embodied by Mahmud Dowlatābādi (1940-) in fiction, Bahrām Beyzā'i (1938-) in screenwriting or Parviz Azkā'i (1939-) in philosophy. These latter Iranian thinkers try to use the modern Persian language to express the position of Persian self in today's world and to apprehend the world (Šafi'i Kadkani, 1999: 83,104–110).

Considering the new efforts of some educated Iranians (Šahidi, 1985: 250–263, Ašuri, 1993, Kasravi, 1996: 51–80), we understand that they are struggling to enhance their culture. The cultural and educated language, examples of which are now evident in the media and among some Persian writers, is the outcome of a process of exploration in which the Persian language intends to present itself as a language that reflects the thoughts and actions of today's human beings. We thus observe a kind of smart Persian that finds its meaning in itself and aims at translating its past into the language of today as well as become a language of its own for its existence in the modern era. This rational language deals not only with concepts but also with the variation of words and syntax (word overturning and formal and grammatical change as well as the diachronic variations of words), in other words the language updates itself to gain a new momentum.

In this paper, I intend to analyze the perspectives of the evolution of a rational Persian language, or in other words of a smart language adapted to its time as well as faithful to its origins, and examples of written language, especially regarding human and social sciences, philosophy and cognitive sciences.

The ancient writings in Dari Persian are the symbol of a rational and educated Persian language in which an author, in spite of the experience and the environment of the traditional system of the language, finds at his disposal a particular syntactic construction as well as a rich system of words and concepts in order to build his thinking and create a language with structured sentences (Lazard, 1995: 19). The historic and rational turning point of a new system could today give a new shape to the Persian language, which I qualify as a conscious and intelligent language. Here we are not talking about human behavior and its relation to language, from a psycholinguistic angle, nor about a historical analysis of language and its dialects or the normative rules of an era, but we question the way in which language reflects and thinks in itself and has the intelligence and the freedom to shape itself, to incarnate in harmony with the data of the world around it, which it incorporates into it - to understand the world and to enter into resonance with the universe.

2 Formation of Modern Persian in Contemporary Times

I will first focus on the current situation of the Persian language supported by some historical reminders, then on three trends that characterize the language. In this regard, I will talk about the content of works in Persian and of Persian as a target language for translation, then I will analyze Persian as an intelligent language, and I will conclude on its prospects.

Asking the question of the Persian language amounts to asking the question of several histories and several languages, in the sense that linguistic transformations are linked to many political, social and cultural facts, and above all, that it has gone through “two centuries of silence” that deeply marked it. Aside from certain parts of the language, the first modern Persian writings in Dari Persian, for example the *Introduction to the Shahnameh of Mansuri* [*Moqaddameh-ye Šāhnāmeḥ-ye Mansuri*], the translation of *Tabari’s Commentary* or even *The Limits of the World* [*Hodud al-‘ālam*], were written more than three centuries after the arrival of Islam in Iran (Arberry, 1994: 24). The Persian language has very relevant historical resources for its current events: from literary data (the first Persian poems, then the authors following Rudaki, as well as the writings of mystics such as Sanā’i, Attār and Ahmad Qazāli), to scientific texts such as Bīrūnī’s *Al-Taḥḥīm*, the *Treasury dedicated to the King of Xwarazm* [*Zaxireh-ye Xwārazmšāhi*], the *Encyclopedia of Alā’i* [*Dānešnāme-ye Alā’i*] by Avicenna, including the translation of the *Book of the result* [*Al-Taḥḥīl*] of Bahmanyār and the writings of the following centuries up to the writings of Nasir Tusi and Afzaluddin Kāšāni, we are dealing, despite the differences in styles, with a solid set of data which can constitute the syntactic and stylistic base of a living and vibrant language as we see in Mohammad-Taḡi Bahār’s work on stylistics (Bahār, 1970), undoubtedly a fundamental written work in this field. We can also refer to Mohammad Jafar Mahjub’s study (1993) of the Xorasanian style in Persian poetry and to Sirius Šamisā (1994) who openly bases his analysis on new data, using the western method. The latter also praises Bahār (1970) though highlighting its shortcomings (Šamisā, 1994: 142–148).

As history teaches us, and as is the fate of any language, the styles and manners of Persian, from the outset and then under the domination of the Arabic language, have undergone many evolutions. For example, the two versions, Persian and Arabic, of *Al-Taḥḥīm* (Bīrūnī, 1972) are so similar that it is impossible to determine which is the original and which is the translation. This proximity is indicative of a sort of grammatical convergence, all the more that we find other examples in history, among them the Persian translation of *Tabari’s commentary*, which attempts to render the Qur’an word for word but is accompanied by a commentary (Tabari, 1977: Vol.1, 44 sq.) written in a Persian language rid from the barriers of translation and which develops in freedom. During the historic vicissitudes of the Persian language, despite the efforts of the men of letters, it was the Arabic style that dominated the Persian language (Kasravi, 1996: 270–271). It is not surprising in this context that Alīšir Navā’i, in his *Judgment between the two languages* [*Muhākima al-luqatayn*] written in the ninth century AH, at the end of his life, expresses the

powerlessness of Persian against Turkish. Neither Navā'i nor other Persian scholars have ever had the intuition of the intrinsic power of the Persian language, alone, in my opinion, Ferdowsi, Afzal Kāšāni, Tarzi Afšār and Kasravi having shown unexpected inventiveness, at special historical moments.¹ The power of Dari Persian in the reinvention of the language, backed by the Pahlavi language and the Avestan etymology (Lavā'i, 1937; Bāqeri, 2001: 10–11; Windfuhr, 2009: 419) and enhanced by philological investigations (Kuz'mina, 2007: 183–184), goes beyond questions of “national unity” and political opinions (Safā, 1986: 657–683).

Since the second half of the nineteenth century, Persian has gradually taken on a new face and has become a field of experimentation and intelligent exploration in which authors have tried to speak of the world as they lived and saw it (Nātel Xānlari, 1990: Vol. I, 375–382). If Āxundzādeh's claim regarding the transition to the Latin alphabet remains a pioneer, other Iranians have in turn analyzed this question over time and questioned Persian through this project without going to the foundations of language (Zokā, 1950; Neysāri, 1995; Behruz, 1984). Although their initial motivation was to modernize the language by means of a change of alphabet, it seems obvious that it is modernity and the advent of modern times which were the real levers of its transformation (Adib Soltāni, 1992: 244–245; Zandi Moqaddam, 2007: 203–220).² A modality of reconstruction of the modern language was the attempt to use the popular spoken language, to make the language evolve from its old functioning to more current circumstances (Marzolph, 2010: 208–209). Aside from the poetic style of the satirist Iraj Mirza (Iraj Mirzā, 1977: 63–82), the writings of Dehxodā (1962) are worth mentioning, as he introduced street language into his journalistic chronicles. In another social and political register, we can recall some of the poems of Abolqāsem Lāhuti (1941: 8, 37, 40–50, 71–79).

Concerning the historical aspects of modern Persian, we mainly refer to three forms, each of which makes an important contribution to the reconstruction of the new language: translation, fiction and poetry.³ By way of comparison, it can be said

¹In the twentieth century, many Iranians consider Persian grammar to be similar to Arabic grammar, and some people insist on it (Marzbān Rād, 1979; Deraxšān, 1990). Obviously, our point is not to oppose the two languages but to consider how to establish and revive a language such as Persian within its own linguistic boundaries. Persian men of letters were more concerned with a conservative Arabic based grammar than a dynamic Persian grammar.

²This point reflects the efforts of Iranian scholars who have always seen the Persian language in the mirror of French and English and compared it with these, which created an obstacle for them to think about the Persian language in their own language (Bridjanian, 1994: 5–8). However, we find the simplified romanization scheme proposed by Adib Soltani (1992) so efficient that we chose to use it in the present paper.

³These are three fields in which the language expresses its vigor, which, in my opinion, paves the way for the research and exercise of philosophical thought. It is obvious that these fields reflect socio-political and artistic movements as well as historical and human exchanges. The language here develops sometimes under Kasravi's pen as a “pure language”, sometimes in the field of poetry, in which we can quote Aḥmad Šamlu, who transcends the language of poetry with fearlessness and whose lexicon expresses human nature and the depth of being. In historical research, Fereyduṅ Ādamiyat's language has opened up new avenues for reflection by mixing historicity and

that the efforts of the Iranians to translate from European languages in the second half of the twentieth century more or less created the same situation for Persian as the translation movement in the second and third centuries after the advent of Islam, in other words, the Persian language had in these two cases to digest and assimilate languages (in the past, through the Arabic language). Translating led to the incorporation of many foreign words into the Persian language, and even more importantly, expressions, idioms and metaphors, and even the syntax and structure of the language take on a foreign color. Although these exchanges are a consequence of the wave of modernity through translators who let the source languages take precedence over Persian, some other translators and men of letters were able to find a balance in order to put Persian on an equal level as foreign languages. Among these personalities are Najaf Daryā Bandari, Šams al-Din Adib Soltāni, Šaraf al-Din Xorāsani, Hamid Enāyat, who linked the language of translation to the language of thought, thus marking the rise of current thought in Persian.

In the fiction form, besides the works of Jamālzādeh, who tells in his *Sar-o tah yek karbās* [All cut from the same cloth] the history of Iran and the customs of the Iranians through his heroes, as well as those of Sādeq Hedāyat, *Buḡ-e kur* [The blind owl] and *Tup-e morvāri* [Canon of pearls], and later of Sādeq Čubak, who in *Sang-e Sabur* [The patient stone] brought to the highest point the vigor of Persian narrative and monolog, it is necessary to mention narrative psychology in the novel of Ali Mohammad Afqāni, *Šohar-e āhu xānum* [Madam Ahu's husband], in which the author tries to draw the labyrinth of the interior language of the modern man and in particular the new figure of the oriental woman. In his *Kalidar*, in which dialect takes on a universal face, Mahmud Dowlatābādi, voluntarily or not, managed to “teach psychology to speak Persian”. It is also worth recalling Bahrām Beyzāi's works, especially his dramatic works, which language is based on ancient Dari Persian. The novel, conducive to the expression of the functionalities of language in social and human space, offers it a freedom that allows it to become universal. The resulting “language game” then makes it impossible or at least difficult to translate (Qadami, 2013: 25–27).⁴

Besides those who have practiced a “poetic” form of Persian (Said Nafisi in his *Farangis*, Fereyduṅ Ādamiyat in his historical analyzes, Dāriuš Ašuri in his translations), the poets have sublimated the language and, in doing so, not satisfied with mere language games and poetic techniques, they went further by conceptualizing in order to clear the path for thought. After the 1979 revolution, poets, and in particular the “silent half” represented by women such as Faribā Šeš Boluki or Leylā Kordbačeh (2015), made Persian a big field of words and their works sowed rich seeds. Thus, the poetic power of Kordbačeh's short forms, for example, testifies to the deep subtlety of his gaze. In this case, we see that the poetess links the force of imagination to the force of language to create a new and universal language.

conceptualization. Political literature, religious literature and spoken language each have their place in these areas.

⁴The untranslatable nature of a language can be considered as its culmination, as it thus stands on such heights that they must be reached and grasped.

We also see that she manifests the force of femininity through her poems to challenge the tradition of femininity in her own culture, when she writes “Hell is under your feet” (Kordbačeh, s.d.), thus reversing the idea that paradise lies under the feet of mothers. In other words, the language of poetry tells of a woman’s life at a time when motherhood and femininity were ruined.

In the three forms mentioned above, although the structure of language and its grammar have evolved, the most salient aspect is the manifestation of a word system which epitomizes the intelligence of language and the noetic exploration.

3 Vocabulary and Life of Words

We designate by the life of words their evolution and the process of neology. Most of the modernization of the vocabulary is due to translations, which led the Iranians to transform their system of words to adapt it to the modern world. Neology and the revival of obsolete words are two major tasks undertaken by the first Academy from its creation in the 1930s, but this approach was not limited to this institution and the Iranian scholars introduced it into their research and works. Translation, which developed after Foruqi, takes on a different face after World War II, in a world full of new confrontations, and then in the second decade after the Iranian revolution. In this challenging phase, neology and modernization of vocabulary take two distinct paths, the making of words being developed sometimes by translation sometimes by writing itself.

In the first approach, the translator’s job is to find Persian words equivalent to those in the source language, and if unable, to identify the nearest word. We are talking here about the humanities and social sciences, which are a difficult area for men of letters who must achieve a linguistic and cultural balance between two worlds. In this context, the paradox does not come from the system of word per se because there existed in Persian a lexical corpus, even several, due to the Arab influence, in the fields of philosophy, theology, art and literature, but it is often difficult to make a choice among the multiple possibilities offered.

We can for example cite words such as *man*, *eyn*, *ruh*, *ravan*, *zehn*, for the translation of which it has always been difficult to find a consensus, despite many efforts. In this context, the word *hasti* is among the most difficult to deal with, since men of letters assimilate it to its Arabic equivalent *vojud* and use the same equivalence in many translations.⁵ In the same vein, words such as *naqš*, *tasawwur*, *aql*, and many other Arabic words should be replaced by their Persian counterparts *negāreh*, *engāreh*, *xerad* (or *andišeh*), etc. in order to be able to constitute a rigorous noetic and philosophical language.

⁵Of course, this is found in religious or arabized Persian. The concepts of *ousia* and *einai*, central to modern Western philosophical thought, must not be translated in Persian by *vojud* because their source and essence go back to the Greek, who envision the question of existence and the world differently.

This difficulty concerning words and concepts has always plagued the Persian language, and men of letters, instead of building a culture of the language, have rather sought to cultivate a lexical culture, always tending to seek an equivalent for each word. Although making words through translation is a constraint for all translators, not everyone approaches it in the same way. This is what notably distinguishes the works of Mahmud Sanā'i and Manučehr Bozorgmehr from those of Hamid Enāyat, or those of Adib Soltāni and Šaraf al-Din Xorāsāni from those of Mohammad Rezā Lotfi, according to the differences in their motivation and their cultural backgrounds.

In the latter approach, the effort of the Persian-literate scholar consists in finding equivalences of words in classical Persian, making the history of the language take precedence over the culture of neology. An example of this effort is found in the work of Adib Soltāni, who sees the historical significance of the Persian language and conceives the construction of word in this context. The choice of equivalents and the invention of new words by Adib Soltāni is not based simply on a linguistic analysis but it is, so to speak, a cultural philology, although his primary motivation is translation, which he bases on scholarly language.⁶ Likewise, Dāriuš Ašuri makes words in the writing process, but with different choices, and these two methods have asserted their position in Persian culture today. The following examples show this invention of words aimed at creating an intelligent language in the field of human sciences.

Adib Soltāni in his translation of Kant (1983) forges the following words for which we recall the translated word in square brackets: *metāgitiic* [metaphysics], *ānākāvi* [analysis], *do'ičemguik* [dialectic], *pratom* [a priori], *āqāzeh* [principle], *roxdād* [event], *dādeh* [data, also used by Dāriuš Ašuri], *pārādaxši* [paradox], *ustaneš* [extension], *nāyeš* [negation].

Dāriuš Ašuri (2016), for his part, creates *rāyāneh* [computer], *goftemān* [speech], *barāhanjidegi* [subjectivity, also used by Adib Soltāni], *andarbāši* [immanence], *didemān* [vision], *sāzmāyeh* [element], *bāšandeh* [human being], *farādād* [tradition], *xodpu* [dynamic], *bon engāreh* [postulate], etc.

This creative approach makes it possible to shape the language and to energize philosophical thought. This is how a culture of the language and an intelligent grammar can develop, and it is then that Persian can express the sciences both by translating them and by experiencing its own freedom. In this movement, the Persian language preserves its classic elements while changing skin.

Neology and the search for equivalences pose to Persian the challenge of synonyms. Arabic words have been assimilated and persianized, thus creating doublets of Persian words (ar. *mo'ālejeħ* = per. *darmān*, ar. *tabib* = per. *pezešk*, ar. *xejālat* = per. *šarmandegi* or *šarmanāki*, ar. *farāqat* = per. *āsāyeš*, etc.), not to mention the many cases of polysemy and synonymy. This difficulty will persist until

⁶Those who criticize Adib Soltāni on the pretext that he has made very unfamiliar innovations in Persian forget that he uses a traditional language that used to be a philosophical language.

a solid, assertive grammar is established, and meanwhile word formation is one way of enriching the language (Xodāparasti, 1997).⁷

Through these approaches, language intelligence has enabled Persian to enrich its corpus and rediscover its ancient resources. The history of the Persian language teaches us that if neology seems new to us, it was however already in the past a current process, as is shown by the example of Afzal al-Din Kāšāni (Bahār, 1970: Vol. II, 163). Living more than a century and a half after Ibn Sinā, he uses a lexicon as fluid as it is deep, that Persian speakers, unaware of the range and power of their language, still fail to integrate into the domain of human sciences; for example the words of *peydāi*, *gonjāi*, *yābandegi*, *gomārandeh*, *andišegar*, *bovešn*, *yāfte*, etc. (Kāšāni, 1987). The arduous and complex path of language through poetry, fiction and the translation efforts of men of letters that reflect the effervescence of their thought, leads to perspectives that could be used to reconstruct and found an intelligent and conscious language, some aspects of which we will illustrate below.

4 Grammar Structure of Intelligent Language

If the Persian of Bal'ami and Ferdowsi is understandable for their posterity, it is only because the language contains a ferment allowing it to adapt to man's faculty of knowledge and to the noetic data. This possibility goes beyond historical and literary exchanges as well as the influence of Arabic or Turkish, the domination of a king (or any kind of political form) or any other social and cultural data. To become intelligent and modern, language should obey three rules, fluidity of expression, aesthetics of grammar and sound, and finally structural homogeneity. In the current Persian language, these three elements have no place and we are confronted with a chaotic language which handicaps its dynamic and intelligent evolution. To better bring out the intelligent language which remains underlying, three basic things can be proposed, starting from grammatical and syntactic elements.

Although we are aware of the role of initial verbs in classical Dari Persian (Abolqāsemi, 1988: 6–24),⁸ we emphasize as a first principle the importance of the final position of the verb in the Persian sentence (for example: *Dišab, xāb-i dar ham o bar ham didam* or *Har jur šodeh in kār rā be payān miresānam*) which seems to consolidate the act of thought and speech (Bāteni, 1969: 60 sq.). This rule is not of an extreme rigidity and the classic texts show a certain freedom in the order of words, depending on the periods and in particular in the poetic texts but the main objective of a renovated grammar should be to require that the language organize itself so as to place the verb at the end of the sentence.

⁷ Only realize that in order to designate a mouth, you have to play the language game and face the difficulty of picking out the best word in such an inhomogeneous list of words as *dahān*, *nok*, *menkār*, *nul*, *puzeh*, *zaqan*, *zanaxdān*, *tanul*, *batfuz*, and so on!

⁸ In Persian writings from the fourth and fifth centuries, including poetry, the sentence could end with something other than a verb (Biruni, 1972: 2; *Hodud al-'ālam*, 1983: 28, 35, 38, 60, 97).

The second point is the language game and the freedom of words, that is to say an endless game with words and sentences, and their shaping. This is how language establishes its intelligence through metaphors, allegories, symbols and other rhetorical techniques, also using what can be called “common sense” (Homā’i, 2010; Šamisā, 2007). The language game in the Wittgensteinian sense is a perpetual channel of exchange between man and language. In the sentence *Emruz če āftābi xub va garm bar zamin mitābad*, each time we pronounce the word *āftāb* (sun), we make a simple judgment, but in a language game, the sensation that is felt can express affects that go beyond. Indeed, at the origin of the judgment, this *āftāb* does not have the same aspect of comfort and warmth for everyone, not only because the human being lives in different parts of the world (from the equator to the pole), but also because the words reflect different human experiences. To grasp this judgment, we must understand the origin of the words *xub* and *garm*, and if they are on the same level then, beyond that, ask ourselves how the *āftāb* may not be hot and not radiate on earth. Our knowledge of the language may not go beyond scientific data, but it can experiment with folk data. We can say that semiology is the other side of this language game, going in the direction of the *Lebenswelt* of the language, with the difference that in the Persian *Lebenswelt*, it is not only “the poetic soul” which elaborates the intelligence of the language but the very elements of the language and its culture which give it the possibility of building an intelligibility inherent to its structure.

Finally, in support of better intelligibility, we can recommend the use of simple verbs in place of compound verbs, as well as a certain number of other principles such as for example the correct use of the postposition *rā* (Maškur, 1987: 223–226), the use of suffixes and prefixes to modulate the meaning, the distinction between the indefinite “ی” “and the “ی” marking the singular (Mo’in, 1984: 15–19, 20–22), and the agreement between the verb and the subject (Bāteni, 1992: 45–62). The conciseness induced by the use of simple verbs consolidates the force of the expression (Nātel Xānlari, 1990: Vol. II, 116). In the sentence *In kār dasti rā sāl-e piš sāxteh budam va ān rā be dust-am hadieh dādam*, example of the current Persian language, the compound verbs obstruct the breathing of the language when one could say and write *In kār dasti sāxte-ye sāl-e piš beh dust-am armaqānideh-am*. Without a doubt, for the Persian mind who considers the word *armaqān* as a name, it is inconceivable to transform it into a verb although the language definitely has the capacity to turn to simplicity (Ašuri, 1993: 33–34). This is not, however, exclusive of the use of the formation of new compound verbs to reflect the modern world in which the language lives (Kešāni, 1992: 83–84; Tabātabā’i, 2016).

In many instances, simple verbs could be substituted for compositions using the verb *kardan*, in order to free the language from its complexities. In the sentence *Saheb xāneh bā hokmi az dādgāh mosta’jer rā birun kard* we can easily replace *birun kardan* by *rāndan* to build the sentence (...) *mosta’jer rā rānd*.⁹ In this drive

⁹Nātel Xānlari (1990: 182–189), despite his sagacity and his extensive knowledge, ignores simple verbs, remaining thus in the scope of the traditional language.

towards a universal language supported by its richness, we can already try to simplify and diversify the hundreds, even thousands of existing compound verbs (Ahmadi Givi, 2001: Vol. 1, 885–1045, Vol. 2, 1119–1141, 1155–1156, 1180–1186), such as for example:

- *rāh sepordan* instead of *hamrāhi kardan*
- *bāz goftan* instead of *bāzgu kardan* or *tekrār kardan*
- *āqāzidan* instead of *āqāz kardan* or *šoru' kardan*
- *beyusidan* instead of *entezār kešidan*
- etc.

Verbs composed with *sāxtan* or *gaštan* can also be simplified (Bahār, 1970: Vol. I, 326, 329–330). On the other hand, certain verbs such as *sodan*, *āmadan* and *gereftan* can be used in composition to strengthen the language (Bahār, 1970: Vol. I, 328–329).

Of course, we could add other elements to these three points, but in any case, our aim is to promote a rational development of the language so that it can analyze the world and man. This is the condition for Persian to be recognized by the contemporary sciences, for the human sciences to think in Persian (“*fārsāni*”) and for philosophizing in Persian (“*fārsafeh*”).

We can not only think that Persian has the capacity, as scholars have told us, to use its historical data to extend its semantic and cultural wealth, but more than that, it can innovate by freeing itself from its chains. The derivation of a noun or adjective to make a verb is an example that is found in texts, for example in the poetry of Tarzi Afšār (1959).¹⁰ Neology can also be supported, in order to model new words and regenerate the lexicon. But all this is only possible if Persian can correctly assimilate these novelties. In other words, the life of words at the heart of the culture of the intelligent language is different from a simple artificial neology. It is here that the *Farhangestān-e zabān va adab-e fārsi* appears as capable of educating society in language learning. However, before taking care of grammar, this institution pays more attention to calligraphy, spelling and terminology (Ahmadi Givi, 2007; Farhangestān, 2009).

As a result, it appears that the language needs to be proofread to be, so to speak, “translated” into itself. In other words, before trying to translate other languages, the language must first be in a state of rational consciousness and use its own tools to cultivate itself. In this respect, the evolution of translations into Persian is a field full of traps, such as that which would consist in translating Kant or Heidegger into the language of Ibn Sinā or Mollā Sadrā Širazi. The intelligence of Persian is characterized by openness, which allows us to think and find freedom of expression, in a game of reciprocity which leads us to express what we want while enriching the language from an “archaeological” approach.

¹⁰The creation by this author of the verbs *xubidan*, *šaidan*, *čaqidan*, *xarabidan*, *šamširidan*, *negahidan*, etc. marks a key moment in the history of the Persian language which is no more apparent but stays forever in its history.

5 Conclusion

During its long history, and especially in modern times, the Persian language has experienced recurring problems, including grammatical disorder (Karimi Dustān, 2007: 189–202). Persian is a language that has developed intelligence and rational strength as we see in some rigorous endeavors such as Heydari-Malayeri's major project (2020). The language of the cultivated men of the twentieth and twenty-first centuries has not yet found its place among the speakers of Persian. On the other hand, there are many men of letters in contemporary history who, rather than considering the language from a literary, historical or philosophical point of view, are stuck in petty quarrels (Qazvini, 1984: 312–348).¹¹

The question of the intelligent and conscious language brings back to its essence, to its own internal structure, and to its historical resources. Today, as English, French, German and, to a lesser extent, Italian, have become the reference languages in the Academy, the duty of Persian, like that of other “peripheral” languages, is to carry out a task of translation based on neology. But as we have seen, the renewal effort towards an intelligent language must go beyond simple translation and think itself in itself in order to find a universal position (Nātel Xānlari, 1968: 160–174).

Undoubtedly, an educated language should not be cut off from the popular language and the *Lebenswelt*, including in its historical aspect, but this cannot be the only reference and it is necessary that the *Farhangestān-e zabān va adab- e fārsi* endeavors to spread a cultivated language through education and helps to get out of a troubled situation (Bāteni, 1994: 42, 46–64) by developing grammar and lexicon. The crystallization of a culture of the language and the daring confrontation with the world and modern sciences will be the soil for the constitution of a new language.

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¹¹Dustdār (2018) also encounters the same difficulty a century later.

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Amendments to Linguistic Interdependence Hypothesis: Moderating Role of Affective Variables in L1 (Persian)-L2 (English) Academic Reading Relationship



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Abstract Cross-language transfer (CLT) studies have shifted their narrow focus from merely linguistic to a much broader perspective which sets the premium on the contribution of the non-linguistic factors of the first language to the development of the second language, particularly in the reading skill. Despite such advancement in theory, a fairly large number of reading studies in this line of inquiry tend to be heavily relied on cognitive and linguistic transfer from L1 to L2 and do not further extend, in consequence, the scope of CLT to integrate affective considerations into their framework. Employing a critical content analysis of the available literature, the chapter primarily addresses the particularities of developing L1-L2 literacy in the context of Iran and then moves on to elaborate the dual nature of language proficiency alongside the relationship of languages in one mind with a reference to some seminal work such as Cummins' (Rev Edu Res 49:222–251, 1979) basic interpersonal communicative skills (BICS), cognitive academic language proficiency (CALP), and linguistic interdependence hypothesis (LIH) and Cook's (Lang Learn 42:557, 1992) notion of multi-competence. On the bases of the critical review of the literature on L1-L2 reading, we lean, in consequence, towards a novel proposal that not only reaffirms the long-established interdependence of reading across languages, but also elevates the construct of interdependence to one which integrates affective variables that moderate the relationship between L1 and L2 reading. The chapter concludes by offering a more rigorous framework for future direction of CLT studies which includes linguistic, cognitive and, of course affective variables into consideration and finally a number of practical suggestions for L1 reading teachers.

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1 Introduction

In language learning endeavours it is important for language teachers and learners to be aware of the nature of interaction of languages in mind. Language awareness helps to facilitate the noticing or consciousness raising process (Kumaradivelu, 2003). Transfer is a controversial issue in applied linguistics (Ellis, 1994) due to the complexity of the interaction of languages in mind. Transfer refers to “using what is already known about language to assist comprehension or production” (O’Malley & Chamot, 1995, p. 199). CLT was investigated from different perspectives; first it began by focusing on linguistic aspects and then it moved to non-linguistic aspects. The concept of transfer in second language acquisition research was first introduced in Contrastive Analysis Hypothesis according to which certain elements in L1 hinder or facilitate the acquisition of L2. However, from this perspective L1 transfer was regarded to hinder the process of L2 learning. Later, transfer was recognized a psycholinguistic asset that would accelerate language learning in certain ways. CLT known as an important psycholinguistic phenomenon in language education is now regarded to assists students in capitalizing on their cognitive abilities in their mind with two or more languages. This study is an attempt to have a critical perspective to CLT studies and the related theories, especially with a focus on academic reading comprehension where the two languages involved are Persian (as L1 or the first language) and English (as L2 or the second language) with different orthographical differences (Gholamain & Geva, 1999).

2 Unravelling the Context: Persian-English Reading

The 6-3-3 educational system has been officially established by Iranian Ministry of Education since 2010 whereby elementary, lower secondary, and upper secondary education span 6, 3, and 3 scholastic years, respectively (Foroozandeh & Forouzani, 2015). Developing L1-L2 reading in this system follows a consecutive order in that L1, the official language of government or education (Pishghadam & Saboori, 2014; Moradi, 2020), is exclusively taught and learned for several years (i.e. the first six years of elementary education) prior to delivering formal L2 instruction in grade 7th (Sadeghi & Ghaderi, 2018). From grade 7th where instruction in L2 reading begins to grade 12th where it ends, L1 reading instruction is concurrently maintained as well (Kheirabadi & Alavimoghaddam, 2016).

Owing to the fact that the mainstream education in Iran has been literally formed to prioritize ‘learning literacy-related skills and strategies in L1’, one would rightly surmise that Iranian school-age students are not totally unfamiliar, after completing elementary education, with literacy goals, processes, skills, and strategies when proceeding to acquire literacy in their L2. It is not therefore unwise to expect them to draw on their L1 literacy-related experiences in the process of L2 literacy learning (Talebi, 2015). This makes sense when one considers the potentials of CLT in relation to literacy in general and reading in particular (See Hornberger, 2003; Cenoz, 2009) and provides the rationale for teaching for transfer.

3 Behaviourist Perspective on Transfer

Transfer was interpreted differently in SLA studies. In the 1950s and 1960s, under the influence of behaviourism, and based on claims made by Contrastive Analysis (CA) hypothesis, positive transfer would occur where two languages are similar, and negative transfer (or interference) would occur where two languages are different. Drawing upon structural linguistics, CA placed a strong emphasis on differences between languages (Lado, 1957). However, CA was criticized as it was found that differences between languages can have a facilitative effect on L2 learning (Odlin, 1989) and that many errors, known as developmental errors, occurred because of hypothesis testing that the learners went through, and not interference from L1 (Dulay & Burt, 1973). Most importantly, CA studies focused primarily on the linguistic systems and the linguistic product itself, rather than on the psycholinguistic processes that the learners go through (Selinker, 1972).

4 Cognitivist Perspective on Transfer

There was a paradigm shift in transfer studies in such a way that attention was moved from the behaviourist to the cognitive perspective of language transfer. Under the influence of Chomskyan framework and cognitive psychology, researchers re-investigated the role of L1 in L2 learning. According to creative construction hypothesis learners continuously formulate hypotheses about the L2 system and match them against input available to them. Therefore, errors were regarded as a learner strategy and unavoidable, and their occurrence was not failure in L2 learning (Corder, 1967). However, this view was also criticized as it considered a very small role for transfer from L1 to L2 (Sharwood Smith & Kellerman, 1986). According to Danesi (1995) transfer and creative construction are both influential factors in the process of learning a second language.

One of the cognitive theories that support the positive roles of L1 in L2 development, was proposed by Cummins (1981) as the *common underlying proficiency* (CUP) or *Linguistic interdependence hypothesis* (LIH) claiming an

underlying cognitive/academic proficiency common across languages. According to Cummins there are two types of language proficiency. According to the first type of language proficiency known as *basic interpersonal communication skills* (BICS), which is formed in context-embedded situations (e.g., actions with eyes and hands, instant feedback, cues and clues), verbal and/or non-verbal contextual supports are considered to secure understanding. According to the second type of language proficiency known as Cognitive/academic language proficiency (CALP), academic language is described as de-contextualised occurring in academic situations. Cummins believes CALP skills such as phonological awareness, reading strategies, and vocabulary, if develop in L1 would transfer to L2 and support acquisition of literacy skills in L2. In fact, LIH is based on an assumption that academic or cognitive dimensions of L1-L2 proficiency known as CALP (Cummins, 1981, 2000), are not independent of one another but inextricably linked through CUP which, in turn, allows CLT of strategies, skills, and concepts (Cummins, 2016), especially in relation to academic reading. CUP refers to the interdependence of concepts, skills and linguistic knowledge across languages that are found in a central processing system, through which cognitive and literacy skills established in L1 will transfer across languages. Further, LIH further maintains that students' level of L2 competence is partly dependent on their level of L1 competence at the outset of exposure to L2 (Cummins, 1979). In fact, those with high level of L1 competence can progress more rapidly in their L2 than those with low L1 competence when beginning to receive L2 exposure (Cummins, 2000).

Therefore, as a result of a paradigm shift from behaviorist to cognitivist psychology as well as a growing recognition that contrastive analysis is limited in both theory and scope, CLT research went beyond the boundary of contrastive analysis and hence looked into CLT of non-structural properties of language learning, particularly in relation to literacy-related skills and strategies. In other words, studies in this line of inquiry have swung from a concern over merely linguistic dimension of language to nonlinguistic aspects of language learning (Talebi, 2014). According to Cummins' (1979) linguistic interdependence hypothesis (LIH) L1 not only distances itself from its traditional role, but it also takes a complementary role.

LIH is still supported by ample research evidence, especially in studies related to L1 and L2 academic reading. Dressler and Kamil's (2006) review similarly concludes: "In summary, all these studies provide evidence for the cross-language transfer of reading comprehension ability in bilinguals"(p. 222). However, LIH does not readily accept CLT of reading from L1 to L2 without considering the vital role of L2 proficiency in L2 reading outcome; rather, it assumes that effective and efficient CLT of reading across languages is a function of L1 reading ability together with L2 proficiency, which is commonly defined as "an index of L2 grammar and vocabulary knowledge" (Pae, 2018, p. 2). This contention is embodied in threshold hypothesis (Cummins 1979; Alderson, 1984) and the short-circuit hypothesis (Clarke, 1980). For L2 readers in order to employ their L1 reading skills in L2 reading tasks a certain amount of control over L2 vocabulary and grammar is necessary, and a critical linguistic threshold must be crossed. Clark (1980) calls this "certain

amount” as a “language ceiling”, and Cummins (1979) calls it a “threshold level of linguistic competence“, below which reading strategies in L1 are unlikely to be transferred to L2 reading and are therefore, short-circuited. According to the hypotheses, task- and level-appropriate threshold of L2 proficiency is required to allow access to CLT of reading ability from L1 to L2; otherwise, low L2 knowledge is highly likely to short-circuit CLT of L1 reading ability in consequence.

It should be noted that studies (e.g. Carrell, 1991; Lee & Schallert, 1997; Bernhardt & Kamil, 1995; Alderson, 1984; Rahimi et al., 2009) which put LIH and threshold hypothesis to test are focused too frequently on the relative contribution of L1 reading ability and L2 knowledge to L2 reading and conclude, in turn, a greater contribution of L2 knowledge to L2 reading, suggesting a moderate CLT of reading from L1 to L2. Bernhardt and Kamil (1995) found that 10% to 16% of the variances in L2 reading are attributable to L1 reading, whereas 30% to 38% of L2 reading performance was attributable to L2 proficiency.

However, strategic knowledge in L1 reading compensate for low L2 proficiency (Bernhardt, 2005). Collecting data from 561 Thai university EFL students, Phakiti (2008) gave two different tests for L2 reading and an L1 strategy questionnaire and using structural equation modeling, he found that cognitive and metacognitive L1 strategies explained between 11 and 30 percent of L2 reading performance.

5 Multi-competence

In language studies, L1 and interlanguage are very common terms (Selinker, 1972). Interlanguage is the type of linguistic system of second- and foreign-language learners when learning a target language. It is an approximation to an L1 system in native speakers. Cook (2003, p.1) employs the term ‘multicompetence’ to mean the knowledge of two or more languages in one mind. Rather than viewing L1 and interlanguage as separate components in mind, multicompetence treats the mind of the L2 learner as a whole. Multi-competence is defined as either “The compound state of a mind with two grammars“(Cook, 1991, p. 112) or “individual’s knowledge of a native language and a second language, that is L1 linguistic competence plus L2 interlanguage“(Cook, 1995, p. 93). Multi-competence proposes three models of L1-L2 relationship in one mind (Cook, 2003). The separation model states that language users’ languages are independently stored in one mind and no transfer from L1 to L2 or L2 to L1 is therefore possible. On the contrary, the integration model brings language users’ languages so much closer to one another that L1 and L2 get integrated into a single system. Apart from these two extreme views, a more moderate version of relationship is manifested in interconnection model whereby the knowledge of L1 and L2 is deemed partially overlapped in one mind. This moderate version of L1-L2 relationship is advocated in CLT research such that L1 and L2 reading are seen as partially connected in one mind. According to Cook (2004) learning another language *does* seem to affect the learners’ think to some extent. According to multicompetence model, not only L1 impacts L2, L2 also impacts

L1 in many layers of language. This model is more comprehensive than the interlanguage model where the direction of transfer is just from L1 to L2. It is also more specific than LIH about the effects that languages have on each other. The available studies mentioned above testing LIH had a view that L1 concepts and skill contribute to L2 improvement. However, Cook (2003) has a wider perspective in this relationship and regards this relationship as a bi-, and not mono-sided road. From this perspective L1 academic reading can be affected by L2 academic reading habits, a clear advantage that bilinguals have over monolinguals in L1 language skills.

In order to investigate whether L1 and L2 reading were guided by two processing systems or merely one processing system, Talebi (2007) conducted an experimental study on process and product of reading in L1 and L2 among Iranian students at advanced and intermediate levels of L2 proficiency. Building on multi-competence, he concluded that as far as reading process was concerned, L1 and L2 reading shared one processing system, suggesting the explanatory power of the interconnection model; however, when it came to reading product across languages, only L1 reading score was seen to improve as a result of strategy-based reading instruction in L1, suggesting the inadequacy of interconnection model in relation to reading product. Quite on the contrary, Talebi (2012) investigated the reverse transfer of reading strategies from L2 to L1 from multi-competence perspective. In so doing, he delivered strategy-based reading instruction in L2 and assessed its effect on reading process and product in L2 and L1. He found that the experimental group fared better than the control group on both L1-L2 reading process and product. He concluded that the direction of CLT of reading would be also possible from L2 to L1 both in the process and the product of reading. In other words, from his findings it can be gathered that, even if we regard ifs and buts in transfer of concepts, skills and strategies from L1 to L2 and set conditions where L1 can affect L2, as was regarded by LIH, these conditions are non-existent in L2 to L1 transfer in CLT studies. Therefore, Talebi's findings are more in keeping with Cook's multicompetence view than Cummins' LIH perspective which holds that "to the extent that instruction in L_x is effective in promoting proficiency in L_x, transfer of this proficiency to L_y will occur provided there is adequate exposure to L_y (either in school or environment) and adequate motivation to learn L_y." (Cummins, 1981, p. 29).

However, despite providing evidence for CLT of reading, these studies may not lend complete support to interdependence or interconnection because they focus mainly on cognitive factors, thereby paying little, if any attention to other factors. As an instance, one might doubt whether the observed results are a function of interconnection at a cognitive level or there might be other factors (e.g. affective factors) contributing to such interdependency. The value and legitimacy of the constructs should not hence be absolutely seen within cognitive boundaries but should be constantly assessed and established against new proposals.

6 Affective Aspects of Reading Across Languages

Linguistic transfer was mainly in the areas of phonological transfer, orthographic transfer, lexical transfer, semantic transfer, morphological transfer, syntactic transfer, discursive transfer, pragmatic transfer, and socio-linguistic transfer Jarvis and Pavlenkos (2008). However, transfer studies began to move from the linguistic domain to the non-linguistic domain. According to Cummins (2016) the interdependence construct is “psycholinguistic in nature” (p. 943) and languages are intertwined “at a cognitive level” (Cummins, 2017, p. 106) through CUP. Such psycholinguistic constructs which connect languages only cognitively have been criticized for not incorporating affective considerations into their conceptualization. Thus, studies (e.g., Urquhart & Weir, 2014; Yamashita, 2004) that traditionally employed reading process and product as common measures concerning the cognitive domain of reading were replaced by studies which, in turn, tapped more specifically into measures (e.g. reading attitude questionnaire, reading motivation questionnaire) relevant to affective domain of reading.

It should be noted that the psycholinguistic constructs in question do not totally disregard affective variables when it comes to the specified relationships. In fact, Cummins (1980) argued forcibly for not separating affective domain in cross-language relationships as he opined, “these relationships do not exist in an affective or experiential vacuum” (p. 179). Nevertheless, the lacuna is the narrow treatment of affective factors such that only motivation was ostensibly identified as the sole affective moderator which decides the degree to which CLT from L_x to L_y occurs. According to Cummins’ LIH “to the extent that instruction in L_x is effective in promoting proficiency in L_x, transfer of this proficiency to L_y will occur provided there is adequate exposure to L_y (either in school or environment) and adequate motivation to learn L_y.” (Cummins, 1981, p. 29). To fill this lacuna, researchers turned to other affective factors (e.g. reading attitude, reading anxiety, etc.) while including reading motivation.

7 Reading Attitude in L1 and L2

Transfer of attitudes is a recent research exploration. One contributing factor to develop attitude toward reading in L2 is attitude toward reading in L1 (Day & Bamford, 1998). Reading attitude generally refers to a set of feelings pertaining to reading which makes readers like or hate a reading situation (Alexander & Filler, 1976). Several studies have shown the relationship between L1 and L2 reading attitudes (e.g., Akbari et al., 2017; Yamashita, 2007). In fact, L1 reading attitude seems to be partly contributing to formulation of its L2 counterpart (See Day & Bamford, 1998). In bilingual reading research, Yamashita (2004) investigated the relationship between attitudes in L1 and L2 reading, and learners’ performance in extensive reading in L2. She considered four reading attitude variables both in L1 and L2,

including comfort, anxiety, value, and self-perception and found that the affective domain of reading (attitudes) transferred from L1 to L2 and that L2 proficiency did not affect this transfer, as it did in the cognitive domain. Yamashita (2007) examined the transfer of reading attitudes across languages through the perspective of linguistic threshold hypothesis. Using a variety of measures, she found that students' reading attitude in L1 is different from that of L2. Despite finding differences between L1 and L2 reading attitudes, she further pointed to the significant contribution of L1 reading attitude to L2 reading attitude which implies transfer in the affective domain of reading across languages. In another study, Keshavarz and Mirzaei Jegarlooei (2011) verified that the cross-language transfer holds true for transfer of reading attitude from L1 to L2. Using think-aloud protocol, interviews, and questionnaire, Kamhi-Stein (2003) explored whether attitudes toward home language or reading belief impact on reading behavior in L2. She concluded that L1 attitude and reading belief have an impact on L1-L2 reading processes. Italian college students' reading attitude has been examined by Camiciottoli (2001) and the results showed that L1 reading amount was a significant predictor of reading attitude in L2, suggesting the interdependence between L1 and L2. More recently, Akbari, Ghonsooly, Ghazanfari and Shahriari (2017) primarily examined the link between L1-L2 reading attitudes and further assessed the contribution of L2 reading attitude to L2 reading outcome among a total of 230 intermediate Iranian language learners. The results of their study suggested a high correlation ($r = .71$) between L1 and L2 reading attitude; 51% of the variance in L2 reading attitude was significantly explained by L1 reading attitude; and L2 reading attitude significantly contributed to L2 reading achievement.

8 Reading Motivation in L1 and L2

Motivation to read research in the first language is not new. However, the study of L2 reading motivation is more recent (Akbari et al., 2019). Research in L2 reading motivation has been motivated mainly by research in L1 reading motivation. According to Wigfield et al. (2015) as adult second language learners already know a first language, their knowledge of L1 may affect their motivation to read in L2. However, there is a dearth of research on the relationship between motivation to read in L1 and L2. Kim (2010) launched a study on the connection between reading motivation in L1 and that of L2 among a number of Korean EFL students. She found a small amount of variance (16.7%) in L2 reading motivation was explained by its L1 counterpart, suggesting insignificant contribution of L1 reading motivation to its L2 parallel. However, any account of CLT of reading motivation should be taken as tentative rather than definitive, particularly in relation to Iran's educational context wherein almost no empirical studies have been conducted to date to document the role of CLT of reading motivation from either L1 to L2 or L2 to L1.

9 Reading Anxiety in L1 and L2

Although reading motivation and reading attitude have been empirically studied in CLT research, reading anxiety is still an unexplored territory in this line of inquiry. This is partly due to the fact that compared to L2 reading anxiety, little is known about L1 reading anxiety (Piccolo et al., 2017), particularly in relation to Persian learners of English as a foreign language (Baghaei et al., 2014). However, one would suspect the source(s) from which L2 reading anxiety emerges given Iranian students' experiencing L2 reading anxiety (Mirhassani & Hosseini, 2006; Razavi, 2008; Rahemi, 2009; Jafarigohar & Behrooznia, 2012) that leads, in turn, to either low reading performance (Maleki & Zangani, 2007) or low reading motivation in L2 (Atef-Vahid & Kashani 2011). One possible account for this might be the CLT of L1 reading anxiety whereby L2 reading anxiety is likely to be explained, to a lesser or greater extent, by its parallel in L1.

Examination of English as a Foreign Language Reading Anxiety Inventory (Zoghi, 2012;) may provide tentative support for the contribution of L1 reading anxiety to its L2 parallel. For instance, investigating the items pertaining to top-down L2 reading anxiety in this inventory (e.g. I worry when I cannot get the gist of the text although no new vocabulary items or grammatical points exist in the text.) reflects how similar the case might be made for even L1 readers when struggling to read in their L1. Thus, we might tentatively agree with CLT of the attribute in question, possibly from L1 to L2.

10 Discussions and Conclusions

CLT research experienced a paradigm shift when it moved from a CA perspective to a cognitive perspective in studying the relationship between L1 and L2. Many theories were proposed each of which were criticized for some shortcoming. CA which was under the influence of behaviorist psychology was rejected as it regarded errors as a sign of failure in language learning and the result of the negative effects of L1 on L2. With the advent of cognitive psychology, there was an improvement in our conception of errors and researchers began to view them as a developmental stage in language learning. However, as the best policy is to take a middle course, it was wise to think that language transfer is both the result of L1 influence, no matter if it is negative or positive, and a creative construction process that happens as the L2 learner makes hypotheses and tests the them to get closer and closer to L2 linguistic norms. In the cognitive framework, Cummins's LIH and threshold hypothesis have helped us to largely recognize the need for transfer of L1 to L2 in academic context. However, there was a dire need to include non-linguistic aspects of CLT, including affect as a mediating variable in defining the relationship between L1 and L2 and the transfer of concepts, skills and strategies from L1 to L2 in academic settings. It seems CLT research has begun a new paradigm shift which considers the role of

affective factors, along with linguistic and cognitive factors in studying the effects of languages on each other. In an attempt to investigate if Iranian students are aware of the nature of cross-linguistic interactions of two or more languages in their minds, Talebi (2014) conducted a semi-structured interview with four Iranian university students and found that students' awareness of cross-linguistic transfer did not move much beyond linguistic aspects to cover the cognitive and affective aspects, as students had no or very limited awareness of the non-linguistic aspects of cross-linguistic transfer. He also found that the participants did not know about the factors causing CLT, or the way to improve it. He concludes that it is important for teachers to raise learners' awareness of cross-linguistic transfer and help them to have a comprehensive view of cross-linguistic transfer in language learning.

Therefore, we need to start to have a comprehensive model in investigating the relationship between L1 and L2, especially in reading for academic purposes in the Iranian context; due to the fact that reading instruction in Iran is initially delivered in L1 courses for several years before instruction into L2 and L2 reading begins, L1 teachers should therefore take this opportunity to help school-age students to develop their reading skills and strategies in L1 with the aim of enabling L2 teachers to focus more predominantly on L2 knowledge development rather than putting a lot of their energy and time on teaching the basics of reading in L2 which are proposed by LIH to be common across languages, and supported by multicompetence model to transferable from L1 to L2. L1 Teachers should help learners to go beyond the narrow linguistic and cognitive scopes of CLT and understand that the affective domain of cross-linguistic transfer is also very critical in success in academic reading.

In an investigation about strategic reading behavior of Iranian EFL students to find out where reading strategies should be taught first (i.e., in L1, L2 or L3) Talebi (2015) gives a brief report of his own three published papers about reading strategy transfer from L1 to L2, L2 to L3 and L2 to L1. He proposes that as in CLT studies the idea is that languages affect each other, it seems most reasonable and cost effective to boost students' strategic reading competence in L1. This will make reading in L1 a successful experience and as a result reading skills and strategies gained in L1 will most possibly transfer to L2 as the affective factors that most likely occur in L1, such as improvements in L1 reading attitude and motivation to read in L1 as well as a decreased level of L1 reading anxiety are expected to transfer to L2 and pave the way for a successful and effective linguistic and cognitive transfer from L1 reading to L2 reading.

Unfortunately, as L1 reading classes are not producing strategic readers in the current Iranian academic context, especially at undergraduate levels, and fortunately English reading courses are doing this job, we are somehow lucky to see that our students are becoming strategic readers not only in L2, where they receive reading strategy instruction, but also in L1 where no such instruction is introduced. This is due to the reverse transfer that was claimed to happen according to Cook's (2003) multicompetence model. In an investigation into the reverse transfer of reading strategies from L2 to L1 from multi-competence perspective, Talebi (2012) delivered strategy-based reading instruction in L2 and assessed its effect on reading

process (awareness and use of reading strategies) and reading comprehension ability as reading product in L2 and L1. He found that the experimental group fared better than the control group on both L2-L1 reading process and product.

Since it is now evident to us that LIH operates at affective domain of reading across languages besides cognitive one, reading instruction in L1 has the double advantage of addressing reading problems (i.e. reading skills and strategies) and, more importantly, overcoming affective barriers to reading (i.e. reading demotivation and anxiety & negative reading attitude). Regarding the latter, L1 teachers should be made aware of the cross-language repercussions of negative affective factors for L2 reading and look for varying ways of helping students become particularly interested in reading, identify the sources of their reading anxiety, and develop a positive attitude towards reading. In other words, L1 teachers who do not pay attention to L1 affective factors pertaining to reading or otherwise underestimate the importance attached to L1's affective factors not only would negatively impact students' L1 reading outcome, but they would also contribute to negative CLT of affective factors from L1 to L2 reading.

It is suggested that L1 reading materials be developed in such a way that teachers teach explicitly for transfer. This is beneficial for L1 teachers and learners. It is also of benefit for L2 learner and teachers as learners transfer concepts, skills and strategies from L1 to L2, and teachers need not teach these concepts, skills and strategies as a result of CLT. However, as positive and negative transfer can occur at linguistic and non-linguistic levels, L1 reading teachers should aim at setting conditions under which learners are likely to transfer their learning from L1 to L2. Our proposition is to teach L1 in such a way that not only we boost L1 knowledge among our students, but we can remove the burden from the shoulders of foreign language teachers in re-teaching concept, skills and strategies that are common across languages. Interconnections between L1 and L2 reading in both cognitive and affective dimensions of reading should also be well-research. That is, affective considerations linked to L1-L2 reading such as reading motivation, reading anxiety, and reading attitude should be incorporated in LIH to further enrich the construct and offer, in turn, an explanation as to why L2 reading is not the sum of L1 reading ability plus L2 knowledge.

Bernhardt's (1991) compensatory model of L2 reading comprehension is closely aligned with current description in that reading comprehension is literally conceptualized in relation to L2 knowledge, L1 competence, and motivational or generally affective factor(s). Attention to a myriad of factors incorporated in this model will help us to meet Cummins' (2016) 'usefulness' criteria for judging the constructs he proposed to the field because researchers and practitioners may wish to understand "the extent to which the framework can be used effectively by its intended audience to implement the educational policies and practices it implies or prescribes" (p. 941). With respect to the lack of in-depth discussions linked to the affective side of the assumed relationships, researchers and practitioners in general and those of working within EFL contexts (e.g. Iran) in particular, are invited to reassess the constructs on the basis of usefulness criteria to see how foreign language users with

differential levels of reading anxiety and motivation as well as different reading attitudes in their L1 are able to transfer their L1 reading ability to L2 reading.

As Talebi (2014) states:

To promote transfer, material developers should set clear course goals and objectives, orient language teachers and learners to the course objectives, use activities that engage both linguistic and non-linguistic elements of different languages in different contexts, provide opportunities for reflection on tasks, evaluate learners' awareness of linguistic and non-linguistic elements, help learners develop checklists showing records of language transfer effects, provide feedback to language learners about the influence of language transfer on their language production or comprehension, and motivate learners to apply their previous learning strategies to new learning situations.

Taken the studies into considerations, it is hence logical to conclude that L1 and L2 link to each other at an affective level, despite the general differences between L1 and L2. Extending it to Iran where school-age students have to initially read in their L1, one may tentatively come to see the problems of L2 reading as a result of or at least in relation to L1 affective factors. Thus, CLT of affective variables should be counted as an important contributor to L2 alongside CLT of cognitive dimensions of reading. As LIH and its overemphasis on affective factors in CLT do not present a comprehensive picture of the effect of reading ability in L1 on L2 reading ability, a more comprehensive model is therefore needed to take many variables ranging from linguistic to contextual factors into accounts when dealing with Academic reading in Persian.

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Writer-Reader Interaction in Written Discourse: A Comparative Corpus-Based Investigation of Metadiscourse Features in English and Persian Academic Genre



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Abstract Metadiscourse features are the elements which constitute the writer-reader and/or speaker-audience interaction in communication. For this reason, this study set out to unearth the distributional pattern of metadiscourse features as well as investigating writer-reader interaction in academic written genre in English and Persian languages. For this aim, 82 texts of English and 91 texts of Persian languages were gathered to create a do it yourself (DIY), balanced and representative corpus of 1,223,750 tokens. For detecting and categorizing metadiscourse features, Hyland's model whose model is divided into interactive and interactional features was used. For extracting the metadiscourse features through concordance lines, Sketch engine corpus software was used. As the statistics and concordance lines of the corpus showed, the English corpus contained more interactive and interactional metadiscourse features than that of the Persian corpus. In addition, in both corpora, there was a propensity towards interactive metadiscourse features. Added to this, due to the numerical differences and heterogeneous distributional pattern of metadiscourse features, it was found out that the way interaction between writer and reader was constructed differed in English and Persian languages. The results of this paper are hoped to have useful and practical implications for researchers in such fields as, writing analysis, genre analysis, corpus linguistics, and contrastive analysis.

Keywords English and Persian languages · Academic writing · Metadiscourse features · Corpus-based study · Contrastive analysis

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1 Introduction

When interacting, in either written or spoken mode, authors resort to textual features through which they construct, maintain, and guide their intended interaction with their prospective audience. With regard to this interaction between writer and reader or speaker and audience, it is claimed that (Hyland, 2019) texts are constructed at two various levels of meaning; namely as propositional or content level and interactional level. To add support to this claim, Herriman (2014) puts forward the idea that

Texts may be seen as consisting of different levels of meaning, a propositional content level, which refers to actions, events, states of affairs or objects in the world portrayed by the text, and a writer-reader level, where The writers interact with their readers, explicitly guiding them through its structure and organization, commenting on the writing process itself or expressing their opinions and beliefs concerning its content (p. 1).

Considering this two-dimensional aspect of writing, the level on which the communication is created, maintained, and guided is called interaction which is yielded by metadiscourse features (Hyland, 2014). The terminology of metadiscourse was first coined by Zelig Harris in the 1950s (Hyland). It received, after a short-period gap, further attention of the academia, commenced by Williams (1981) and resumed by other researchers such as Vande Kopple (1985) and Crismore (1989) to refer to “a self-reflective linguistic expression referring to the evolving text, to the writer, and to the imagined readers of that text” (Hyland, 2004, p. 133). In the same vein, Vande Kopple (2012) defined metadiscourse features as “elements of texts that convey meanings other than those that are primarily referential” (p.37). In another definition, Schiffrin (1987), described metadiscourse features as “sequentially dependent elements which bracket units of talk” (p.31) for establishing the relationship between writer and reader.

As Hyland (2017) defines metadiscourse as “the ways in which writers and speakers interact through their use of language with readers and listeners” (p.16), he assigns three internal roles to metadiscourse features; distinguishing it from other aspects of text elements. These three unique roles are: first, metadiscourse features should be separated and distinguished from propositional aspects of text analysis. Second, metadiscourse features consider, solely, those aspects of texts which establish the writer-reader interaction, and third, metadiscourse features refer to those internal aspects, not external ones, of the discourse.

As far as metadiscourse features in academic genre in English and Persian languages are concerned, there are reportedly some related and semi-related studies (see for example Crismore & Abdollahzadeh, 2010; Abdi, 2011; Ädel, 2018; Akbas & Hardman, 2018; Alkhatlan, 2019; Bal Gezegin & Bas, 2020; Çapar & Turan, 2020; Dahl, 2004; Gezegin-Bal, 2015; Harwood, 2005; Hyland, 2001, 2004; Jalilifar et al., 2018; Kawase, 2015; Kuhi & Behnam, 2011; Samraj, 2008; Yağız & Demir, 2015).

Likewise, an array of previous studies demonstrated that usually, Iranian writers employ fewer metadiscourse features as compared to those of the native authors of English. As an example, in one related study, Marandi (2002) ran a comparative study on the distribution of metadiscourse features in the introduction and discussion

sections of 30 master thesis between Iranian and English students. For doing so, she analyzed three types of texts written by British English writers, Persian texts written by Iranian writers, and English texts written by Iranian writers. By analyzing the first 1000 words in each section, Mardani realized that in the introduction section were more interpersonal metadiscourse features, whereas in the discussion section, texts were more replete with interpersonal metadiscourse features. More, she found out that native speakers of Persian language used logical connectors as the most used type of metadiscourse features; while, English native speakers used them as the least used type of metadiscourse features.

In the same line, Vasheghani Farahani (2017) embarked on a comparative study of metadiscourse features usage and distribution in Applied Linguistics research journals written by English and Persian native speakers. Being a corpus-based study, he found that usually English native speakers used more metadiscourse features as compared to those of the Persian writers. Besides, Vasheghani Farahani found that both English and Persian native speakers exploited more interactive metadiscourse features than the interactional ones.

In another research, Dehghan and Chalak (2016) researched the distributional behavior of code glosses in academic writing among Iranian writers and English native authors. Compiling a corpus out of 30 journals in Persian and English languages, they found that there was statistically no significant difference between the distributional behavior of code glosses in English and Persian languages.

In the same vein, Ghazanfari and Barani (2018) launched comparative research on the way metadiscourse features were used by native and non-native university students. For this objective, they collected 40 papers written by native males, nonnative males, native females, and nonnative female writers based on Hyland's and Tse's metadiscourse features typology (2004). Their study showed that there were subtle differences between the way metadiscourse features used and distributed by different groups.

Contrary to the commonplace and rudimentary method (s) of quantifying language features manually, which is time-consuming and subject to human error (Heng & Tan, 2010), one plausible and reliable method of extracting specific language features within the immediate context of usage is through corpus which is defined as "an electronically stored, searchable collection of texts" (Jones & Waller, 2015, p.6). Although corpora are finding their way(s) to language studies, a fleeting look at the previous research (see for example Akbas, 2012; Permuna Sukma & Sari Sujatna, 2014; Singh & Daniel, 2018) demonstrate that most (if not all) of them lacked the exploitation of corpora as the data were small and there was no systematically designed method of gathering language data (in terms of corpus analysis); impugning the issues of corpus representativeness and balance as well as the validity and reliability of the results. Besides, there seems, to the best knowledge of the researcher, to be a lack of authentic research in comparing English and Persian language pair in relation to metadiscourse features and academic written genre as the existing accounts failed to delve into such issue. Moreover, most of the studies done in this area of inquiry were circumscribed to the sheer frequency-based analysis of metadiscourse features which deprived the competent reader (s) of the qualitative and solid analysis and results.

Taking these gaps into consideration and in line with the research priorities, the impetus of this research was to unearth, by the virtue of corpora, the distributional pattern(s) of metadiscourse features in English and Persian language pair to identify the potential differences in academic written genre as well as investigating writer-reader interaction shaping in academic written genre in English and Persian languages. As a result, the questions of this comparative corpus-based research were 1: how were metadiscourse features used and distributed in academic written genre in English and Persian languages? and 2: Were there any differences between the way metadiscourse features were used and distributed in the academic written genre of English and Persian languages? and 3: How did the interaction between writer and reader shape and establish in academic written genre in English and Persian languages? Concerning these research questions, the null hypothesis was that there were no differences between the distributional pattern of metadiscourse features in academic written genre in English and Persian languages and that the writer-reader interaction in written academic genre in English and Persian languages shaped similarly and remained unchanged.

2 Method

2.1 *Data Gathering Regime and Corpus Compilation Scheme*

As this research was a contrastive corpus-based study, it was inevitable to compile a balanced and representative corpus (Anthony, 2009). Because commercially compiled corpora which may fit the research objectives were not available, efforts were made to compile a Do It Yourself (DIY) corpus defined as an ensemble of texts gathered, in an electronic format, by the user for a specific purpose (Zanettin, 2012) which could meet the requirements of the study. For this purpose, 6 different sub-corpora were selected in different fields of study; each with miscellaneous resources and text types (genre) to compile this bilingual comparable corpus defined as “texts in two or more languages, which have been gathered according to the same genre, field and sampling period criteria” (Delpech, 2014, p.7). This miscellaneous category of sources ensured the issues of corpus diversification, corpus balance, and corpus representativeness as prerequisites for corpus compilation (Baker, 2006; Dash, 2007). Table 1 represents the data gathering corpus regime in English and Persian languages. It is worthy to note that as metadiscourse features are used and found more in humanities (Akbas & Hatipoğlu, 2018; Sorahi & Shabani, 2016; Yazdani et al., 2014), it was decided to compile texts more from this area of study to ensure the issue of corpus representativeness. However, it should be mentioned that papers were not limited to humanities as they were selected from miscellaneous sub-branches of each field of study for ensuring the matter of corpus diversification, balance, and unbiased (Brezina, 2018).

Setting the corpus creation criteria, the texts were selected randomly from different open access journals in English and Persian languages through searching the web as a corpus creation resource (Brezina, 2018). The Persian texts’ authors were

all native speakers of Persian language. Contrary to Persian language, not all of the English papers were written by English native speakers as not all of the internationally reputed journals were open access; limiting the access of the researcher to search for the natively written papers. For corpus compilation, the English papers were selected from open access journals which were indexed in highly impact factor scientific databases like SCOPUS, Master Journal Lists, Journal Citation Reports Clarivate Analytics, and Scimago Journal & Country Rank. Likewise, the Persian papers were selected from journals that were open access and indexed in such highly scientific and reputed databases as ISC Master Journal List, DOAJ, SCOPUS and SID. The issue of authors' gender was not taken into consideration as this variable had nothing to do with this study in hand. As a result, papers from both male and female authors were selected for the corpus compilation. The papers were selected from 2015 onwards; creating a more synchronic corpus. The reason why more recent papers were selected for corpus compilation was the such variables as time-period and historical perspectives (diachronic vs. synchronic dichotomy) were beyond the scope of this paper.

Before the texts were uploaded into Sketch engine corpus software, which is the corpus software of this study, they underwent text cleaning policy (Sinclair, 1991; Szudarski, 2018). This cleaning text policy entailed the obliteration of unnecessary and superfluous parts of the texts like graphs, diagrams, photos, illustrations, footnotes, endnotes, acknowledgments, name of the journals as well as reference section and biography of the authors. In addition, in some of the Persian papers, abstracts were written in two languages of Persian and English. For this reason, the English language abstracts of the Persian journals were obliterated as they were not in line with the Persian language corpus creation criteria. Except for these, the researcher did not exert any alteration in the texts, nor did he add anything to them. Table 1 below summarizes data gathering resources scheme for creating two monolingual, comparable, DIY, synchronic, unannotated, balanced, specialized, and representative corpora of academic genre in English and Persian languages.

Table 1 Data gathering sources scheme for corpus compilation

English language		Persian language		
Field of study	Number of texts	Field of study	Number of texts	
Applied Sciences & Engineering	10	Applied Sciences & Engineering	12	
Humanities	24	Humanities	25	
Experimental / Basic Sciences	13	Experimental/ Basic Sciences	16	
Medical Sciences	10	Medical Sciences	12	
Arts	12	Arts	13	
Agricultural	13	Agricultural	13	
On aggregation	English Corpus	Persian Corpus		
	Number of texts	Number of tokens	Number of texts	Number of tokens
	82	611,914	91	611,836

Table 1 delineates quantitatively related information on the corpus compilation scheme. As can be seen, the English corpus was compiled out of 82 texts and 611,914 tokens. The Persian language corpus, on the other hand, consisted out of 91 texts and 611, 836 tokens.

2.2 *Metadiscourse Typology*

As this study was an effort to investigate metadiscourse features in English and Persian languages, it was plausible, therefore, to adopt a classification of metadiscourse features as part of the theoretical framework. A scan of the related literature demonstrated that there was a wide range of metadiscourse features classification (see for example Abdi et al., 2010; Crismore et al., 1993; Fraser, 2006; Tan et al., 2012; Vande Kopple, 1985); however, from among these miscellaneous typologies, the one created by Hyland was exploited in this study. The logic beyond this selection was due to the fact that Hyland's typology and his classification of metadiscourse features stands among the most recent classifications of metadiscourse features which is not only easy to grasp but also straightforward in comparison with other classifications.

Hyland's typology is classified into two main categories as interactive and interactional. The interactive category is used to "organize propositional information in ways that a projected target audience is likely to find coherent and convincing. They are clearly not simply text-organizing as their deployment depends on what the writer knows of his or her readers" (Hyland, 2019, p. 59). The interactive category is composed of five sub-categories including transitions (devices to improve the connections between sentences and paragraphs.), frame markers (devices used to refer to sequences and acts), endophoric markers (devices to refer to information in other sections of the text), evidentials (devices to refer to the information to other sources) and code glosses (devices to elaborate propositional meaning). The interactional category, on the other hand, refers to those features which "involve readers and open opportunities for them to contribute to the discourse by alerting them to the author's perspective towards both propositional information and readers themselves" (Hyland, 2019, p. 61). This category is composed of five sub-categories as hedges (devices used to show uncertainty), boosters (devices used to show certainty), attitude markers (devices used to show writer's affective attitude), self-mentions (devices to reveal the writer's personal presence in the text) and engagement markers (devices used to indicate the interaction of the readership) (Table 2).

Table 2 The category of Hyland's metadiscourse features

Category	Function	Example
Interactive	Help to guide the reader through the text	Resources
Transitions	Express relations between main clauses	In addition; but; thus; and
Frame markers	Refer to discourse acts, sequences and stages	Finally; to conclude; my purpose is
Endophoric markers	Refer to the information in other parts of the text	Noted above; see figure; in Sect. 2
Evidentials	Refer to information from other	Texts according to X; Z states
Code glosses	Elaborate propositional meaning	Namely; e.g.; such as; in other words,
Interactional	Involve the reader in the text	Resources
Hedges	Withhold commitment and open dialogue	Might; perhaps; possible; about
Boosters	Emphasize certainty and close dialogue	In fact./definitely/it is clear that
Attitude markers	Express writer's attitude to the proposition	Unfortunately; I agree; surprisingly
Self-mentions	Explicit reference to authors	I; we; my; me; our
Engagement markers	Explicitly build a relationship with the reader	Consider; note; you can see that

3 Procedure

To put this study into practice, a wide array of various steps was taken. First, the data were compiled based on the data gathering scheme explained, at lengths and in details, above. Then, by converting the PDF files into TXT format, the text cleaning process was done. Once the data were compiled in two languages, they were read line by line, manually, to detect any occurrence of metadiscourse features (tokens). When they were detected, metadiscourse features were categorized based on the model of Hyland. The texts were then merged into two comparable corpora in English and Persian languages in order to create two unified corpora. In the final stage, the frequency (types) of each of the metadiscourse features tokens was calculated through concordance lines in the immediate contexts of usage. In order to make sure that the identification of metadiscourse features was flawless, the data gathered from the automatic scanning was analyzed by hand.

4 Statistics

In order to have a deep understanding of the distributional pattern of metadiscourse features, the statistical analysis was done by using SPSS. It is worth mentioning that first statistics for the corpus of Persian language were done, then statistics for the corpus of the English language. The results are as the following.

4.1 Persian Language Corpus

Table 3 represents the frequency and distributional pattern of metadiscourse features in the Persian corpus. As can be seen, the corpus consisted of 1601 interactional and 6797 interactive metadiscourse features; constituting 19.1% and 80.9% of the corpus' respectively. This signifies the fact that as far as the Persian corpus was concerned, the Persian language was interactive oriented.

Table 4 reveals information of the distributional pattern of interactional metadiscourse features in the Persian corpus. As can be seen, from among the interactional metadiscourse features, boosters, and self -mentions with 62.8% and 23.7% were the most prevalent types of interactional metadiscourse features. With 7.4% and 5.0% were hedges and attitude markers the third and fourth used interactional metadiscourse features. The least used type of interactional metadiscourse features were engagement markers with 1.1%.

Table 5 shows the distribution of interactive metadiscourse features in the Persian corpus. As can be understood frame markers and endophoric markers were the most frequent interactive metadiscourse features in the Persian corpus with 43.9% and 21.9%; respectively. After that transitions were the third most frequent interactive

Table 3 The distribution of interactive and interactional metadiscourse features in the Persian language

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Interactional	1601	19.1	19.1	19.1
	Interactive	6797	80.9	80.9	100.0
	Total	8398	100.0	100.0	

Table 4 The distributional pattern of interactional metadiscourse features of the Persian corpus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Attitude markers	80	5.0	5.0	5.0
	Boosters	1006	62.8	62.8	67.8
	Engagement markers	17	1.1	1.1	68.9
	Hedges	119	7.4	7.4	76.3
	Self-mentions	379	23.7	23.7	100.0
	Total	1601	100.0	100.0	

Table 5 The distributional pattern of interactive metadiscourse features in the Persian corpus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Code glosses	882	13.0	13.0	13.0
	Endophoric markers	1491	21.9	21.9	34.9
	Evidentials	450	6.6	6.6	41.5
	Frame markers	2985	43.9	43.9	85.4
	Transitions	989	14.6	14.6	100.0
	Total	6797	100.0	100.0	

Table 6 The cumulative frequency of metadiscourse features in Persian corpus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Attitude markers	80	1.0	1.0	1.0
	Boosters	1006	12.0	12.0	12.9
	Code glosses	882	10.5	10.5	23.4
	Endophoric markers	1491	17.8	17.8	41.2
	Engagement markers	17	.2	.2	41.4
	Evidentials	450	5.4	5.4	46.7
	Frame markers	2985	35.5	35.5	82.3
	Hedges	119	1.4	1.4	83.7
	Self-mentions	379	4.5	4.5	88.2
	Transitions	989	11.8	11.8	100.0
	Total	8398	100.0	100.0	

metadiscourse features followed by code glosses as the fourth used interactive metadiscourse features with 14.6% and 13.0%; respectively. The least used interactive metadiscourse features were evidentials with 6.6%.

Table 6 delineates the cumulative frequency of interactive and interactional metadiscourse features in the Persian corpus. As can be seen, from among the metadiscourse features, frame markers (35.5%), endophoric markers (17.8%), boosters (12.0%) and transitions (11.8%) were the most frequent metadiscourse features. Then, code glosses, evidentials, and self -mentions with 10.5%, 5.4%, and 4.5% were the most applied metadiscourse features in the Persian corpus; respectively. The least used metadiscourse features of the Persian corpus were engagement markers (.2%), hedges (1.4%), and attitude markers (1%).

As can be inferred from Fig. 1. frame markers, endophoric markers, boosters, and transitions were the most frequent types of metadiscourse features in the Persian corpus followed by code glosses, evidentials, and self -mentions. The least used metadiscourse features in the Persian corpus were engagement markers, hedges, and attitude markers.

In order to see if the distributional pattern of interactive and interactional metadiscourse features was statistically significant in the Persian corpus, a binomial test was run. The results are represented in the following (Table 7):

Table 7 shows the results of the binomial test run for the Persian language corpus. As can be shown, the p-value was smaller than 0.05 which means that there was a statistically significant difference between the distribution of interactive and interactional metadiscourse features in the Persian corpus.

4.2 English Language Corpus

Table 8 refers to the distributional pattern of interactive and interactional metadiscourse features in the English corpus. As can be seen, the English corpus contained 20,069 tokens of interactive metadiscourse features and of 3636 tokens of

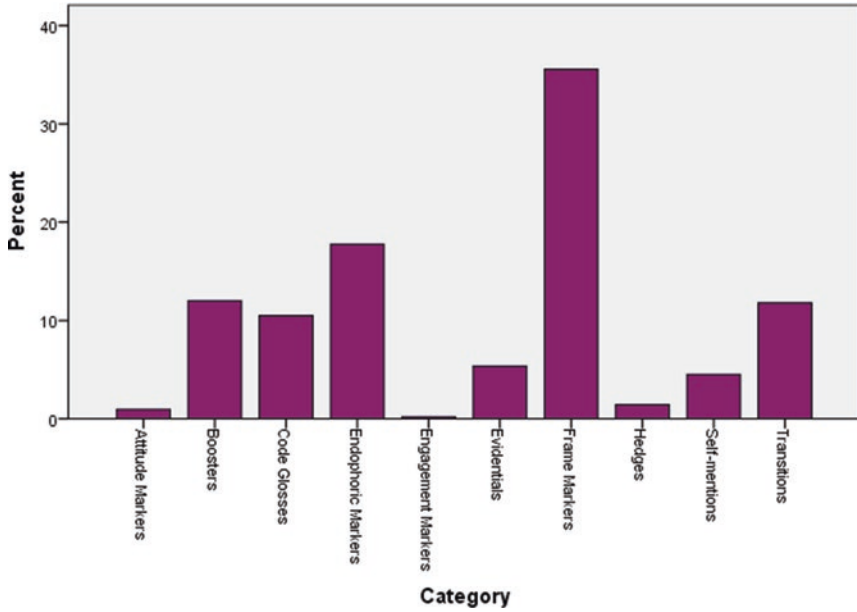


Fig. 1 The distributional pattern of metadiscourse features in the Persian corpus

Table 7 Binomial test of the Persian corpus

		Category	N	Observed prop.	Test prop.	Exact sig. (2-tailed)
Corpus	Group 1	Interactive	26,866	.84	.50	.000
	Group 2	Interactional	5237	.16		
	Total		32,103	1.00		

Table 8 The distribution of interactive and interactional metadiscourse features in the English language

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Interactive	20,069	84.7	84.7	84.7
	Interactional	3636	15.3	15.3	100.0
	Total	23,705	100.0	100.0	

interactional metadiscourse features. This signifies that the English corpus was inclined towards interactive metadiscourse features.

Table 9 shows the cumulative distribution of metadiscourse features in the English corpus. As can be seen, from among the metadiscourse features, transitions (34.5%), frame markers (28.7%), and code glosses (12.0%) were the most frequent types of metadiscourse features in the English corpus. Then, boosters (9.9%), endophoric markers (7.6%), and self-mentions (5%) were the next most used types of metadiscourse features in the English corpus. However, the least used types of

Table 9 The cumulative frequency of metadiscourse features in English corpus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Attitude markers	56	.2	.2	.2
	Boosters	2338	9.9	9.9	10.1
	Code glosses	2848	12.0	12.0	22.1
	Endophoric markers	1802	7.6	7.6	29.7
	Engagement markers	606	2.6	2.6	32.3
	Evidentials	450	1.9	1.9	34.2
	Frame markers	6800	28.7	28.7	62.9
	Hedges	516	2.2	2.2	65.0
	Self-mentions	120	.5	.5	65.5
	Transitions	8169	34.5	34.5	100.0
	Total	23,705	100.0	100.0	

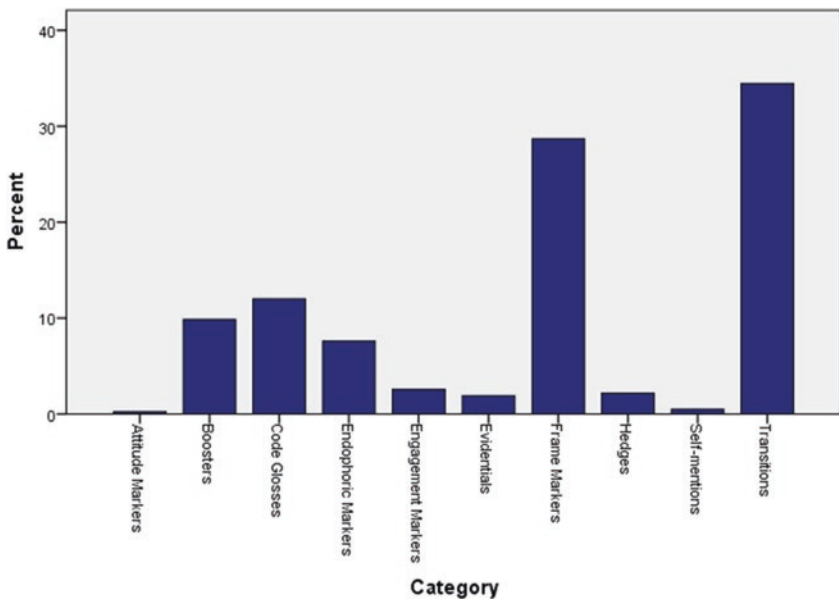


Fig. 2 The distributional pattern of interactive and interactional metadiscourse features in the English corpus

metadiscourse features in the English corpus were engagement markers (2.6%), hedges (2.2%), attitude markers (.2%), and evidentials (1.9%).

Figure 2 represents the distributional pattern of interactive and interactional metadiscourse features in the English corpus. As can be seen from the graph, transitions, frame markers, and code glosses were among the most used metadiscourse features followed by boosters, endophoric markers, and engagement markers.

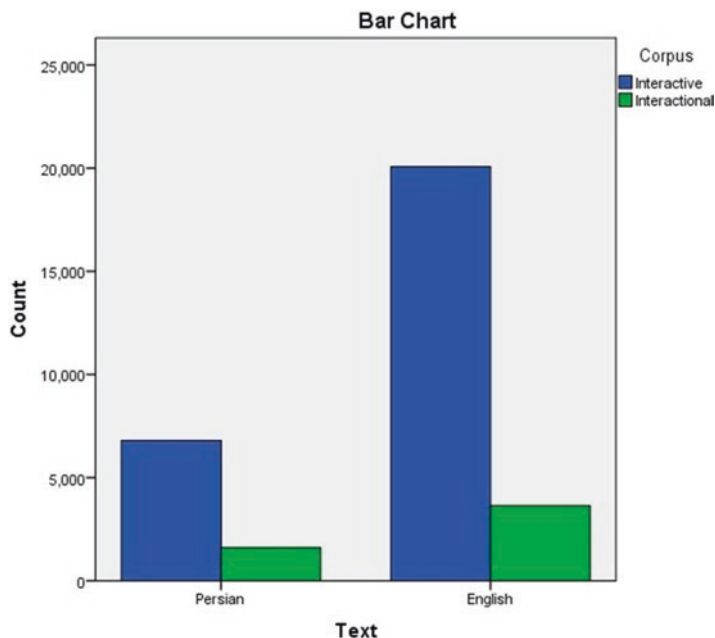


Fig. 3 The comparative distribution of metadiscourse features in Persian and English corpora

Table 10 The distributional pattern of interactional metadiscourse features in the English corpus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Attitude markers	56	1.5	1.5	1.5
	Boosters	2338	64.3	64.3	65.8
	Engagement markers	606	16.7	16.7	82.5
	Hedges	516	14.2	14.2	96.7
	Self-mentions	120	3.3	3.3	100.0
	Total	3636	100.0	100.0	

However, the least used metadiscourse features of the English corpus were evidentials, self-mentions, and attitude markers.

Figure 3 signifies the comparative distribution of interactive and interactional metadiscourse features in English and Persian corpora. As can be seen, in both corpora the inclination was towards, more, to the interactive category of metadiscourse features. Also, the English corpus contained more metadiscourse features when compared to that of the Persian language in both categories of interactive and interactional.

Table 10 shows the distributional pattern of interactional metadiscourse features in the English corpus. As can be seen, from among the interactional metadiscourse features boosters and engagement markers with 64.3% and 16.7% were the most used interactional metadiscourse features. Hedges with 14.2% were the third used

Table 11 The distributional pattern of interactive metadiscourse features in the English corpus

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Code glosses	2848	14.2	14.2	14.2
	Endophoric markers	1802	9.0	9.0	23.2
	Evidentials	450	2.2	2.2	25.4
	Frame markers	6800	33.9	33.9	59.3
	Transitions	8169	40.7	40.7	100.0
	Total	20,069	100.0	100.0	

Table 12 Binomial test of the English corpus

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Corpus	Group 1	Interactive	20,069	.85	.50	.000
	Group 2	Interactional	3636	.15		
	Total		23,705	1.00		

interactional metadiscourse features of the English corpus. The least used interactional metadiscourse features were self-mentions with 3.3%.

Table 11 shows the distributional pattern of interactive metadiscourse features in the English corpus. As can be understood from the Table 11, transitions (40.7%), frame markers (33.9%) and code glosses (14.2%) were the most frequent used interactive metadiscourse features in the corpus. Then, endophoric markers and evidentials with 9% and 2.2% were the least used type of interactive metadiscourse features in the English corpus.

In order to see if the distributional pattern of interactive and interactional metadiscourse features was statistically significant in the Persian corpus, a binomial test was run. The results are represented in the following:

As can be seen in Table 12, the Binomial result was smaller than 0.05 which means that there was a statistically significant difference between the distribution of interactive and interactional metadiscourse features in the English corpus.

4.3 Persian & English

Table 13 shows the ensemble of metadiscourse features in English and Persian corpora. As can be seen, the number of metadiscourse features was more than that of the Persian language corpus with 8398 and 23,704 items; respectively.

To see if there was a statistically significant difference between the distributional pattern of interactive and interactional metadiscourse features in both corpora binomial test was conducted. The results are shown in the following table.

Table 14 shows the results of the binomial test. As can be seen, the P-value was smaller than 0.05. As a result, there was a statistically significant difference between the distributional pattern of metadiscourse features in English corpus and that of the Persian corpus.

Table 13 Cross-tabulation of metadiscourse features in the English and Persian corpus

Text corpus crosstabulation				
Count				
		Corpus		Total
		Interactive	Interactional	
Text	Persian	6797	1601	8398
	English	20,069	3636	23,705
Total		26,866	5237	32,103

Table 14 The results of Binomial test of English and Persian corpora

Chi-Square tests					
	Value	df	Asymptotic significance (2-sided)	Exact significance (2-sided)	Exact Significance (1-sided)
Pearson Chi-Square	63.045 ^a	1	.000		
Continuity correction ^b	62.772	1	.000		
Likelihood ratio	61.381	1	.000		
Fisher's exact test				.000	.000
Linear-by-linear association	63.043	1	.000		
N of valid cases	32,103				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 1369.98.

b. Computed only for a 2x2 table.

5 Results and Discussions

This contrastive corpus-based study was aimed at revealing and comparing the distributional pattern of metadiscourse features in academic genre as well as unveiling writer-reader interaction in English and Persian languages. To this end, two balanced and representative corpora of English and Persian academic written texts were created with the total tokens of 1,223,750 in 6 different fields. For classifying metadiscourse features, Hyland's model which consists of interactive and interactional metadiscourse features (2006) was used. Based on the statistical analysis as well as reading of the corpus, an array of results can be drawn.

According to Fig. 3 and Table 14, in both interactive and interactional metadiscourse features, there was statistically a significant difference between English and Persian languages. Moreover, English, and Persian corpora followed a dissimilar pattern of interactive and interactional metadiscourse features in terms of hierarchy position. The more reliance of the English authors on applying metadiscourse features in writings can add support to this idea that they were more cognizant and aware of the role(s) and function(s) of the metadiscourse features in their writings.

Moreover, it can be concluded that the English authors knew that metadiscourse features could promulgate the rational appeals, writers' authority as well as respect for the reader's perspectives and needs as these functions can be achieved through the exploitation of metadiscourse features.

5.1 Interactive Metadiscourse Features of English and Persian Corpora

As the statistics in Tables 3 and 6 as well as Fig. 1 delineate, in both corpora, there was an inclination towards interactive metadiscourse features. The more reliance of authors on interactive metadiscourse features signifies the fact that writing "as an interactive process" (Hyland, 2019, p. 12) requires the deployment of specific language features (forms and expressions) based on which the authors could convey their intended meaning(s) to the prospective readership. This can be consistent with the fact that the authors were looking for expressions and features in order to be able to make complex argumentations discursively. Although both corpora contained more interactive metadiscourse features as compared to that of the interactional, the English authors used more interactive metadiscourse features (see Table 13) than that of the Persian ones. The more presence of interactive metadiscourse feature in English corpus means that authors of the English texts were more aware of and concerned with creating a well-established interaction as well as a coherent relationship (by the virtue of structural links) with their prospective readers and helping them to comprehend them better as such functions can be achieved through interactive metadiscourse features.

5.1.1 Transitions

Academic writing is a form of writing that requires a high command of transitions as the prospective readers need to clearly understand the message conveyed by the writer. Transitions are those elements that are used to create an internal linkage to various parts of the text. Transitions can be in various functions such as addition, comparison, and compensation. As the data in Tables 5 and 11 revealed, there was a different pattern in using transitions in English and Persian corpora. To put it differently, although, in Persian corpus, transitions were the third used interactive metadiscourse features, in the English corpus, they were the most frequent ones. The more emphasis of authors of the English corpus on transitions may signify their more concern with the internal connections of their argumentations in academic writing. This is in line with the efforts that they made to create disambiguate postulations and make the process of comprehension easier and fathomable for the readership (Fig. 4).

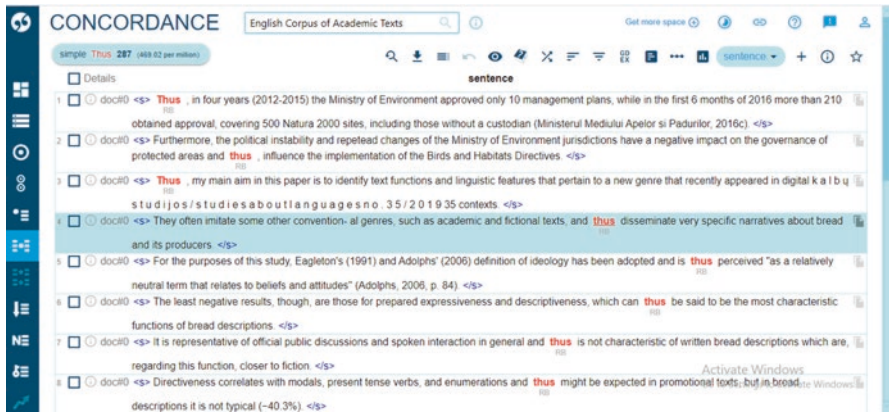


Fig. 4 Concordance line of “thus” as a transition in the English corpus

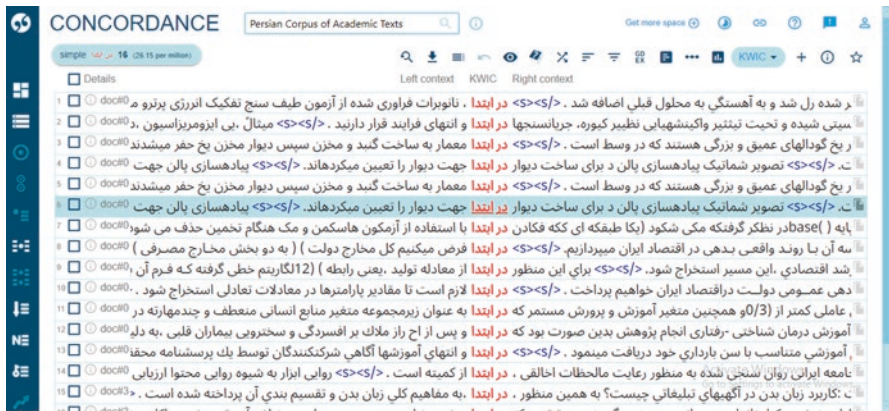


Fig. 5 Concordance line of “در ابتدا” as a frame marker in the Persian corpus

5.1.2 Frame Markers

Frame markers are those elements that are used to structure the discourse as well as shaping the organization of the discourse. Again, the English corpus found to have more frame markers as compared to that of the Persian corpus (see Tables 6 and 9). However, the Persian language authors used frame markers as the most prevalent interactive metadiscourse features. Regardless of the frequency, that the authors of both English corpus and Persian corpus used more frame markers as the first and the second used interactive metadiscourse features is consistent with the fact that usually, academic writing requires a well-organized sequence and stage structure so that the readers can follow the sequential follow of the text easily and effortlessly. This can be attributed to this fact that authors of both English and Persian were aware of how to write academic papers that required a very clear and understandable sequential follow for the readership (Fig. 5).

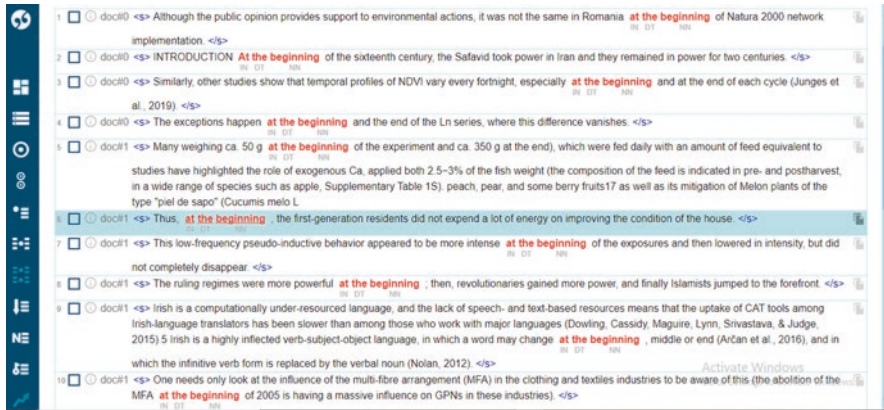


Fig. 6 Concordance line of “at the beginning” as the endophoric marker in the English corpus

5.1.3 Endophoric Markers

When it comes to endophoric markers as the elements which refer to other sections of the texts, there seems to be a quite different manner in English and Persian corpus. In other words, in terms of frequency, the English corpus had more types of endophoric markers; whereas, in terms of position, the Persian corpus took a higher position (see Tables 4 and 11). This more reliance of authors of the Persian corpus on endophoric makers can have a logical relationship with transitions. Indeed, Persian authors used endophoric markers significantly (in terms of position, not the frequency) as they used fewer transitions; therefore, trying to make extra and added ideational materials salient for the readers. This flashback to other parts of the text was a compensation for less use of transitions which are used to link different parts of the texts and for facilitating the comprehension as well as supporting argumentations (Fig. 6).

5.1.4 Evidentials

In terms of hierarchy, evidentials were the least used types of metadiscourse features in both corpora; despite the more frequency of the English corpus. Evidentials are references to other materials as a supporting factor for the authors’ argumentation(s). These elements appear through the citations (either direct or indirect quotations). This lackluster presence of evidentials in corpora may be attributed to the fact that the authors had novelty in their propositions and claims; finding themselves independent of referring to other supporting ideas and argumentations (Fig. 7).

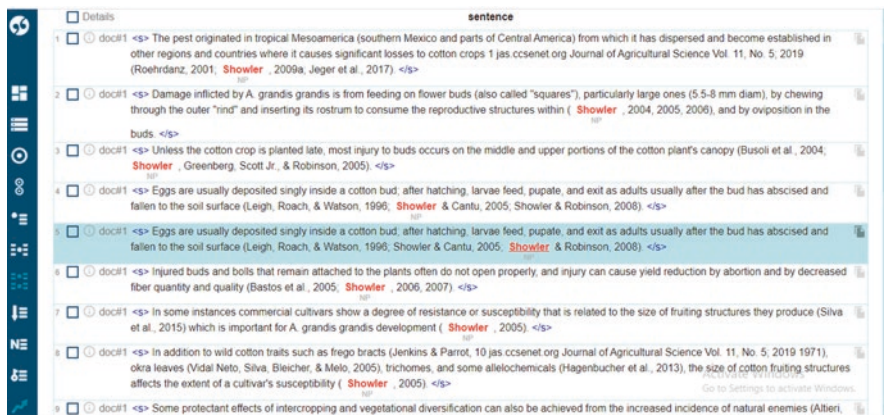


Fig. 7 Concordance line of evidential in the English corpus

5.1.5 Code Glosses

Code glosses as the elements which demonstrate the writer's evaluation of the subject matter took similar positions in English and Persian corpora. In terms of frequency, however, the English corpus contained more types than that of the Persian corpus. These elements are used by the authors to ensure that the reader has understood the essence of the message by such techniques as rewording, paraphrasing, and elaborating. The results (see Tables 5 and 11) show that these features were not among the most used and applied interactive metadiscourse features in Persian; whereas they were taken quite seriously in the English corpus. In addition to the technical knowledge of academic writing, it can be said that authors of the English corpus made more efforts to ensure the understanding of their message on behalf of the readers. In addition to this, by using more code glosses than the authors of the Persian corpus, the authors of the English corpus showed their more freedom and latitude to provide complementary information to the satisfaction of the readers.

5.2 *Interactional Metadiscourse Features of English and Persian Corpora*

These elements construct a dual relationship with the readers as well as providing them with the opportunity to contribute to the discourse by the virtue of alerting the readers about the propositions and argumentations in the text. The interactional features have dual implications: one for expressing the authors' opinions as well as engaging themselves with the readership and the other one for guiding them in the course of discourse (Hyland, 2019). According to statistics in Tables 4 and 10, there was difference between frequency and distributional pattern of the interactional

metadiscourse features in English and Persian corpus. As can be seen, the English corpus contained more types of international metadiscourse as compared to that of the Persian corpus (3636 vs.1601 tokens). This is in line with the interactive metadiscourse features which means that the English authors were more aware of and more competent in exploiting these features for the sake of the readability of their writings. Concomitant to the frequency, the distributional pattern of the interactional metadiscourse features, also, differed in two corpora. As a matter of fact, in the English corpus, the interactional metadiscourse features were distributed as boosters, engagement markers, hedges, self-mentions, and attitude markers; respectively. On the contrary, in the Persian corpus, the interactional metadiscourse features were distributed as boosters, self-mentions, hedges, attitude markers, and engagement markers; respectively.

5.2.1 Hedges

Hedges refer to the elements which show uncertainty of the author(s) by allowing the interjection of the alternative voice (s). Indeed, by using hedges, the author will demonstrate his subjectivity towards the proposition and will emphasize that his words are more of opinions than facts. This uncertainty is quite common and prevalent in academic writing where the researcher will not fully remain insistent on the results. This plausible reasoning and argumentation entails the insertion of alternative voice in the text. Interestingly, there is a reverse relationship between hedges and boosters; meaning that, when hedges are low in number, boosters are high and vice versa. Considering this, in both English and Persian corpora, boosters secured the third rank in terms of frequency and distributional pattern. Regarding such pattern, this could mean that the authors were, to a great extent, not fully sure of their propositions, claims, and results found in their research; opening the alternative voice (s) path in their reasoning (Fig. 8).

Fig. 8 Concordance line of “احتمالا” as an example of hedges in the Persian corpus

5.2.2 Booster

Contrary to hedges, boosters have closing functioning which means that the author will prevent the interjection of any other voice in the texts. By applying boosters, the author accepts and shows that there could be some alternative voices; however, he is steadfast, unwavering, and persistent in his reasoning. The alternative and reverse use and function of hedges and boosters will delineate the extent to which the author wants to either welcome or prevents the interjection of any alternative voice. Considering this, in the English and Persian corpora, boosters were the most frequent type of interactional metadiscourse features; meaning that although the authors, by applying hedges, accepted and welcomed some alternative voices, they are confident and decisive in their reasonings as they underlined and underestimated their uncertainty by these features.

5.2.3 Attitude Markers

Attitude markers represent the solidarity with the readership and towards the propositions. In other words, they are used to show affective appeals rather than logical claims by signaling an informal voice and tone. As far as the English and the Persian corpora are concerned, there seems to be some commonality and shared ground in terms of solidarity. In fact, in the English corpus, these features were the least used interactional features (see Table 10). Likewise, in the Persian corpus, they were only more than engagement markers in terms of frequency (see Table 4). This similarity in distributional pattern stems from the fact that usually, academic writing is not a milieu in which authors can represent their affective stance rather than logical towards an argumentation. Instead, in academic writing, the author will put forward his epistemic point of view. The rare exploitation of attitude markers in both Persian and English corpus signify the fact that they were more engaged with showing their logical and epistemological point of views rather than their emotional feelings.

5.2.4 Self-mentions

Self-mentions refer to the author's presence in the discourse. In other words, by applying self-mentions, the authors shape, establish and promote personal competence and identity in their writings. According to the data (see Tables 5 and 10), the English and Persian corpora followed two discrepant and inconsistent patterns. To put it differently, as far as the Persian corpus was concerned, the self-mentions were the second most prevalent interactional metadiscourse features; however, for the English, self-mentions were the one before the least used interactional metadiscourse feature. This wide diversified pattern of self-mentions can be attributed to the combination of these features and boosters in the Persian language and of the self-mentions and hedges in the English corpus. As a matter of fact, in Persian corpus, the combination of boosters, as the most common

interactional metadiscourse features, with self-mentions created a space in which the Persian authors demonstrated their certainty and identity at the same time. On the other hand, in the English corpus the combination of self-mentions and hedges, as the elements of uncertainty, created a space in which the English authors showed their uncertainty which requires the minimum use of self-mentions.

5.2.5 Engagement Markers

Engagement markers are the elements for constructing an explicit relationship with the readership. In fact, by using these elements, the author will create a feeling of integrity and engagement with the prospective reader. By highlighting the presence of their readers, authors will construct such a relationship. As far as the English and Persian corpora are concerned, the two languages followed an unwavering pattern. To put it in another way, engagement makers were the second top interactional metadiscourse features in the English corpus; whereas, in the Persian corpus, they were the least used interactional metadiscourse features. In this way, it can be said that in the English texts, authors applied engagement markers to directly address the potential reader as a part of the text participant. This prevalence of engagement markers is in line with the lackluster use of self-mentions; meaning that the reliance of engagement markers necessitated the withdrawal of self-mentions. On the other hand, in Persian corpus, engagement markers were the least used interactional metadiscourse markers which is consistent with the reliance of the Persian authors on self-mentions as the second most prevalent interactional metadiscourse markers.

6 Concluding Remarks

Metadiscourse views writing as a social engagement shaping between writer and reader and/or speaker and audience (Thompson, 2001). The results of the quantitative analysis revealed that the English corpus contained more interactive and interactional metadiscourse features when compared to that of the Persian corpus. For this reason, with regard to the first research question, it can be said that the distributional pattern of the interactive and the interactional metadiscourse features differed significantly in English and Persian corpora (see Tables 5, 8, 9, and 11). In other words, the English corpus and Persian corpus followed two different and discrepant patterns. Whereas both corpora were interactive oriented (Tables 3 & 8), the English corpus followed a different path as compared to that of the Persian corpus in terms of subcategories of interactive and interactional metadiscourse features. Considering the second research question, it can be said that there was a statistically significant difference between interactive and interactional metadiscourse features distribution in English and Persian corpora which means that the English corpus contained more types of interactional metadiscourse features than that of the Persian corpus. As a result, the null hypothesis of the first and second research questions was rejected.

As far as the third research question was concerned, the results showed that the interaction between authors and readers was constructed differently in English and Persian corpora. In other words, the more insertion of metadiscourse features in the English corpus revealed that the authors took their writings as a mutual interaction with the emphasis on attitudes, personalities, and needs of the competent leadership. In other words, although both corpora were more interactive oriented which meant that the authors knew how to build their writings more coherent, the English corpus was constructed in such a way that the readers were informed of where and how they were being directed as the English corpus contained more interactive metadiscourse features. Added to this, in terms of subcategories of interactive metadiscourse features, the English and Persian corpora took different instances which signified the fact that the authors of these two languages had various perspectives on their readers as well as on academic writing specifications. In the same vein, the English corpus and Persian corpus were dissimilar in interactional metadiscourse features which could be attributed to the different perspectives of the authors towards the prospective readers. The differences of writer-reader interaction construction showed that the mechanisms and dynamics of writing and communication in English and Persian languages may differed. Considering this, it can be said that the hypothesis of the third research question was rejected as there were differences between the way metadiscourse features were used in both corpora and there were differences in establishing the writer-reader interaction in both languages.

The results of this study are consistent with those of Azizi (2001 as cited in Crismore & Abdollahzadeh, 2010); Abdollahzadeh, 2003; Marandi, 2002; Rahimpour, 2006 and Vasheghani Farahani, 2017. These studies showed that there was a statistically significant difference between the usage of metadiscourse features between English and Persian writers in that the former (English) used significantly more metadiscourse features as compared to the latter (Persian language). However, the results of this research are not in line with the results of such studies as Abdollahzadeh, 2007; Bagheri et al., 2013; Mehrabi Boshrabadi et al., 2014; Dehghan & Chalak, 2016 and Ghazanfari & Barani, 2018. The results of these studies indicated that there was statistically no significant difference between metadiscourse features used by English and Persian writers or that the Persian writers showed more tendency in using metadiscourse features than those of the English writers.

This study can have implications for various beneficiary groups. Researchers who are interested in doing corpus-based studies may find the method and corpus creation section of this paper useful. Researchers who will embark on doing contrastive studies in the domain of language studies will benefit from the findings of this study. Last but not the least beneficiary group of researchers are those who are interested in doing genre analysis. They will find the results of this study useful. Despite all of the steps taken, this study had some limitations. One limitation was that maybe some of the metadiscourse features analyzed in this study belonged to more than a group simultaneously. Another shortcoming was that it was not impossible to extract corpus of the study (especially the English one) from all of the

journals indexed in top scientific database as some of the journals were not open access; requesting money for giving the full length of their published papers.

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One Concept, Many Names! Analyzing a Serious Challenge Lying Ahead of the Formation of Academic Persian Vocabulary



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Abstract Academic language or language for academic purposes in its both forms, namely language for general academic purposes and language for specific academic purposes, addresses various common language skills among which the importance of academic vocabulary or terminology is now widely accepted. The occurrence of such vocabulary, created and used to communicate ideas about their specialized worlds, is a common and important feature of academic or specialized texts in any subject field. Despite such importance, reviewing the status of vocabulary in Academic Persian or Persian for Academic Purposes (PAP), as a newly-grown discipline, reveals that this area suffers from a serious challenge namely lack of consistency in academic vocabulary selection and use. Undoubtedly, the use of various designations or equivalents for an imported concept is clear evidence to the claim. Thus, in this research, at first the significant position of academic vocabulary in academic language in general and academic Persian in specific as well as the Academy of Persian Language and Literature (APLL)'s activities especially in word selection and terminology, as its central concern, are introduced. Then, through providing notable examples taken from the disciplines of linguistics and literature, the problem of using various designations for one concept and its consequences in Academic Persian language are dealt with. In doing so, through reviewing and comparing at least twenty books and dictionaries in the fields of linguistics and literature written, developed or translated by Iranian researchers, it was found that such texts were faced with glaring inconsistency in selection and use of Persian equivalents for the related academic concepts. To approve this claim, thirty terms, chosen randomly from the above-mentioned texts, are provided as a sample and then analyzed. Reviewing the haphazard use of these terms in such texts revealed that even the equivalents proposed by the APLL, as the legitimate authority of word selection for the Academic Persian, could not have terminated this inconsistency which has turned into a source of misunderstanding among specialists and users.

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1 Introduction

From the second half of the twentieth century onward, the spread of science and technology across borders has intensified because of globalization. While it is still in its infancy, because of its position, importance and great amount of influence, much has been written and expressed on globalization itself, its causes, its results and the domains affected by it including social, cultural, economic and educational ones. Obviously, language as the primary medium of human social interaction and information exchange is not an exception to the rule and not only is influenced by it, but also plays a significant role in creating such a situation.

Such tremendous changes in the contemporary scene, moving at an unprecedented pace, have raised many questions about the function of language as the main medium of scientific dissemination and communication especially in academic and research contexts. In such a situation, there is no surprise that communication in specialized areas has spread considerably in a way that the formation of a specialized language with its own vocabulary, grammar and discourse has been inevitable. This language which is known as *academic language* has caught the researchers' attention especially in recent three decades.

While due to the predominant role that English plays amidst the contemporary landscape and consequently academic language has been mostly used synonymous with academic English (Hirai et al. 2010), the growing advent of other languages in their academic forms including Spanish, Portuguese, Chinese, etc. has been evident. Though, as Pérez-Llantada (2012) writes, in terms of science these languages have a completely different status to that of English, they are of particular interest for understanding the geopolitics of languages in the scholarly contexts.

Thus, conceiving the increasing significance of the role and use of academic languages in today's research world, in this chapter, along with introducing the academic language and its attributes, the author attempts to deal with the academic Persian, and then specifically analyzes a serious challenge lying ahead of the formation of academic terminology in this language.

2 Academic Language: Definition and Attributes

As Hirai et al. (2010) mention that many consider the term academic language to mean the vocabulary of their discipline, when in reality it encompasses social and academic discourse, interpretation of content-area reading, and types of writing discourse. Cummins (1980), as the first researcher who labeled academic language as such, considered academic language synonymous with academic English. In his words, there are two different types of language proficiencies that English learners must acquire in order to acquire this language. The first is basic interpersonal communication skills (BICS; which involves speaking and listening skills), which are used for social conversational purposes, and the second is cognitive academic language proficiency (CALP; which is related to reading and writing skills) which are used to convey academic learning and take much longer to acquire (pp. 2–3).

Following this classification, Short (1993) defined this language as one which includes semantic and syntactic features such as vocabulary items, sentence structures, transition markers and cohesive ties, and language functions and tasks such as defining terms, explaining historical significance, reading expository text, and preparing research reports (p.1).

Professionally speaking, academic language which is also known as language for academic purposes (LAP) can be defined as a distinctive approach to language education based on an identification of the specific language features, discourse practices, and communicative skills of target academic groups, which recognizes the particular subject-matter needs and expertise of learners (Hyland, 2006). Mauranen (2006) also describes academic language as a form of specialized discourse that does not have native speakers. Thus, all users of this language need to learn its norms and conventions through secondary socialization in educational systems. Bailey (2007) also defines being academically proficient as “knowing and being able to use general and content-specific vocabulary, specialized or complex grammatical structures, and multifarious language functions and discourse structures – all for the purpose of acquiring new knowledge and skills, interacting about a topic, or imparting information to others” (pp. 10–11).

Such a language which is central to teaching any discipline content is narrowly characterized at the lexical (vocabulary), syntactic (forms of grammar), and discourse (rhetorical) levels (Hirai et al., 2010) which among them, the position of discipline-specific vocabulary and phraseology or its terminology seems more pronounced.

From a broader and more comprehensive perspective, the distinguishing attributes of academic language as well as its differences with non-academic language (see, Humphrey, 2016) can be classified and compared as follows (Table 1):

Table 1 The academic & non-academic language features (Humphrey, 2016)

<i>Non-academic contexts</i> • typical linguistic realization	<i>Academic contexts</i> • typical linguistic realization
Purpose (genre)	
Familiar everyday spoken genres • instruction, observation, anecdote, personal response, commentary, personal recount	Institutionalized socially valued and socially valuable written genres • report, explanation, procedure, analytical exposition, discussion, narrative, historical recount
Subject matter (field)	
Understanding of personal issues disconnected from society at large • specific human participants • everyday lexis in simple nominal groups • action verbs	Technicality bounded by academic disciplines; focus on issues of collective • generalized participants • technical lexis, defined and classified in complex nominal groups • grammatical metaphor (science) • relational, defining verbs
Reader relationship (tenor)	
Personal (evaluative) Strong solidarity Familiar roles – Emoter • high frequency of personal pronouns • active voice • subjective personal modality & attitudes • variety of mood choices (questions, statements, exclamations, commands)	Impersonal (objective) Decrease in solidarity Expert roles – Interpreter & adjudicator • low frequency of personal pronouns • passive voice • objective impersonal modality and attitudes • statements –except in procedural Texts
Channel (mode)	
Spoken dialogue (concrete) • low lexical density • high grammatical intricacy • variation in theme choice	Written monologue (abstract) • high lexical density • low grammatical intricacy • grammatical metaphor (science and humanities) • clear progression of themes

3 From Academic Language to Academic English

When facts and figures indicate that English is the most widely used language in the scientific domain and it is now the world's predominant language of research and scholarship, there is no surprise that academic English is used synonymously with academic language. Regarding the growth of academic English, Hyland (2006) writes that now more than 90 per cent of the journal literature in some scientific domains is printed in English and the most prestigious and cited journals are in English. In his words, countless students and academics around the world must now gain fluency in the conventions of English-language academic discourses to

understand their disciplines, to establish their careers, or to successfully navigate their learning (p. 24).

Driven by the growth of English as the leading language for the acquisition, dissemination and demonstration of academic knowledge, English for Academic Purposes (EAP) has emerged to become an important force in English language teaching and research. This discipline that focuses on the specific communicative needs and practices of particular groups in academic contexts involves instruction in an understanding of the cognitive, social and linguistic demands of specific academic disciplines (Hyland & Hamp-Lyons, 2002). This field, which has witnessed rapid expansion and development over the past 30 years, is a branch of applied linguistics, consisting of a significant body of research into effective teaching and assessment, descriptions of the linguistic and discursive structures of academic texts, and analysis of the textual practices of academics (Hyland & Shaw, 2016). This development has taken a number of different forms and directions, but together these have reshaped the ways that English language teaching and research are conducted in higher education (Hyland & Hamp-Lyons, 2002). What sets EAP as an academic language apart from general language study is its focus on specific, purposeful uses of language (Hyland, 2016) manifested in its terminology, syntax, genre, discourse, etc.

Bearing in mind that in any study of EAP, an awareness of the distinction between English for General Academic Purpose (EGAP) and English for Specific Academic Purposes (ESAP) is crucial to a full understanding of this discipline (Robinson, 1991). The former largely deals with study skills and four main skills of listening, speaking, reading, and writing to help the learners survive in an academic context. The latter is concerned with the learners' language needs in a specific academic discipline (Carkin, 2005). According to Dudley-Evans and St John (1998), EGAP isolates the skills associated with study activities such as listening to lectures, participating in tutorials, reading textbooks and articles, and writing essays, examination answers, dissertations and reports. In their words, ESAP integrates the skills work of EGAP with the help for students in their actual subject tasks. In a more precise word, in this approach, students transfer the skills they have learnt in the EGAP classes to meet their ESAP requirements. Thus, the issue of specificity is the distinguishing characteristic that made specialists specify EGAP from ESAP (Gnutzmann, 2009; Harwood & Petrić, 2011; Hyland, 2016).

4 From Academic English to Academic Languages

According to Hyland and Shaw (2016) the expansion of EAP as a force in language education has been accompanied by a growing sense of disquiet concerning the socio-political implications of both the dominance of English at the expense of other academic languages, and the additional burden which such demands place on students and scholars alike. This sense of disquiet, rooted in the advent of critical theories in the field of applied linguistics in general and ELT in specific including

linguistic imperialism (see, Phillipson, 1992), has been accompanied by a trend known as critical English for academic purposes (Benesch, 2001) claiming to combine the theory and practice of EAP with that of critical pedagogy. Due to these critical trends toward English spread in other societies and its social, scientific and discursal influences, a tendency toward the formation or revival of other academic languages in order to lessen the impact of English academic discourse has emerged. In this regard, Pérez-Llantada (2012) points out that while it is difficult to reduce the current hegemonic position and the established order of discourse of English in academia, it is not completely impossible to diminish the predominant status of this language in the domain of scientific communication. Currently, the appearance of some minor-scale languages in their academic forms including German, French, Spanish, etc. is evidence to the claim. Pérez-Llantada (*ibid.*) writes:

Despite being minority languages they are significant for their impact on contemporary science. The roles and uses of languages such as Spanish, Portuguese, French and German are in need of empirical and theoretical discussion so that greater attention can be placed on the geolinguistic dimensions of these minority vehicular languages in communicating science worldwide. Though in terms of science these languages have a completely different status to that of English, they nonetheless play a key role in the discourse practices and communication procedures conducted in some geographic areas of scientific activity (pp. 181–182).

Tracing this trend in such societies reveals that the language planners' endeavors have mostly aimed at standardizing terminologies. As Cabré (1999) points out, some countries systematically organize standardization of terminology on the national level by making the creation of terms comply with their guidelines by means of a standardization policy for the language. Concerning such endeavors, she writes:

In order to undertake this process, specialized commissions of experts and terminologists are usually created according to subject fields. The commission members coordinate their work by following guidelines that usually come from a central standardization body. Terminology commissions acting within a language planning policy require recommendations that are particularly aimed at making existing designations consistent and at creating new words. They therefore usually base themselves on written criteria for the creation of terms and the treatment of borrowings and loan translations from other languages (p. 201).

Of course, this process is not straightforward and is faced with various challenges. Among the challenges requiring intervention is the case that one concept belongs to more designations (Fischer, 2010). In a more precise word, when two or more designations converge in a concept, this results in a negative impact on communication. In this case, as Cabré (1999) mentions, the various designations must be reduced so that only one remains for the benefit of accurate communication.

This challenge, which is more or less available in the formation of academic terminology in various languages, is really outstanding in Persian. Due to the complexities which this challenge has posed, its introducing and analyzing have been the main focus of this chapter.

5 Terminology: The Main Component of Academic Persian

There is no doubt that from a scientific perspective, academic Persian is experiencing its infancy and lack of enough literature on the topic is clear evidence to the claim. However, tracing the formation of this language indicates that the standardization of terminology through coining or choosing new terms especially for the technical and scientific words has been followed for decades.

Although terminology, as a discipline concerned with the collection, processing, description, and presentation of terms, which are lexical items used to designate concepts belonging to a specialized subject field (Sager, 1990, p. 2), is not a new field of study and profession in Iran, only in recent decades it has been systematically developed, with consideration of its principles, bases and methodology.

In fact, the accelerated development of science and technology in recent times has been accompanied by the appearance of a large number of new concepts and even new conceptual fields which require new names. The fact that scientific and technological creation occurs almost exclusively in the dominant economic powers means that there is a one-way transfer of knowledge and new products, entailing large-scale borrowings of technical and scientific vocabulary in other countries (Cabré, 1999, p. 4) and undoubtedly the Iranian society has not been an exception to the rule.

Needless to say, as a result of this situation, the overwhelming prevalence of foreign words especially borrowed English forms in both the general vocabulary and academic or technical terminologies of this language has caused significant challenges for language planners, terminologists, scientific authors, and translators in recent decades (Akbari, 2020). Overcoming this challenge, like many societies, the Iranian government has created an official organization to manage it. In her words, adapting a language policy by this official organization to preserve the national language through the coinage of Persian equivalents for foreign terms can mainly be attributed to the continuation of the long tradition of Iranians' passion for their language which is considered a crucial element of their identity and has been preserved for centuries (p. 3). Inspired by this passion as well as the ideological goals, we can see that the contemporary Iran has experienced the government intervention in creation and/or selection of appropriate terms at least in five phases. Thus, it is not surprising to see that the main focus of Iranian language-planning activities for the past several decades has been new word coinage (Modarresi, 2001). To show the significant position of word coinage and the standardization of terminologies in the formation of academic Persian, in the following, on the basis of the main official language planning endeavors undertaken in order to counteract the terminological dependency of Persian on other languages, such activities are briefly reviewed in five phases:

- (a) The first confrontation with foreign words dated back to more than one hundred years ago. According to Roustai (2006 cited in Akbari, 2020), the first academy of language was officially established in Iran by its government in 1903 during

the Qajar dynasty. The academy coined Persian equivalents for a number of European language terms, many of them are used today.

- (b) The second confrontation dated back to the Pahlavi dynasty. According to Sadeghi (2001) and Dabir-Moghaddam (2018), the purification of the Persian language from both Arab and European words became popular among a number of scholars and several bodies were formed to designate Persian equivalents for foreign words. For instance, the Society for Coining Scientific Terms was formed in 1932 and was active in making Persian equivalents for foreign terms until 1940. Its activities encompassed terms of natural sciences, mathematics, physics, chemistry, philosophy and literature. Some 400 out of 3000 terms coined by this society entered textbooks (Sadeghi, 2001).
- (c) The first Iranian Academy informally began its activities in 1931 and formally established in 1935 (Kianush, 2002). Constructing Persian equivalents for foreign terms was the main purpose of the First Academy, a policy driven mainly by the contemporary political atmosphere (Akbari, 2020). Around 6 years of its activity, the Academy coined some 2000 terms that about 70 percent of them gained currency in written or spoken Persian (Sadeghi, 2001). However, the first Academy confronted waves of criticisms from literary men to the religion leaders (Karimi-Hakkak, 1989).
- (d) The Second Academy, known as the Iranian Academy of Language, was established in 1970. Like the Iranian Academy, the Second Academy was chiefly engaged in making Persian equivalents for foreign terms (Dabir-Moghaddam, 2018; Fathi, 2017; Zarnikhi, 2010, 2014). Composing 20 committees for various branches of science, technology, and art, each composed of a number of specialists who were invited to collaborate with linguists in word selection, the Academy's main mission was to choose Persian equivalents for foreign terms used in Persian (Sadeghi, 2001).

There is another noteworthy point here. While, both Academies demonstrated interest in terminology as their main mission, as Jazayeri (1999, cited in Akbari, 2020) writes, the processes adopted by the First and Second Academies to disseminate coined terms differed greatly. The approved terms by the First Academy were disseminated and their use was mandatory, but the use of terms coined by the second was optional.

- (e) The third Academy, known as the Academy of Persian Language and Literature was founded in 1991, namely in Post-revolutionary Iran (Davari Ardekani, 2011). According to Azizi (2012), the first and second academies were actually the forerunner of the third Iranian Academy. As Akbari (2020) points out, among its fourteen departments, the Terminology Department is one of the most active departments of the Academy. In her words, this department which began its activities immediately after the establishment of the Third Academy, aims at contributing to the strengthening and expansion of Persian, equipping it to meet cultural, scientific and technical needs, and to coordinate the activities of word formation and the construction of equivalents for foreign words (p. 34).

The Department's duties of the Academy including terminology planning and management, the organization of borrowed terms in Persian and the construction of equivalents for them, and the modernization of Persian terms and concepts in different fields of science, technology and the professions (Akbari, 2020) reveals that as Modarresi (2001) and Dabir-Moghaddam (2018) assert, the main focus of Iranian language-planning activities for the past several decades has been new word coinage which has been in line with its major goal, namely the modernization of Persian.

6 One Concept, Many Designations: Where the Problem Lies

Generally, as Cabré (1999) writes, the appearance of a new concept normally coincides with the appearance of a new designation. This new name arises in the language of the society that created the new concept. Neology, seen as a way of creating new designations, is obviously necessary in special subject fields in which the emergence of new concepts entails constant neological activities (203–204). Regarding the introduction of new concepts into Persian, especially in the domains of science and technology as well as modern fields of study which are rooted in the West such as psychology, sociology, linguistics, etc., we can see that the Iranian society is mostly the consumer of such imports. As a result of this situation, we can see that such concepts along with their designations are introduced to this society. In this process, in which English as a global language plays a vital role, Persian like many other languages is affected at different linguistic levels, especially at lexicon and terminology.

Reviewing this process shows that in recent decades an inevitable contact with the English language and formerly with the French language, has led to a language policy that developing national terminology and preserving the official and national language against such borrowed terms has been followed. This approach, as Akbari (2020) points out, which clearly demonstrates the role of ideological doctrine in and political approaches to language policy, can mainly be attributed to the continuation of the long tradition of Iranians' passion for their language which is considered a crucial element of their identity and has been preserved for centuries (p. 3). This approach which has been mostly followed by preserving the national language through the coinage of Persian equivalents for foreign terms, has not been restricted to the Iranian Academies. In other words, according to Akbari (*ibid.*), at the same time, the entrance of an enormous number of English terms in specialized language in almost all domains encouraged some authorities and publishers as well as researchers, lexicographers and translators to coin new designations for the new concepts.

The outcome of this confrontation has led to a challenge lying ahead of the formation of academic Persian vocabulary, namely one imported concept, but more than one equivalent for that concept. To show this problem, in the following, the

current equivalents used for some of the imported concepts in the field of language studies including linguistics and literature are presented. Here, it is worth noting that after reviewing at least twenty books and dictionaries in the field of language studies, the researcher faced at least one hundred English terms with more than three equivalents in such sources. Comparing the equivalents with the designations proposed and approved by the APLL also reveals that: a) In many cases, the frequency of APLL's equivalents are lower than the ones proposed by lexicographers, researchers or translators; b) For some common terms and concepts, there is no sign of APLL's word selection or approval.

In the following, thirty English terms, as representatives, have been randomly selected. The equivalents presented for each one in the above-mentioned sources were extracted and the terms coined or selected by the APLL are listed too. Having a glance at the following table can be clear evidence to the claim that academic Persian is faced with a challenge with great complexity (Table 2).

To show the problems which this apparent inconsistency poses for the audience, let's imagine the following scenario which might be revealing:

Suppose a translator intends to render an academic English textbook into Persian. This person encounters the word *genre* as a frequent one in linguistic texts. At first, probably the word ژانر comes to his mind, but in order to avoid the use of a foreign word, namely a French word which entered Persian formerly and is frequently used in Persian texts, he decides to use a Persian one. Referring to authentic general and specialized English-Persian dictionaries might be the first choice. In Haghshenas et al. (2002), he faces two equivalents as: گونه / نوع and in Bateni (2006), he encounters نوع / ژانر. Referring to specialized dictionaries makes the issue more complicated. In Aasi and Abdeali (1996) and Farahzad (2015), نوع متن and گونه are presented as its equivalents, respectively. So far, the translator has faced four different equivalents. Browsing through some known translated books on the topic indicates that these equivalents have also been used: قالب / گونه خاص / نوع ادبی. Now, facing this complexity, he decides to refer to the equivalent which has been approved and presented by the APLL for this academic word. He finds that in the field of linguistics, the Persian equivalent for *genre* is گونه سبکی. Two points are worth mentioning: a) This equivalent for *genre* was not found in the books which was reviewed as the sample of this study. b) Referring to specialized dictionaries such as Aasi and Abdeali (1996) and Mohajer and Nabavi (2002) shows that گونه سبکی has been presented as the equivalent for *stylistic variant* or *stylistic variety*; a concept that is different from *genre*. There is no doubt that this Persian equivalent is much more suitable and precise for *stylistic variant/variety* than *genre*.

A reader of this chapter can imagine a similar scenario in which a researcher on the topic desires to write an academic text in Persian and is faced repeatedly with glaring inconsistency in the use of Persian academic terms. This scenario might be more complicated when a user of Persian academic texts encounters such inconsistency.

Table 2 One English Term and Many Persian Equivalents

	English term	Persian equivalents	APLL equivalent
1	Association	تداعی، پیوستگی، پیوند، همخوانی، همبندی، فراخوانی، همبستگی، باهمی	تداعی
2	Adaptation	انطباق، سازگاری، همگونی، سازش، همسازی	سازگاری
3	Alliteration	تجانس آوایی، همگونی آوایی، همگونی آغازین، هم حروفی، معلی، جناس محرف، جناس آوایی	—
4	Anachronism	ناهمزمانی، ناهمخوانی زمانی، زمان پریشی، ناهنجاری تاریخی، ناهنگامی	—
5	Animism	جانگرایی، جاندارانگاری، آیمیسیم، جانندانگاری، جانداربنداری، روانفندانگاری	جانداربنداری
6	Archetype	نمونه الگو، صورت نوعی، آرکی تایپ، سرنمون، نمونه اولیه، نمونه ازلی، نمونه نخستین	نمونه
7	Assonance	هم صدایی، هم آوایی، آکفا، شباهت واکه ای، جناس مصوت، همگونی واکه ای	—
8	Burlesque	بورلسک، مضحکه، هزل، نظیرهسازی، هجویه، تقلید، تقلید طنزآمیز	مضحکه
9	Clause	بند، جمله واره، جمله وابسته، نیم جمله، شبه جمله	بند
10	Collocation	همبندی، همبستگی، همبندی، باهمی، همایش	همایی
11	Cognate	همریشه، همزاد، خوشاوند، متجانس، همزاد، هم خانواده، همبار	هم خانواده
12	Conjunction	حرف ربط، ربط، عطف، ادات، کلمه موصولی، پیوند، وصل	پیوند
13	Discourse analysis	تجزیه و تحلیل کلام، سخن کاوی، تحلیل گفتار، گفتار شناسی، گفتار کاوی	تحلیل گفتار، گفتار شناسی
14	Denotation	معنای صریح، دلالت مطابقه، معنای قاموسی، دلالت صریح، دلالت قاموسی، معنای لفظی	معنای صریح
15	Diction	سیاق کلام، بیان، طرز بیان، انتخاب واژگان، واژه چینی، فصاحت، کلمه بندی	—
16	Fable	حکایت، افسانه، فابل، افسانه تمثیلی، حکایت اخلاقی، تمثیل حیوانی، قصه حیوانات	—
17	Fantasy	خیال، وهم، فانتزی، تخیل خلاق، پنداشت، پندار، خیال پردازی در داستان	خیال پردازی
18	Figure	بمجاز، صناعت، صناعت بدیعی، بمجاز بیانی، صناعت شعری، صنعت	—
19	Function	کارکرد، نقش، عملکرد، نقش ویژه، کنش	نقش
20	Genitive case	حالت ملکی، حالت اضافه ملکی، حالت اضافی، حالت وابستگی	حالت اضافه ای، حالت وابستگی
21	Genre	نوع، نوع ادبی، ژانر، گونه، نوع متن، قالب، گونه خاص	گونه سبکی
22	Gerund	اسم مصدر، اسم فعل، جمله واره مصدری، مصدر فعلی، اسم مصدری	اسم مصدر
23	Identification	همذات بنداری، همانندسازی، این هائی، همانندی، همسان بنداری، همانندبنداری	همانندسازی
24	Illusion	توهم، پندار، وهم، خطای حسی، فریفتار	—
25	Image	انگاره، نگاره ذهنی، صورت خیالی، تصویر ذهنی، خیال، ایماژ	—
26	Literal meaning	معنای لغوی، معنای لفظی، معنای حقیقی، معنای صریح، معنای اصلی	معنای تحت اللفظی
27	Plot	طرح، پیریک، طرح داستان، طرح کلی، طرح و توطئه	پیریک
28	Prototype	پیش نمونه، پروتوتیپ، سرنمون، نمونه اصلی، نمونه اعلی، نمونه نخستین، پیش الگو	پیش نمون
29	Rhetoric	سخن سنجی، بلاغت، معانی و بیان، نظریه بیان، فن خطابه، بدیع، رتوریک	—
30	Typology	نوع شناسی، سنخ شناسی، رده شناسی، رده بندی	رده شناسی

7 What Is the Solution?

Needless to say, such intolerable inconsistency in the selection and use of such terms can be a source of misunderstanding for their users. For example, in order to translate academic or specialized texts, it is necessary to know the respective specialized terms in both languages. Now, when for a concept in English, there is one

designation in the source language and there are more than one equivalents for the concept in the target language, namely Persian, the outcome of translation of the relevant texts will be the presentation of various terms for one concept. Such a problem can be raised in writing academic texts such as textbooks or research papers too. Also reviewing the specialized bilingual dictionaries or glossaries reveals the variety of equivalents which can be problematic for the users. Undoubtedly, this challenge is more serious for the readers of Persian academic texts which are more or less faced with various terms for one concept. In this regard, Talaván (2012) maintains that due to this inconsistency, not only it leads to misunderstandings between non-specialists, but results in problems of understanding among specialists. That is why the registration of new specialized terms becomes so important in these specialized fields, in order to clarify and determine their exact meaning and promote their appropriate and consistent use in a particular area of specialization.

In such a situation that is not specific to Iranian academic setting, the intervention is suggested. In this regard, Cabré (1999) writes:

There are two types of situation that require specific intervention. First, when two or more designations converge in a concept and this results in a negative impact on communication; and, secondly, when a special language does not have the designation required for expressing a concept. In the former case, the various designations must be reduced so that only one remains for the benefit of accurate communication. In the latter case a new designation must be created to express the new concept (p. 204).

Concerning the first situation which involves terminology unification, it is usually referred to as terminology standardization in the science of terminology. Terminology unification or standardization is defined by Nahir (1984), as establishing unified terminologies, mostly technical, by clarifying and defining them, in order to reduce communicative ambiguity, especially in the technical and scientific domains (p. 300). This process which is mostly known as terminology standardization (Cabré, 1999) involves the evaluation of alternative terms used to designate a single concept. The purpose of terminological standardization is to aid communication in special languages, and is not applied to the vocabulary of the general language. Terminological standardization is a concern of all special fields, i.e. humanities and social sciences as well as scientific-technical subjects (p. 200). Of course, this point merits our attention that while this process as a normative one is mostly pursued by language agencies, its success involves implementing a comprehensive language policy and planning which, as Akbari (2020) points out, its goals are not only set by authorities with greater power than language agencies, but also its implementation is beyond their power.

Here, it is worth pointing out that standardization of terms as a complex process that entails a number of operations and criteria involves government intervention and cannot be carried out without the intervention of subject specialists, who, after all, are the real end-users of its products (Cabré, 1999).

Facing these facts, we can assert that the challenge which has been introduced in this chapter is not confined to the Iranian academic setting and the guidelines provided in the related works on the topic to combat this situation can be considered and followed by the researchers and language planners in this society.

In all, the function of the third Academy shows that it has suffered from some shortcomings as follows:

First, before coining or selecting equivalents for the foreign terms by the Academy, various equivalents have been coined or selected by the related specialists, translators and lexicographers. There is no doubt that such equivalents, even inappropriate, are not easily replaced by the equivalents proposed and verified belatedly by the Academy.

Second, while the Academy as a government-based language policy and planning agency benefits from governmental support and have more access to other resources, including education systems and the media, as Modarresi (2008) mentions, the Academy, like many language academies in developing countries throughout the world, suffers from a lack of support from its language speaking community. In his words, negative attitude toward the activities of the Academy especially among the specialists is one of its key challenges in achieving the planned goals (see also Barzegar & Khemlani David, 2012; Fathi, 2017).

Third, as pointed out, the accompaniment of the specialists as the real end-users of the academic and technical terms is essential for any lexical modernization, as the prerequisite of developing a modern language. Reviewing the current situation of the Iranian academic setting indicates the insufficient accompaniment of these stakeholders.

Fourth, as mentioned, any government intervention in language subjects terminology to standardization processes (Cabré, 1999). However, such a process without enough guarantee with regard to the usage of the new terms would not be sufficient. Despite the governmental support of the Academy, its products are not favorably accepted or used in Iranian education system.

8 Concluding Remark

Academic Persian is still in its infancy, but it is faced with various challenges in morphological, syntactic, semantic and discursual levels. Among such challenges, the author maintains that the issue which has been introduced and discussed in this chapter- namely the availability of two or more common designations or equivalents for an imported concept- is the most serious problem in the formation and development of academic Persian.

Persian language has recently evolved into a topic of concern for language policy makers and planners, researchers and educators. Bearing in mind that its audiences' support is the prerequisite to its success, the intervention of subject specialists is emphasized again. In addition, paying attention only to some formal linguistic criteria such as well-formedness, morphological motivation, possibilities for derivation, etc. without attending to sociolinguistic factors including usage, medium, language policy, user needs, etc. as well as psycholinguistic factors including idiosyncrasies, customs, morals, aesthetics, inhibitions, etc. (see, Cabré, 1999) can result in adverse outcomes.

Undoubtedly, achieving Persian for academic purposes as a discipline of Persian teaching involves implementing language policy and planning at its three major levels or types, namely status, corpus and acquisition (see, Johnson, 2013) to be able to deliberately influence the function, structure or acquisition of academic Persian in its relevant settings.

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Neologisms in Contemporary Persian Approved by the Academy of Persian Language and Literature: A Case Study of Epidemiology Terms



Asmaa Shehata

Abstract Amid the openness we witness in the world, it is difficult to control the mixing of foreign terms and loanwords that enter into the vocabulary of other languages – be it Arabic, Persian, or French. However, some countries are still setting out to codify the use of foreign terms and maintain their language and national identity. As such we find the Academy of Persian Language and Literature (APLL) in Iran with its attempt to preserve Persian identity, culture, civilization, and heritage. While its original goal was and still is to maintain the strength and originality of the Persian language, this task has become harder with the influx of new words from across all disciplines of science. Methodologically, this paper is based on a corpus analysis using the software Sketch Engine. The corpus contains texts from the online archives of numerous Persian-language Iranian newspapers. To shed light on foreign terms and their Persian equivalents this paper identifies ten terms in the field of epidemiology related to the outbreak of the Corona pandemic in 2020. The shortlisted terms can be categorized into three different groups: (1) terms that have no previously existing equivalent approved by the APLL, (2) terms that have been accepted and approved by the APLL for their prevalence in popular usage, and (3) terms for which the APLL has approved Persian equivalents but which are still in use in parallel with foreign ones. The ten epidemiology-related terms in this case study can be distributed among the three categories as follows: two in group 1, three in group 2, and five terms in group 3. Two examples of group 3 terms will be given compared to just one each from groups 1 and 2. The group 3 terms facilitate a direct comparison between approved and non-approved terms and are therefore especially relevant in the context of this study. This not only reveals the mixed success of APLL approved equivalents, but it shows more generally how the APLL has created

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new terms or reused existing terms and how the APLL carries out its tasks in the past, present, and future.

Keywords Academy of Persian Language and Literature · Approved terms · Epidemiology · Language planning · Term formation · Terminology group

1 Introduction: Living Languages and Language Planning

Persian as language of one of the most important civilizations in history spoken by tens of millions of people and surrounded by many other languages for many and different reasons is also full of loanwords. Several attempts have been made over history in Iran to replace these foreign words with Persian equivalents.

Āzītā Afrāšī (Afrāšī, 1386, p. 88) considers borrowing words as a feature of all languages with Persian being no exception. As stated in the Encyclopedia of Linguistics (Strazny, 2011, p. 325), the lexicon of Farsi has been highly influenced by borrowing from Arabic. It is estimated that 65% of the vocabulary used in modern novels and short stories is of Arabic origin. This number increases when considering conservative and formal writings. The influence of modern European languages such as French, and more recently English, is also evident in the lexicon of this language.

Samīrī has divided all the foreign words that entered Persian over the years into two parts: “A great amount of those words has mostly infiltrated [Persian] through trade and imported goods while the other part such as scientific, cultural, and artistic terms came through either translated works or students who studied abroad. If the flow of foreign vocabulary were slow and gradual, we might not feel much danger. We had at least a chance to digest them. But now that their numbers are on the rise, their entry must be restrained” (Gilani, 1375, p. 2).

Language is an organism. It has the same features as humans: rich or poor, spreading or receding, concentrated in one place or dispersed, alive or dead. As language is influenced by the civilization of the people speaking it, it also intertwines and overlaps with other languages as they interact directly or indirectly with each other. Unsurprisingly, there are many types of influence and impact between the languages of the world. This may be due to neighboring countries, cultural relations between nations, trade relations, wars, invasions, and occupations.

Language overlap is not a new thing. The history of languages is full of mutual language invasion, linguistic interference, word spread and transfer from one environment to another. This linguistic transfer includes a variety of linguistic phenomena in phonology, morphology, grammar, etc. Here, the decision remains to the native speakers either to fight the new foreign terms or to adopt them.

Creating new terms that are appropriate to the language is considered one of the most important ways to keep the native language and the identity of it. Shohamy (Shohamy, 2006, p. xv) identified the power of language as being “used as a form of control, by imposing the use of certain languages in certain ways”.

Language planning as defined by Joan & Jernudd (1971, p. xvi) “is a deliberate change in language by an organization set up to bring about the change”. The aim of language planning is to bring about change in a language or linguistic activities for many reasons, the most important of which is the preservation of the language identity of a nation. Creating new terms and standardizing grammatical, phonological, and morphological non-standard forms are some of these linguistic activities. In the definition of Kaplan & Baldauf Jr. (1997, p. 3),

“language planning is a body of ideas, laws, regulation (language policy), change rules, beliefs, and practice intended to achieve a planned change (or to stop change from happening) in the language use in one or more communities”.

Hence, language academies appeared as a responsible association to preserve native languages. One prominent and classical example of language planning in the context of a nation-building process is the centuries old Académie Française in France founded in 1634 and known today mostly for its strict approach to anglicisms, that is, any English words making their way into the French language.

In the nineteenth century, there were also some European national movements that were concerned with language planning. One of the other examples of language planning and policy took place in Czechoslovakia in the 1920s and 1930s, the participants of which were the linguists of the Prague Linguistic School (Nekvapil, 2011).

2 The Authority of Language Academies

Language academies as defined by Edward (Edward, 2009, p. 257) are “learned institutions, found in most countries or national regions, charged particularly with the definition, the protection, the purity and the enhancement of the national language”. These academies have several tasks, starting from selecting foreign languages, determining rules and techniques by which equivalent terms will be formed, and distributing the neologisms among users of the native speakers in addition to many other tasks. As stated by Shohamy (Shohamy, 2006, p. 66), although language academies have authority to create and renew foreign terms that do not exist in the language and the ability of giving them national flavor, there is no guarantee that they will succeed to insert those equivalent terms in the texts and daily dialogs of users.

However, some countries are still trying to codify the use of foreign terms and maintain their language and national identity. Iran has also established one of the strongest language academies of the world. It was established three different times throughout the twentieth century and the most recent one that was established well

after the Iranian Revolution in 1990 is known as the Academy of Persian Language and Literature (APLL).

Like many foreign terms in Persian that require being studied and researched, the term *Farsī* itself was disputed by the Academy of Persian Language and Literature. As Fatemeh Akbari mentions in her book (Akbari, 2020), *Farsī* is Persian's Iranian endonym that has gained popularity in English and several other languages in recent decades, primarily due to the rapid influx of Iranian migration after the Islamic Revolution of 1979.

It was highly recommended and encouraged by the Academy of Persian Language and Literature in 1992 to use the term *Persian* (and not *Farsī*) in international communication. The Academy argues that *Persian* has been applied in scientific, cultural, and political documents for centuries and has semantic, cultural, and historical associations. If one uses *Farsi* instead, one makes the “mistake” of ignoring this long history, the Academy argues (Akbari, 2020, p. 26).

This chapter will focus on the efforts made by the APLL and especially its terminology group that is concerned with researching the foreign terms and working on finding or creating neologisms as equivalents to them.

3 Historical Background of the Academy of Persian Language and Literature

The entity now known as Academy of Persian Language and Literature was built in three phases. The first started in 1935 and was called Farhangestān-e Iran.

The main article of the charter of this first Academy stipulated that it was founded for the maintenance, development, and promotion of the Persian language. With regard to the tasks of the Academy, the second article stipulated that the Academy should erase incongruous foreign words from the language and coin Persian terms and expressions for every branch of life using Persian roots and words as far as possible and not Arabic or Turkish ones (Sadeghi, 2001, p. 23). Moreover, the Academy was tasked with establishing a set of rules according to which new terms were made, determining either the use of the foreign terms or their elimination altogether, collecting terms from old books, and encouraging poets and writers to create masterpieces (Saadat, 1393, p. 49).

The criteria of creating the new terms were detailed in the tenth rule of the charter, which stated that the equivalent term must meet several conditions: In the first place, it should be common, familiar, certain, and valid in addition to having a definite Persian root and a correct derivation. If this requirement did not apply to the proposed term, then an Arabic word could be proposed or a compound word of Arabic and Persian. If the right alternative could not be found, then it was possible to choose a word from the abandoned Persian words with the same meaning or a close one. In the last place came the option of keeping the international foreign borrowed term to be used in its original language (Gilani, 1374, p. 139).

In 1941, the terminology group succeeded to approve 1,700 terms and another 2,000 words in 1942. That would be found in the book *Vāžehhā-ye nō* (Farhangestān-e Iran, 1354). Some of the terms are still in use since then such as *havāpaymā* (airplane) and *forōdgāh* (airport). The first Academy was shut down in 1944.

In 1968, the second Academy – or what is known as Farhangestān-e zabān-e Iran – was established by order of shah Moḥammad Reżā Pahlavī with two main objectives: (1) keeping the Persian language on its long-standing cultural base while preparing it to meet the various scientific, technological, and cultural needs of the country and (2) researching or investigating all current and previous Iranian languages and dialects, especially for further identification and promotion of the Persian language (Keyā & Gol-Golāb, 1355, p. 20).

The criteria of choosing and structuring the equivalent words in this Academy were stricter than in the first one. Word formation was to start with the Persian origin of the term and how common it was during that time in the first place, such as *pāygāh* (base). In the case of the absence of such a condition came the possibility of using a word from textbooks that was not very common during that time, such as *nōf* or *ṣedā* (sound). Next came the choice of using a word from Old or Middle Persian or its dialects, such as *barzīdan* (practice), a Middle Persian term. Finally, it was possible to create a new word which observed the consistency of the language and its grammatical and phonological principles, such as *dast'nāmeḥ* (manual) (Moghadam, 1374, pp. 136–138). The second Academy coined around 35,000 terms to replace mostly English terms. It was shut down after the Islamic Revolution in Iran in 1979.

The third Academy – the Academy of Persian Language and Literature – was established in 1990. The idea of instituting the Third Farhangestān is to preserve, strengthen, and disseminate the Persian language. These were basically the main goals of the First and the Second Farhangestān, too. The third Academy was also named Farhangestān-e zabān-e va adab-e Fārsī thus continuing the academic tradition established in 1935 (Sadeghi, 1375, p. 149).

Its goals according to the statute of the APLL (Haddad-Adel, 1379) are:

- Maintaining the strength and originality of the Persian language – the “second language of the Islamic world” according to the APLL – as one of the pillars of Iranian national identity conveying knowledge and Islamic culture.
- Developing a clear and refined language to clarify the scientific and literary thoughts and creating continuity between the past, present, and future generations.
- Promoting the Persian language and literature and extending its domain inside and outside Iran.
- Expanding the Persian language to fit the circumstances of the time and for the preservation of human life and the development of science and technology.

4 The Terminology Group in the APLL

The terminology group of the APLL was officially established in 1992. According to the official website of the Academy (<https://apll.ir/>), there are many groups that are active in the terminology department and working aside each other to contribute to the fulfillment of the main goals.

The main goal that was set by the group is helping to strengthen and expand the Persian language and equip it to meet the growing needs of cultural, scientific, and technical developments. Coordinating the activities of terminology, word formation, and finding equivalents to the foreign terms in Persian is another goal.

In order to achieve the desired goal, it was necessary to create a number of bodies such as a specialized word-selection working group of researchers and assistant researchers, coordinating councils, a foreign sourcing unit, a culture log unit, a national and international standards unit, and finally the responsible group for selecting and registering the approved terms. As of 2020, there are fifty specialized working groups, 15 of which have been outsourced¹, and more than six coordination councils working on the supervision of the terminology group in the APLL. Each group has at least five scientific and technical experts in word formation along with researchers (The Academy of Persian Language and Literature, 2019).

The first activities of the terminology group were to research and approve equivalent terms in the public domain. However, due to the importance of term formation in both scientific and technological fields, in 1997/1998, the terminology group started cooperation with the academies of science, medical sciences, and arts as well as research associations and universities.

5 Principles and Regulations of the Terminology Group

The terminology group of the Academy of Persian Language and Literature has defined a set of principles regarding the process of creating neologisms instead of the foreign terms that entered the language. This set of principles was published in a booklet (Terminology Department, 1388 (2009), pp. 43–58) by the Academy. This section will highlight some of these principles:

- Persian grammar must be observed in the process of term formation.
- The chosen term must be suitable for the corresponding term-formation process, such as derivations and combinations.
- Observing the phonetic elements of Persian and loan terms in the process of term formation, the pronunciation of new words should be in accordance with the phonemes and syllabic rules in Persian.

¹ *Outsourced* (*borunsepāri*) is used in the main text of the Farhangestān's website, but it was a subject of discussion since it is not found in some Persian dictionaries.

- The Persian writing system rules should be considered in the process of term formation.
- Existing terms in the Persian language – whatever their origins – can be used in forming new Persian terms from foreign terms provided that they can be prefixed or suffixed according to Persian rules.
- In case of homonymy and polysemy in both source language and Persian, the terminology group introduced a set of rules to follow:
 1. When a foreign term carries more than one concept (homonymy), equivalents to each of these concepts must be found in Persian.
 2. Given a foreign term in a specific field, only one equivalent in Persian should be selected unless that foreign term in the same field has more than one meaning (synonymy). In order to avoid confusion in Persian, it is admissible to find or create more than one equivalent to express different concepts of that foreign term separately.
 3. When one concept is carried by more than one foreign term (polysemy in the source language), it is better to find only one equivalent in Persian.
 4. It is admissible to use only one Persian equivalent for different foreign terms in many domains (homonymy in Persian).

6 Terms Considered Originally Persian by the Academy

The status of foreign terms from various languages in the Persian lexicon is difficult to compare because of the historical development of the language and depending on how deeply rooted any given foreign language is in the Persian dictionary. Language evolution makes the comparison unfair between the existence of foreign terms in Persian and accepting them as original terms as is the case with Arabic terms in Persian when compared to English terms. English and European terms have entered Persian since around one century ago while the relationship with Arabic started fourteen centuries ago with the Islamic conquest of Persia (cf. Paul, 2010).

Moreover, these European terms entered Persian in clusters and interrupted Persian term-formation processes (Tabatabaei, 1385, p. 120). One example is the word *piyānō* (from the English piano) that was followed by the word *piyānist*.

In order to develop principles and specific approaches that specialists adhere to for the proper selection of equivalents it was necessary for the Academy to define which words are considered Persian. The booklet on principles and regulations by the Academy of Persian Language and Literature (Terminology Department, 1388 (2009), p. 22) states that terms are considered originally Persian in the following cases and may therefore be used in the process of term formation and creating equivalents:

1. All originally Persian words that are documented in authentic dictionaries.

2. All originally Arabic words that are either still used in contemporary Persian or that appeared in authentic poetry and prose books till the end of the fifth century AD.
3. All originally Indian, Turkish, Greek, and Mongolian terms and all similar ideas that are still used either in contemporary Persian or used in prestigious specialized texts.
4. Originally European terms which are common in contemporary Persian and simple terms which can be easily subject to morphological changes, for both of which finding a Persian equivalent is not necessary if agreed by the responsible terminology group committee.

7 Approaches to Term Formation by the APLL

This section will shed light on the approved language sources by the terminology group as an official authority for term formation in Iran to be used in the process of forming the equivalents in addition to the approved methods and approaches of forming the new terms. With regard to the first point, the Academy has defined a set of words that may be used in the formation of the new equivalent terms. First come all the old words that are used in Persian regardless of their origins – as mentioned in the previous section. Second, all those words may be used that belong to the living languages and dialects of Persian and are still in use in contemporary Persian. Living languages and dialects refer in this category to Kurdish, Balochi, Gilaki, and Mazanderani, dialects such as Sivandi in Fars, Zoroastrian in Yazd and Kerman, as well as other Persian dialects such as Shirazi, Kermani, Khorasani, and Kashani. The terminology group acknowledges that using these words is highly recommended in the process of term formation. Third, terms and roots that belong to Middle and Old Persian can be considered.

The terminology group must follow specific steps in order to produce the final equivalents: firstly, selecting a word or a phrase from the words or phrases that already exist in the language (e.g. *nabz*, pulse). Secondly, choosing an existing word or phrase to assign a new yet similar term (e.g. the old meaning of the term *bāft*) (Terminology Department, 1388 (2009), pp. 34–36).

Thirdly, creating the term. Term formation occurs with three approaches starting with the creation of a word according to the Persian morphological system. Terms in Persian are subject to two morphological processes. Derivation is about creating new terms by adding suffixes or prefixes to the stem (e.g. *dānešmand*, scientist), while combination is about creating new terms by combining at least two words to create a new one (e.g. *ketābhāneh*, library). Words in Persian could be simple words (e.g. *ketāb*, book), derivative words (e.g. *golestān*, rose garden), compound words (e.g. *seyāsatmadār*, politician), or derivative-compound words that occur in both of the morphological processes such as *honarmandparvarī* (artist).

Using Persian syntactic elements in the process of term formation is another approach. It refers to the process of linking one or more words through grammatical

elements. Adverb phrases (e.g. *‘abzāvōl*, bleach), adjective phrases (e.g. *delgarm*, assured), and propositional phrases (e.g. *bolandparvāz*) are the most common syntactic elements that are used in the term-formation process.

The third approach in this sense is the abbreviation which uses an abbreviated form of the word or the syntactic form using one of the following methods: one-letter abbreviation which is usually the first letter of the word (e.g. *š* instead of *šafhe*), multi-letter abbreviation by using the first letter of each word in the phrase (e.g. *š.m.r* as an abbreviation of *šimīyāyī-ye Mīkrōbī-ye rādīyo’aktīv*), apocopes (e.g. *áz* in *áz māyešgāh*), compacting some of the letters – usually the first letter and the last one and deleting the rest – (e.g. *taḥ* in *tārīḥ*), creating a word by mixing parts of each word (e.g. *tešbād* mixed from the words *‘āteš* and *bād*), and the abbreviation that is made of individual initial letters which is known as acronym (e.g. *sāvāk* as an abbreviation of *sāzemān-e eṭṭelā‘āt va amniyyat-e kešvar*) (Terminology Department, 1388 (2009), pp. 38–39).

Fourthly, borrowing the foreign term with the same concept as the source language. This is usually the case with the chemical, medical, and physical terms.

Finding an equivalent to foreign terms in Persian – be it a word, a phrase, or an abbreviation – should be done in two ways according to the principles book of the Academy (Terminology Department, 1388 (2009), p. 41). The first is the conceptual equivalent which is concerned with the meaning regardless of the grammatical and morphological structure of the foreign word. The second way is concerned more with the structure of the foreign term which requires finding an equivalent to every meaningful part of the foreign term.

8 Terminological Activities

From its inception until now, the terminology group has succeeded to publish 15 dictionaries by the name of *Farhang-e vāzehā-ye mosavvab-e farhangestān* (*A Collection of Terms Approved by the Academy*), volumes 1 through 15, which contain more than 60,000 equivalent Persian terms instead of the foreign ones. These exist alongside specialized dictionaries in particular fields by the name of *hezār vāže* (*A Thousand Terms*), such as *hezār vāže-ye ‘olōm-e ensānī* (*A Thousand Terms of Humanities*) and *hezār vāže-ye honar* (*A Thousand Terms of Art*). In addition, a lot of other publications regarding the approved terms and how to select them have been issued.

In social media, the terminology group is also very visible. It has a platform in many of the social media applications by the name of *Cheshmocheragh* such as Facebook², Instagram³, Telegram⁴, and LinkedIn. It publishes new posts about

²https://m.facebook.com/vazhe.gozini.56?pn_ref=ec_friends_card&ref=bookmarks

³https://instagram.com/_cheshmocheragh_?igshid=mcmu9tzsfk7x

⁴<https://t.me/cheshmocheragh>

approved terms on an almost daily basis. The terminology group created a channel on Telegram in order to open a discussion about terms still in the process to be approved with researchers who either work with them or researchers who have an interest in forming the terms.

The dictionaries with the collection of terms approved by the Academy can be accessed through many platforms, either the main website of the Academy⁵ or the Vajehyab⁶ platform, which presents the terms with their definitions as well.

In order to achieve its goals, the terminology group cooperates with the press and websites to consult experts and specialists about the suggested approved terms by the APLL. They collaborate with radio and TV stations, too, as they are the main authorities that communicate the most with people. The radio and TV communication office provides the terminology group with feedback on a regular basis so as to help it to improve the research criteria as well as announce the linguistic content directly and indirectly on its platforms. But did this succeed to spread the new terms among the wider public, particularly in newspaper discourse? And how does the terminology group react to suddenly upcoming situations such as the Corona crisis in 2020?

9 Case Study: Term Formation and the 2020 Corona Crisis

In light of the changes that are occurring around us in society, especially in 2020 and in relation to the Corona pandemic, it seems that many terms have appeared in Persian that were not widespread among the public and were only used among specialists. In an interview, the official speaker of the Academy said that it had to work on Corona-related terms as it found that these terms were important at this time and more dominant than before. Several terms have resurfaced and forced the APLL as the governmental language planning authority in Iran to do new research regarding these terms.

10 Methodology

The following section will explain the methodological approach of the chapter, the used formula to get the targeted results, and the mechanism of selecting the approved terms by the Academy to be measured. This paper is methodologically based on a corpus analysis of the online archives of major Iranian newspapers. These papers are among the largest and most widely read Iranian newspapers and therefore serve

⁵<https://apll.ir/>

⁶Vajehyab is a private Persian translation and localization association that offers a lot of services including access to online Persian dictionaries. <https://www.vajehyab.com/>

as the primary source of this research. Moreover, they cover the wide spectrum of political orientation from hardline/conservative papers such as *Kayhan* to more moderate titles such as *Hamshahri* to reformist-leaning papers such as *Aftab-e Yazd* (Khiabany, 2010, p. 84), (Mahtafar et al., 2009).

Until a few years ago, the largest of them sold daily copies of several hundred thousand. Although such figures should be viewed with caution, more recent numbers suggest a decline of daily circulation – some of it due to economic constraints. As of August 2018, *Hamshahri* still sold around 180,000 copies per day while *Jam-e Jam* was estimated at 70,000 to 80,000 daily copies. Most other papers – among them *Aftab-e Yazd*, *Shargh*, *Arman*, and *Etemad* – sold less than 7,000 copies per day (Khiabany, 2010, p. 85), (Payvand, 2018). Of course, this is a glimpse at the print circulation only. A look at the number of readers of their websites might yet reveal different results.

Numbers for the readership of the websites of the newspapers are difficult to come by with. When it comes to the social media presence of these newspapers, though, Table 1 will give some insight into their reach and popularity on selected online platforms. This overview considers only Persian-language output and not publications of those newspapers in other languages. All accounts mentioned have been active at least several times a week, most of them are even updated on a daily or hourly basis. Compared to the sales of the print versions, some distributions are reversed. Several newspapers – such as *Etemad*, *Jam-e Jam*, and *Shargh* – show a (considerably) stronger combined online following whereas *Hamshahri* has engaged significantly fewer readers in social media.

Table 1 Social Media Presence of Selected Iranian Newspapers (November 6, 2020)

Twitter			Telegram		
Account	Followers	Active since	Account (https://t.me/)	Subscribers	Active since
@SharghDaily	422,836	August 2013	SharghDaily	11,929	2015
@isna_farsi	207,060	July 2015	isna94	82,787	2015
@EtemadOnline	173,971	April 2014	etemadonline	263,961	2017
@IranNewspaper	110,602	June 2016	irannewspaper	19,359	2016
@vatanemrooz	50,794	February 2014	vatanemrooz	3278	2015
@jamejamCPI	48,551	October 2013	jamejamdaily	204,482	2019
@KayhanNewsFa	34,825	December 2013	kayhannews_1	1567	2018
@hamshahrinews	14,899	September 2017	hamshahrinews	14,020	2016
@aftabeyazd_ir	Account blocked for violating Twitter's terms and conditions		Aftabeyazd_ir	2528	2016

Table 2 Selected Newspapers in the Corpus

Newspaper	Number of words
Jam-e Jam	~3,256,729
Kayhan	~1,805,583
Vatanemrooz	~1,700,235
Aftab-e Yazd	~1,531,872
Iran	~1,140,675
ISNA	~1,076,706
Hamshahri online	~1,001,044
Armanmelli	~776,670
Sharghdaily	~82,794
Etemad Newspaper	~45,430

In order to collect all the documents from the newspapers and perform the terms analysis, the platform Sketch Engine was used to build a corpus that contains 13,014,318 words in 11,951 documents, i.e. newspaper articles and other news pieces. Sketch Engine is one of the rare tools that provide the function to build a corpus in Persian and conduct the search in question by counting words, adjacent words, and documents.⁷ The corpus is up to date as of August 19, 2020. Table 2 shows selected Iranian newspapers that were used in building the corpus, including the number of words in each of them.

Many terms have been circulating in the months since the Corona pandemic began in early 2020. People all over the globe virtually mention the same terms during the same period. The same situation occurred in Iran. With the aim to select the terms to be measured in this chapter, the word *Corona* was searched for in two ways: *korōnā* and *kōvīd-19*. Then the adjacent words that appear frequently together with *korōnā* and *kōvīd-19* were searched for as Sketch Engine provides searching for multiple words expressions (N-grams). Finally, these words were searched for again in the corpus using the Sketch Engine wordlist, which shows the number of times and documents those terms occur in the corpus. It is from these results that the foreign terms discussed in this chapter were selected.

This chapter will discuss the usage of selected terms that are originally non-Persian. It follows the question whether these foreign terms were previously approved by the Academy or not. If yes, which terms are more accepted by journalists, the approved terms or the foreign ones? What was the reaction of the APLL and the terminology group on the new terms that they did not deal with before?

⁷Sketch Engine is an online platform that provides large high-quality word databases, lexical data, wordlists, and lexicons in many languages such as English, Arabic, French, Spanish, German, Persian, and other languages as well. Concerning Persian, this platform provides concordances (examples of use in context), N-grams (multiword expressions), a one-click dictionary, a word list (frequency list), and key words (terminology extraction). This platform supports researchers with building a corpus or corpora and analyzing the data and gives also statistical results (<https://www.sketchengine.eu/>).

To check the availability of the equivalents for the terms under study, a list of the terms approved by the Academy which were published in 16 volumes was checked.⁸ To be able to measure the effectiveness of the terms approved by the APLL in contrast to the foreign ones there were two ways. Firstly, the frequency of the specified term in the corpus could be counted but that might not be very accurate to measure the power of the tested term in newspapers because the term could be used many times in only one document. This gives the impression of a higher frequency of a term that might not be spread far and used strongly in the whole corpus.

Secondly, the weight of the term could be measured by using the document numbers of the whole corpus, the term frequency [tf], and the document frequency [df]. This way assesses the exact value of terms in the given corpus. In order to calculate the term frequency of the term in the document, the following equation will be used. This equation is known by the name TF-IDF.

$$TF(i, j) = \frac{\text{Term } i \text{ frequency in document } j}{\text{Total words in document } j}$$

Where T(i) is the term and j is the document. Then the inverse document frequency will be calculated with the following equation.

$$IDF(i) = \log_2 \left(\frac{\text{total documents}}{\text{documents with term } i} \right)$$

Then the weight *W* of the chosen approved term *i* will be measured by the following mathematical formula:

$$W_{i, j} = tf_{i, j} \times \log \left(\frac{N}{df_i} \right)$$

Where $tf_{i, j}$ is the number of occurrences of *i* in *j*, *N* is the total number of documents in the corpus, and finally df_i is the number of documents that contain the word *i*.

The formula TF-IDF⁹ is used here to weigh the importance of a word in specific texts, corpus, or society. TF-IDF is a mathematical test determining how important and effective a term is to a subject in a document set. It is achieved by combining two metrics: first, how many times a term appears in a text or a document, and second, the word reciprocal frequency of a text across a series of documents.¹⁰

⁸The list was sent to the author by Mehnoosh Tehrani, the head of the communication broadcasting office of the Academy of Persian Language and Literature. The volumes are cited as: (Terminology Group of the APLL, 1382 (2004))

⁹TF-IDF is an abbreviation for term frequency – inverse document frequency.

¹⁰For more information about this formula see: (Rajaraman & Ullman, 2011), (Beel, Langer, & Gipp, 2017), (Cheng, Yang, Zhao, & Gao, 2018) and (Aizawa, 2003).

TF-IDF helps to understand the distinctive frequency of a term in a text when compared to other texts. The TF-IDF score is obtained by dividing the term frequency by the number of texts where that term occurs. Thus, it stands in contrast to a pure term count or a term frequency relative to the text length and provides a more in-depth understanding of the weight of the terms compared to other texts. The TF-IDF score circumvents the impression that a term is important or relevant just because it occurs frequently, which may be due to the fact that a specific author prefers to use that term while others might choose different terms to express the same idea (Ramos, 2003).

11 Selected Terms

The selected approved terms were chosen – as mentioned before – by searching the corpus for the terms *korōnā* – which has 21,912 hits in the corpus – and *kōvīd-19* – which has 2,347 hits in the corpus (see Table 3) – and identifying the adjacent terms that show up most with those terms. Some of the located terms that sound like foreign terms but were written in Persian letters are as follows: *vāksan* (French: vaccin), *qaranṭīneh* (French: quarantaine), *pāndemī* (French: pandémie), *epīdemī* (French: épidémie), *test* (English: test, such as in blood test or corona test), *vīrōs* (French: virus), *mask* (French: masque), *āntībiyōtīk* (French: antibiotique), *āntībādī* (English: antibody), and last but not least *porōtokol* (French: protocole). By way of example and for the purpose of this paper, only the first five terms will be selected for closer scrutiny.

The terms will be divided into three groups: (1) terms that have no previously existing equivalent approved by the APLL (e.g. *vāksan*, *porōtokol*) although there may be Persian words describing the same meaning outside of the formal approval by the APLL, (2) terms that have been accepted and approved as foreign terms by the APLL for their prevalence in popular usage (e.g. *qaranṭīneh*, *mask*, *vīrōs*), and (3) terms for which the Academy has approved Persian equivalents but which are still in use in parallel with the foreign ones (e.g. *epīdemī/pāndemī/hamegīr*, *āntībiyōtīk/pādzīst*, *āntībādī/pādtan* and *test/āzemāyeš*) (see Table 4 for details).

Table 3 Primary Search
Results of Key Terms

Key term	Number of search results
<i>Korōnā</i>	21,912
<i>kōvīd-19</i>	2,347

Table 4 Selected Terms, Number of Corpus Hits, and Categorization

Selected Foreign Term	Persian Equivalent	Number of Hits	Category
vāksan		1795	Group 1
	māye	7274	Group 1
	māye kōbī	0	Group 1
porōtokol		2564	Group 1
	šīvehnāmeḥ	135	Group 1
qaranfīneh		1222	Group 2
vīrōs		8424	Group 2
Mask		3400	Group 2
epidemī		402	Group 3
pāndemī		226	Group 3
	hamegīr	904	Group 3
Test		1371	Group 3
	āzemāyeš	2164	Group 3
āntibiyōtik		96	Group 3
	pādzīst	0	Group 3
āntībādī		169	Group 3
	pādtan	118	Group 3

12 The Foreign Term *vāksan*

The term *vāksan* belongs to the first group mentioned above because it does not have a previously approved term by the Academy of Persian Language and Literature. Still, there is a Persian word that does exist in lexicons that carries the same meaning. It can be considered used on a large scale. According to Amid's dictionary, *māye*, a noun, has various meanings in many fields: basis, capital, amount, measure, and in the medical field it means a medicine that is injected into a person to prevent a disease (Amid, 1389, p. 904).

Māye could also be found in so many noun compounds, adjectives, or compound verbs, e.g., *soḥan māye* (issue), *por māye* (wealthy), as an adjective *māyedār* (rich man, wealthy), *māye gozāštan* (to invest, to spend time, to spend money), *māye kōbī* (vaccine), *māye kōbī kardan* (to vaccinate), and so many other meanings in other compounds (Tabibian, 1384, p. 904).

The terminology group has approved a lot of terms that include the lemma *māye* but not in the medical field and not as an equivalent to vaccine. For example, *māye* (in the field of music) means tonality, *pādzīmāye* (biology, proteinology) means antimicrobial or antienzyme, *ravānmāye* (psychology) means psychic energy or mental source, *darōnmāye* (cinema, television, music, and performing arts) means theme.

The lemma *māye* has high frequency in the corpus with its 11,951 documents covering 13,014,318 words. It appears in the corpus as a part of other terms 7,274 times, such as *sarmāye* (capital money) in economic contexts and *sarmāyegozārī* (capitalization, investment). All the terms that include that lemma are seen in 1,772

Table 5 Frequency of the Terms *vāksan* and *māye*

	<i>Vāksan</i>	<i>Māye</i>
Number of hits	1795	7274
Number of hits per million	123.46	500.29
Number of documents	300	1772
Term Frequency TF	1.37925e-4	5.58923e-4
Inverse document frequency	1.600282992	0.828940529
Weight	2.20719e-4	4.63314e-4

documents, that makes a TF of 5.58923e-4 (i.e. 7,274 divided by 13,014,318) and the inverse document frequency 0.828940529 (i.e. $\log(11,951/1772)$). Therefore, the weight of that lemma in the corpus is 4.63314e-4 (i.e. TF multiplied by IDF). Although this lemma has a heavy weight, the term that carries the meaning of vaccine is not among the results (see Table 5).

The term *vāksan* is used in Persian more often and does exist in many lexicons with the meaning of vaccine, *vāksanzanī* (vaccination), and as a verb *vāksan zadan* (to vaccinate) (Tabibian, 1384, p. 1067).

The terminology group did not state the acceptance of that term as a foreign one or even create a Persian equivalent although it is used in the definition of other equivalents. Its definition of the expression *kār'āzemāy-ye meydānī* (field trial) in the pharmaceutical and health sciences as it is defined by the terminology group in the ninth volume of the collection of terms approved by the Academy (Terminology Group of the APLL, 1382 (2004)) is as follows: “A clinical trial for *vaccines*, drugs, and prevention programs performed at the community level instead of in laboratories or at health care providers” (emphasis added).

The term *vāksan* has 1,795 hits in the corpus (123.46 per million) in 300 documents, the TF is 1.37925e-4 and the inverse document frequency is 1.600282992. Consequently, the weight of *vāksan* is 2.20719e-4 (see Table 5).

Despite the heavy weight and the high frequency of the stem *māye* in the corpus, no term is mentioned with the meaning of *vāksan*. This term would be *māye kōbī*, which does not occur in the corpus at all whatever the way of spelling. This indicates the prevalence, spread, and domination of the foreign term.

13 The Approved Term *qaranḡīneh*

Qaranḡīneh is one of the terms that the terminology group of the APLL approved as a foreign term from the French term *quarantaine* in the Persian dictionary. It therefore belongs to the second group mentioned above. It was approved in the fifth volume of the collection of terms approved by the Academy as *langargāh qaranḡīneh* in the field of maritime transport, not in the medical field, to express the meaning of quarantine anchorage which is defined as follows: “a sea side location next to the shore that has a strong anchoring base” (Terminology Group of the APLL, 1382

Table 6 Frequency of the Term *qaranṭīneh*

	<i>qaranṭīneh</i>
Number of hits	1222
Number of hits per million	84.05
Number of documents	498
Term Frequency TF	9.38966e-5
Inverse document frequency	1.380174904
Weight	1.29594e-4

(2004)). The term *qaranṭīneh* as a medical term is defined in Amid's dictionary (Amid, 1389, p. 814) and *Loghamāme* (Dehkhodā, 1998, p. 17519) as a place in which individuals accused of developing a contagious disease are held for a designated period to verify whether they are well or not and to deter the transmission of infectious diseases.

It comes often as a compound with other words, as in the following expressions: *'ayyām-e qaranṭīneh* (quarantine days), *dorān-e qaranṭīneh* (quarantine period), *qaranṭīneh-ye ḥānegī* (home quarantine), *ruzhā-ye qaranṭīneh* (quarantine days), *qaranṭīneh be sar-bordan* (to be quarantined), and *šarāyeṭ-e qaranṭīneh* (quarantine conditions).

Qaranṭīneh is mentioned 1,222 times in the corpus (84.05 per million) in 498 single documents, which makes the frequency of it in the documents 9.38966e-5 and the inverse document frequency 1.380174904. Consequently, the weight of the term is 1.29594e-4 (see Table 6).

14 The Foreign Term *epīdemī* and the Approved Term *hamegīr**

One of the terms that appeared most with the term *korōnā* was *epīdemī*, which belongs to the third group mentioned above. *Epīdemī* was mentioned before in Amid's dictionary (Amid, 1389, pp. 68–69) and defined as follows: “outbreak of a disease, a common disease, or a contagious disease that affects a large group of people”. It is one of the terms for which the Academy found an equivalent replacing it with the term *hamegīrī* (in the medical field) defined as follows: “excessive outbreak of a disease or a sickness in a certain population”.

According to the concordance description¹¹ of Sketch Engine, the term *epīdemī* as a foreign term still used in Persian appears in the corpus 402 times (27.65 per

¹¹ The concordance is a tool with a variety of search options. It searches words, phrases, tags, documents, text types, or corpus structures and displays the results in context in the form of a concordance. The concordance can be sorted, filtered, and processed further to obtain the desired result.

Table 7 Frequency of the Terms *epīdemī*, *pāndemī*, and *hamegīr*

	<i>Epīdemī</i>	<i>Pāndemī</i>	<i>hamegīr</i>
Number of hits	402	226	904
Number of hits per million	27.65	14.92	62.18
Number of documents	202	138	476
Term Frequency TF	3.08891e-5	1.73655e-5	6.9462e-5
Inverse Document Frequency	1.772052877	1.93752516	1.399797294
Weight	5.4737e-5	3.36461e-52	9.723e-5

million).¹² It appears 271 times in its lemma form. The remaining mentions refer to derivatives such as the noun *epīdemiyōlōžī* (50 times), the noun or adjective *epīdemīk* (16 times), and the plural noun *epīdemiyōlōžīstehā* (11 times). All other 15 derivatives appear less than ten times each.

The corpus contains 11,951 documents covering 13,014,318 words wherein the lemma *epīdemī* (or a lexical variation thereof) appears 402 times in 202 documents. Consequently, the term frequency TF of those terms is 3.08891e-5 (i.e. 402 divided by 13,014,318) and the inverse document frequency IDF is equal to 1.772052877 (i.e. $\log(13,014,318/202)$). This yields a TF-IDF score of 5.4737e-5 (i.e. TF multiplied by IDF).

In Persian, both *epīdemī* and *pāndemī* are used as synonyms for the approved term *hamegīr*. The foreign term *pāndemī* is mentioned 226 times in the corpus in 138 documents. Consequently, the term frequency of those terms is 1.73655e-5 and the inverse document frequency is 1.93752516. This gives a *TF-IDF* score of 3.36461e-5 (see Table 7).

The term *hamegīr* is the equivalent term to the foreign term *epīdemī* approved by the APLL. All the words that contain the lemma *hamegīr** appear 904 times (62.18 per million) in the corpus.¹³ The noun *hamegīrī* appears 694 times all over the corpus, while the adjective *hamegīr* is counted 178 times. Each one of the other six derivatives – including *hamegīršenāsī*, *hamegīršodan*, and *hamegīrtar* – occurs ten times or less.

Therefore, regarding the terms *epīdemī* and *hamegīr*, *hamegīr* does not only occur more often and in more documents than *epīdemī* in absolute numbers of documents all over the corpus. Its weight is also heavier than that of *epīdemī*. The TF-IDF weight of *hamegīr* as an equivalent approved term by the APLL is 9.723e-5 in contrast to the weight of *epīdemī* that is 5.473e-5 (see Table 7).

In line with the previous findings, the Academy succeeded to establish the term *hamegīr* as an approved term among journalists in contrast to the foreign terms *epīdemī* and *pāndemī*. Nevertheless, the use of *epīdemī* and *pāndemī* as foreign terms is not little and should not be underestimated.

¹² Frequency in Sketch Engine refers to the number of occurrences or hits of a word. The frequency per million is the number of occurrences (hits) of an item per million. It is related to the whole corpus, not to text type (Sketch Engine, 2020).

¹³ The search was conducted with the search term *hamegīr** to be able to find terms with the same stem even if they do not continue with *ī* (i.e. *hamegīrī*).

15 The Foreign Term *test* and the Approved Term *āzemāyeš*

Another example of a group 3 term is the term pair *test/āzemāyeš*. To express the meaning of the medical test such as blood test or Corona test, the Persian language uses the term *āzemāyeš*. In the crisis of the Corona pandemic the term *test* was used globally either to specify the tests used to detect the virus or clinical tests to find a treatment or vaccine for the virus. In this context and from the perspective of the APLL the term *āzemāyeš* should be used but in parallel with this term the English term *test* is also used in the newspaper articles related to the Corona topic.

Āzemāyeš in Dehkhodā's dictionary (Dehkhodā, 1998) is mentioned as gerund/ action noun extracted from the verb *āzmōdan*, which has multiple meanings such as test, experiment, and affliction. *Āzemāyeš* is approved by the APLL in many fields such as *āzemāyeš-e soqōt* in the air transport field which means drop test in English or *jarh-e āzemāyeš* in the field of statistics where it means design of experiment as well as in the field of microbiology *āzemāyeš-e raqīqsāzī*, which means dilution test.

In order to define the weight of the two terms – *āzemāyeš* as approved term and *test* as a foreign term – used in Persian and determine the result of whichever is more used in Persian and how successful the APLL was in making the Persian term more popular, both lemmas were searched for in the corpus and the terms with the required meaning were sorted for comparison.

The compound of *test-e korōnā* was repeated 120 times in the corpus whereas *āzemāyeš-e korōnā* was repeated 28 times. For accurate results, the TF-IDF value is used to sort both compounds without repeating the same article. The weight of *test-e korōnā* is 2.00989e-5 where the weight of *āzemāyeš-e korōnā* is 5.69289e-6 (see Table 8). In this case, the use of the consecutive terms that include the approved term by the Academy is lower than the foreign term.

Regarding the foreign term *test* itself, it appears 1,371 times in the corpus (94.3 per million) in 377 documents which means that the TF-IDF weight of the term is 1.5813e-4. The term *āzemāyeš* has 2,164 hits in the corpus (148.84 per million) in 789 documents, which gives a weight of 1.96263e-7 (see Table 8).

The Persian term *āzemāyeš* that was previously approved by the terminology group is considered significantly less heavy than the foreign term *test* that is still in use in the newspapers domain and reflects the usage of that term in public.

Table 8 Frequency of the Terms *test* and *āzemāyeš*

	<i>test</i>	<i>āzemāyeš</i>	<i>test-e korōnā</i>	<i>āzemāyeš-e korōnā</i>
Number of hits	1371	2164	120	28
Number of hits per million	94.3	148.84	8.25	1.93
Number of documents	377	789	79	27
Term Frequency TF	0.000105346	1.66278e-7	9.22061e-6	2.15148e-6
Inverse document frequency	1.501062896	1.180327243	2.179777155	2.64604082
Weight	0.00015813	1.96263e-7	2.00989e-5	5.69289e-6

16 Conclusion

The present analysis can draw from a large corpus in terms of word count and the number and bandwidth of newspapers and individual documents contained therein. This is important for a representative image of the use of foreign terms and Persian equivalents created by the Academy of Persian Language and Literature and its terminology group. It was shown that the terminology group follows a clear set of rules to research foreign terms and create Persian equivalents.

The case study looks at terms from the field of epidemiology in current newspaper articles in the light of the Corona pandemic that affected the world in general and Iran in particular since the beginning of 2020. A set of five terms were selected by way of example and categorized into three different groups: (1) terms that have no previously existing equivalent approved by the APLL, (2) terms that have been accepted and approved by the APLL for their prevalence in popular usage, and (3) terms for which the APLL has approved Persian equivalents but which are still in use in parallel with foreign ones.

Group 1 contains terms such as *vāksan*, which are used in Persian even without formal or official approval by the APLL. Consequently, there is no measure of success beyond the impression that APLL processes were overtaken by facts in actual language use.

Group 2, which includes terms such as *qaranfīneh*, is special in the sense that no visible term formation took place even if the absence of an originally Persian equivalent does not mean that the APLL and its terminology group did not spend time on doing their research and following procedures regarding such terms. They just concluded that the foreign term is worth incorporating into the official lexicon of Persian. Since this process is not public, further research into the term formation process through interviews with specialists in the terminology group could shed light on the alternative ideas and proposals put forward.

Finally, group 3 is of particular interest because it enables a direct comparison between approved and non-approved terms. The two sample alternatives of *epīdemī/pāndemī* vs. *hamegīr* and of *test* vs. *āzemāyeš* revealed mixed results, though. The trend seems to be that non-approved terms have a higher word count when including the alternatives *āntībiyōtīk/pādzīst* and *āntībādī/pādtan*, which, however, occur significantly less in the whole corpus. The shortlisted terms met with different success in Iranian newspapers. The approved equivalent term *hamegīrī* shows higher frequency than the foreign terms *pāndemī* and *epīdemī*. By contrast, the foreign term *test* is more dominant than the approved term *āzemāyeš* as a single term and also in the comparison between the phrases *test-e korōnā* and *āzemāyeš-e korōnā*.

The foreign term *vāksan* is also repeated substantially while the Persian term *māye kōbī* that carries the same concept is not mentioned in the corpus at all. It should be noted, though, that the term *māye* independently, which is included in the structure of many other words, has a great weight and high frequency. This makes reusing and approving the term *māye kōbī* a double-edged sword. On the one hand,

the term *māye kōbī* is approved with the old Persian main base *māye* that is widely used in a lot of phrases and terms in many different fields and thus in line with the Academy's rules of term formation that give preference to Persian bases. On the other hand, creating a new term all over would have been an option on the basis that the term *māye* is already used to denote many other concepts, which may cause confusion and difficulty in convincing language users of its use and which makes it easy for them to use the foreign term *vāksan* instead. In this case, the likelihood that people will accept a new, easy word is higher than a word that already existed before.

Since the APLL has already succeeded – according to the terms under study – in spreading terms like *hamegīrī* among journalists as a mirror to the people, the likelihood of success in publishing new terms is not low. According to the efforts made by the APLL and its terminology group to reach the largest number of researchers inside and outside Iran in addition to other users, especially through all means of social media, the possibility of obtaining better ideas and proposals for linguistic alternatives as well as of publishing them later increases.

From its inside perspective, the Academy needs to work more on equivalent terms of concepts that are dominated by foreign terms such as in *test* and *vāksan*. There are, of course, still other terms that should be studied in relation to the field of epidemiology, among them *plāsmā* (English: plasma), *kīt* as in *kīt-e tašhīs-e korōnā* (English: corona detection kit), *āntībiyōtīk* (French: antibiotic), and *āntībādī* (English: antibody). Further research can then consolidate the findings of this paper.

Interestingly, with the spread of many words that were not widely circulated among the public before the outbreak of the Corona pandemic – most of which are foreign, especially French and English – the Academy of Persian Language and Literature decided to intensify its work on finding Persian equivalents for those terms. It is envisaged to publish a dictionary by the end of 2020 containing all the terms related to the pandemic and their Persian equivalents. The dictionary will probably contain around 360 new terms under the title “Corona” (Nazarmohammady & Behramy, 2020). This highlights once more that the Corona pandemic affects all walks of life including linguistics and that Persian is a language very much alive and in flux with the national language planning institution influencing and reflecting the use of Persian to different degrees.

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The Promises of Action Research to Develop Persian for Academic Purposes Teachers' Professionalism



Hussein Meihami

Abstract The purpose of this chapter is to examine the promises of action research to develop Persian for academic purposes (PAP) teachers' professionalism. To that end, the critical characteristics of action research have been reviewed in this chapter. Then, teaching PAP features have been addressed through the main features of teaching languages for academic purposes proposed by Hyland (Teaching languages for academic purposes, *The encyclopedia of applied linguistics*, pp. 1–4, 2013). Later on, the promises that action research can have for PAP teacher education are discussed. Finally, based on the discussions, a model has been proposed to address action research in PAP teacher education programs. The model, metaphorically, uses action research as its engine to provide energy for developing PAP teachers' critical thinking abilities, doing reflective practices, and raising their consciousness about different issues in PAP. Based on the proposed model, collaboration can be done among different PAP genres by engaging PAP teachers in action research. In the concluding remarks, I discuss the importance of providing internal and external supports for PAP teachers by PAP teacher educators and decision-makers to engage PAP teachers in action research and to develop their professionalism through action research.

Keywords Action research · Persian for academic purposes · Reflective practice · Teacher professionalism

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1 Introduction

In the twenty-first century, we think of teaching as a profession. Hence, teacher education can have an influential impact on developing the professionalism of teaching. The last two decades have witnessed a debate on teaching professionalism from different theoretical and practical perspectives (Alexander et al., 2019). The importance of teacher professionalism is also evident in the research conducted to develop it among teachers, leading to the concept of “professionalism as a discourse” (Robson, 2006). Professionalism as discourse is a venue that encompasses social, psychological, political, and cultural issues regarding teacher development. Thus, teacher professionalism can be regarded as socially constructed knowledge (Troman, 1996) which is dynamic and never-ending. That said, teacher professionalism is not just about how to act as a teacher in the classrooms, but it is to accrue knowledge about social, psychological, political, and cultural issues and practice the knowledge needed. However, there is always a critical discussion among the teacher educators on how to develop teachers’ professionalism in different fields, including teaching a language for academic purposes.

Teaching a language for academic purposes is a “distinctive approach to language education based on an identification of the specific language features, discourse practices, and communicative skills of target academic groups, and which recognize the particular subject-matter needs and expertise of learners” (Hyland, 2013). The main objective of teaching a language for academic purposes can be enabling the learners to involve in academic communication. This will provide them with the knowledge of “academic style” (Hyland, 2009) which through that they will be able to conduct academic communications. Consequently, in teaching a language as an academic language, learners’ difficulty will not be limited to linguistic ones, but other academic skills need to be considered.

Persian for academic purposes (hereafter PAP) is originated from a quest in which Persian academic speakers are planning to produce their academic discourse through using the Persian language (Shabani-Jadidi, 2020). This causes a national (in Iran) and international movement among Persian speaking countries to create the necessary genres to establish academic styles for academic communications. The development in Persian academic journals and conferences held in different fields can be an exemplary of the development of PAP. Sequentially, PAP teacher education programs need to approach academic Persian by designing the programs to help the PAP teachers revisit their previous Persian perspectives as a language of mere prose and poetry and change it to academic Persian; the language of research, scientific communication, etc. One of the approaches to fulfill this revisiting issue can be through action research.

Action research has a cyclical, dynamic, and collaborative essence (Hine, 2013), which can help the teachers reflect upon different practices in their classes to obtain a comprehensive understanding of them. Action research is more than mere conventional teaching. According to Borg (2017), doing and involving in action research by the teachers will put them in constant identity construction. This is critical for the

teaching profession since action research can help the PAP teachers construct and reconstruct their identity. Then, by so doing, PAP teachers can revisit their assumptions, thoughts, and beliefs about PAP. Thus, PAP teachers can benefit from the privileges provided by action research such as developing new knowledge related to their classes, promoting critical thinking, fostering openness toward new practices, and developing teachers' pedagogical skills (Hensen, 1996), if PAP teacher education programs prepare PAP teachers to involve in action research.

However, to date, no such a study examines the notion of action research when PAP teacher education is focused. Hence, the primary purpose of the current chapter is to represent the main characteristics of action research, to manifest the crucial issues in the PAP teaching profession that can be addressed through action research, and to introduce the design of a model for PAP teacher education program which can help PAP teachers to develop their competences and performances in doing action research. It can be stated that this chapter can provide us with a picture of the interrelationship between PAP teacher education programs and the role of action research in developing PAP teaching professionalism.

2 Action Research: An Action Achieved Through Research

The term *action* in action research refers to an active sort of investigation. For Nunan (1992), action research was a quest in which a teacher applies an interpretive analysis to the data obtained from a set of questions. In a definition provided by Ax et al. (2008), action research has been described as a reflection on practice conducted by the teachers to identify their classroom problems to find and apply solutions for them. Furthermore, Burns (2010) stated that the term action in action research is the teachers' intervention to understand the practices through research, which is a systematic investigation of their understanding. Moreover, according to Burns (2010), action research is a process in which the teacher is, simultaneously, not only the participant of the study but also he/she is the researcher who is responsible for conducting the study.

By examining the mentioned definitions of action research, it can be implied that the teachers move to "become" researchers when they involve in action research. The notion of "becoming" a researcher shows us that the teachers will try to construct their identity as teacher-researchers (Britzman, 2012). Hence, it can be stated that action research can be a venue in which the teachers will practice new identities, such as professional identity, and gradually construct and reconstruct the new identity. According to Dikilitaş and Griffiths (2017), action research is one of the "critical strategies that teachers have engaged in for their professional development with a view to gaining deeper insights into classroom contexts including learners, teaching practices, and classroom management" (p. 2). All in all, although action research has its purposes, audiences, and incentives, it uses the qualitative, quantitative, or mixed-method approaches (Ary et al., 2014) to collect and analyze data obtained for solving educational related problems. Accordingly, Ary et al. (2014)

stated that “[a]ction research is a practical tool for solving problems experienced by people in their professional lives” (p. 516).

2.1 Critical Characteristics of Action Research

The encouraging reason for using the term critical while addressing the characteristics of action research is that action research is under a category called practitioner research, including other types of research such as potentially exploitable pedagogic activity, teacher research, and reflective practice. There are critical differences among these categories. In the following section, the critical characteristics of action research are reviewed.

2.1.1 Action Research as a Cyclical and Dynamic Process

Kemmis and McTaggart (1988) stated that action research is a cyclical process, and it is continued until the researcher will be satisfied with the research output. Hence, it can be said that dynamicity is evident in the cyclical process of doing action research. The nature of dynamicity in action research originates from testing different issues regarding the educational practices that action researchers do (Mertler, 2009). To fulfill this process, the teachers need to go through different phases such as planning (identifying the issue), action (addressing the intervention into teachers’ instructional situation), observation (observing the impact of the action systematically), and reflection (evaluating the impact of the action) (Burns, 2010). Each of these phases has its practical procedures, which lead the teachers to go back and forth when doing action research. Hence, it can be said that action research has an emergent nature.

2.1.2 Action Research Has a Locally Situated Context

Action research is planned to address the real problems existing in the educational context in which the teachers are teaching. This characteristic of action research provides flexibility and involvement of the teachers to approach the problems in a step-wise manner to prepare an action to solve the problems (Burns, 2010). Given this characteristic of action, research will contribute to the development of self-awareness among the teachers. Hence, through teachers’ active involvement in doing action research whose main purpose is to address the local educational problems, teachers’ problem-solving skills (Burns, 2010) and their reflective thinking (Wang & Zhang, 2014) will improve. Thus, action research’s flexibility will help the teachers consider a wide range of locally educational problems.

2.1.3 Action Research Can Be Done on a Wide Range of Topics

Due to its exploratory essence, action research can be done across various topics such as teaching practice, behavioral issues, co-curricular activities, administration and organizational issues, and evaluation (Maheshwari, 2015). The teachers who conduct action research can problematize each of the mentioned issues in their context to bring about comprehensive solutions for the problems. Consequently, teachers will need to put their steps into action research through collaborative, dialectical, and reflexive principles (Winter, 1989) to create new educational changes to improve the process of their teaching.

2.1.4 Action Research Has a Collaborative Nature

Metaphorically speaking, action research is a venue in which teachers can be called actors who make different relationships in various environments and through different processes (Weaver-Hightower, 2008). This is an ecological metaphor coined by Weaver-Hightower (2008) to examine identity construction. Collaboration with other actors, among different environments, and other processes will be of utmost importance for the teachers while they are doing their action research. Hence, as the actors of the action research environment, teachers start to establish their relationships (Goodnough, 2010). The reason is that, sometimes, the collaboration leads to developing knowledge in the teachers so that they can find comprehensive actions for their problems. However, if each actor does not follow the principles necessary to conduct action research, collaboration may not be established among actors.

2.1.5 Action Research Can Develop Teacher Identity

When teachers are involved in the action research process, they join a community of practice to negotiate their professional identity (Yuan & Lee, 2015). Through participating in such a community, the teachers will change their role from the transmitters of knowledge to “independent professionalism” (Leung, 2009). This is the first stage in which the teachers’ professionalism is affected by the changes that happen in their professional identity. All in all, it can be said that action research is, metaphorically, a community of practice to develop teachers’ professionalism through the active construction and reconstruction of their identity. It is pointed out by McNiff (2013) that there are interrelationships between teachers’ identity construction and their involvement in action research in that action research is “an enquiry of the self into the self” (p. 23) that can help the teachers to develop their professionalism (Goodnough, 2010). Through action research, negotiation of self can happen in which the teachers negotiate their professional identity. Moreover, the negotiation of meaning can obtain while teachers are involved in action research. Meaning, here, can be regarded as the actions achieved through the research studies conducted by teachers, such as PAP teachers, by involving them in critical thinking

activities, consciousness-raising practices, and reflection practices. The results of such a negotiation of meaning can be the actions to solve educational problems in PAP contexts.

2.2 Summary of the Characteristics of Action Research

Through reviewing the characteristics mentioned above about action research, it can be understood that action research is a type of dynamic, cyclical process of research which is done by teachers on locally situated educational problems on a wide range of topics with a collaborative nature whose main output can be the development in teachers' professional identity. That said, it can be argued that if a teacher education program addresses action research characteristics when trying to train the teachers, it can expect development in the teaching professionalism of the teachers. Although the main principles of conducting a teacher education program across different fields are the same, it is critical to know the teachers who will participate in a teacher education program so that the teacher educators will be able to prepare the program to be the most beneficial. Given Persian's particular characteristics for academic purposes, it is vital to look at different angles of PAP and its requirements to teach Persian for academic purposes across different disciplines. To that end, in the following section, the main characteristics of PAP are reviewed to establish the ground where action research can be helpful for PAP teacher education.

3 The Features of Teaching Persian for Academic Purposes

It is necessary to review the main features of teaching languages for academic purposes to address features of Persian for academic purposes. Hence, the main features of teaching languages for academic purposes are reviewed using Hyland's main features of teaching languages for academic purposes (2013). Then, PAP is approached and discussed based on each feature.

3.1 Needs Analysis in Teaching Persian for Academic Purposes

According to Hyland (2013), needs analysis uses different techniques to accrue information about *how* and *what* of a course. Needs analysis is the inseparable part of teaching language for academic purposes (Belcher, 2009). This may be due to the dynamicity brings about by different learners, materials, purposes, etc. existing in such programs. The term "needs" includes a broad range of issues from what

learners know, do not know, want to know, and how the materials should be designed for each specific purpose. Moreover, the way assessment is done in languages for academic purposes needs to be addressed in needs analysis. According to Hyland (2013), language learners' needs are more than linguistic needs, and these learners need to know about target contexts discourse. It can be explained that when a language is considered for academic purposes, the learners of that language need to learn the jargon of that language so that they can communicate through that language in academic contexts. For example, suppose that biology students want to learn how to use Persian in an international conference on biology. In that case, they should learn not only the linguistic contents but, more importantly, the communicative skills such as how to lecture, take note, communicate with keynote speakers through Persian. That said, the needs analysis should draw biology students' primary communicative needs, as an example, and develop materials for them to be covered in PAP classes.

Needs analysis has a critical role in PAP. This can be due to the countless number of disciplines in which PAP is used. PAP practitioners need to obtain the needs of PAP learners across different disciplines to prepare materials and cover them in PAP classrooms. Moreover, through needs analysis, PAP practitioners can obtain the learners' real needs and analyze them based on target needs to develop the final design of the course. When thinking of different language skills (reading, writing, speaking, listening), subskills (grammar, vocabulary), pragmatics, and discourse, one can conclude that PAP teachers should conduct a series of needs analysis to develop the quality of their PAP teaching.

3.2 The Importance of Collaboration in Teaching Persian for Academic Purposes

One of the features of teaching languages for academic purposes proposed by Hyland (2013) is its collaborative nature. The concept of collaboration can happen at different levels and among different stakeholders involving in teaching languages for academic purposes. Firstly, PAP teachers can collaborate their specific knowledge with content teachers to consult specific issues. By so doing, the PAP teachers will obtain the basic content notions of discipline to use the Persian language as a vehicle to instruct the content knowledge in PAP classes. Secondly, collaboration can be made among the PAP teachers who participate in related academic contexts such as conferences to present their research. Such a collaboration type can lead to development in PAP teachers' professionalism since, in those contexts, the knowledge about how to address PAP will be distributed. Thirdly, collaboration can be made among PAP teachers and their PAP learners. Hyland (2013) believes that the learners of language for academic purposes will bring specific knowledge of their discipline to the classrooms, which can help teachers. PAP teachers, consequently, can collaborate with PAP learners to use their specific knowledge to teach PAP. In

other words, the PAP teachers address content knowledge through PAP tools; knowing that the content knowledge can be obtained in collaboration with PAP learners.

3.3 The Vital Role of Consciousness Raising in Teaching Persian for Academic Purposes

One more feature of teaching languages for academic purposes is the vital role of paying attention to consciousness-raising (Hyland, 2013). Focusing on consciousness-raising activities will help learners to be aware of language discourse and communicative practices. Moreover, by focusing on consciousness-raising activities, the learners will reflect on texts and their discourses, which can be more helpful for students than the mere linguistic information (Hyland, 2013). The learners will explore the text for different lexical, grammatical, and rhetorical features; hence, they find out specific features of language for academic purposes.

Students of Persian for academic purposes need to develop their consciousness-raising ability to find a better understanding regarding the lexical, grammatical, and rhetorical features of academic Persian. PAP learners will be in academic contexts in which they need to follow the features of academic Persian, and if their consciousness-raising ability is developed in PAP classrooms, they will be able to act in those contexts. That said, PAP teacher education programs need to address and teach PAP teachers how to raise their learners' consciousness.

3.4 Genre Pedagogy in Teaching Persian for Academic Purposes

The final feature asserted by Hyland (2013) about teaching languages for academic purposes is genre pedagogy. According to Hyland (2013, p. 3), "genres are socially recognized and repeated ways of using language and pedagogies support learners with methods which foreground the meanings and text types at stake in a situation." PAP learners use Persian to fulfill and act in different genres. For instance, Persian can be used for the sake of a research genre in which the researchers use academic Persian as a vehicle to present their research claims. The genres in which Persian is used for research issues are different from those used to narrate an experience. Consequently, PAP teachers should help the learners be aware of different target genres and their linguistic and paralinguistic features of those genres. The critical point is that the genres should not be separated from their contexts, meaning that genres should not be decontextualized when PAP teachers are involved in genre pedagogy. To do so, PAP teachers can seek PAP learners' target needs and provide related materials for them (Paltridge, 2001). PAP learning, thus, will be more

explicit in which PAP learners' consciousness develops, which in its place can help them to obtain new knowledge based on the specific genre used in a specific context.

3.5 Summary of the Features of Teaching Persian for Academic Purposes

Through addressing the features of teaching PAP by what Hyland (2013) proposed for teaching languages for academic purposes, it can be figured out that PAP should have features such as needs analysis, collaborative nature, consciousness-raising, and genre pedagogy. That said, PAP teacher educators need to address the instruction of these features in their PAP teacher education programs to develop PAP teachers' ability to consider each of these features. If PAP teacher education programs do so, the development in PAP teachers' professionalism can be the result. Action research can be a facilitative tool that can be addressed in PAP teacher education programs to promote features of teaching PAP. Hence, in the next section, the interrelationship between action research and teaching PAP features will be presented to examine the promising roles of action research in PAP teachers' professionalism development.

4 The Promises of Action Research for PAP Teacher Education

Now that the main features and characteristics of action research and teaching PAP have been discussed, the ground for specifying where the juncture between action research and PAP teacher education can be made. To that end, the promising contribution of action research to PAP teacher development in PAP teacher education are discussed. Based on the discussion, a model will be proposed to help PAP teacher educators to plan and administrate PAP teacher education in which action research plays its critical role.

L2 teacher education programs and PAP teacher education programs consider teacher learning as a dynamic process (Johnson, 2009). This means that PAP teachers will learn the *what* and *how* of teaching through processes which they involve. As discussed earlier in this chapter, one of the critical characteristics of action research is to be a cyclical and dynamic process. If PAP teacher education programs provide PAP teachers with the contexts to conduct action research, the PAP teachers' consciousness will develop over time (Johnson, 2009). Here, one of the main junctures will be made between needs analysis, which is one of the main features of PAP teaching and action research, and PAP teacher education. Suppose PAP teacher education programs will help the PAP teachers involve in needs analysis through action research principles. In that case, the PAP teachers will be able to conduct a

never-ending and reflective needs analysis. Moreover, by conducting action research on locally situated problems, PAP teachers' professionalism will develop. This is because action research develops awareness and autonomy in teachers (Dikilitaş & Griffiths, 2017). Hence, if PAP teacher education programs help PAP teachers do action research on their local problems, the PAP teachers' professionalism will develop through involving them in a dynamic process.

As it was stated earlier in this chapter, action research has a collaborative nature. This feature can help the PAP teachers address different topics and issues in their classes. Collaboration can happen among different PAP teachers who are the actors and specialists of different topics. Moreover, by participating in different conferences and presenting their action research, PAP teachers will create and participate in different collaborative networks to develop their knowledge regarding various topics. The collaborative production of knowledge, which is achieved due to the reflective practices (Sachs, 2003), may lead to PAP teachers' professional development. However, PAP teachers need to develop their action research from their classrooms to a broader overview (Hancock, 2001), such as participating in conferences or publishing action research reports. By so doing, PAP teachers will collaborate on studying various topics of PAP to change the situations (Adelman, 1993) for better teaching. Moreover, through collaboration based on action research, PAP teachers will learn about different genres such as academic genres and the types of communicative skills necessary to run those genres. If PAP teachers understand academic reading, writing, listening, and speaking when they participate in academic contexts in which Persian is used for academic purposes, they will recognize the crucial issues to be taught to PAP learners to make them competent in using Persian in different genres. The whole process will happen through different negotiations, which are done during the collaboration of action research among PAP teachers, which can be the start of development in PAP teachers' professionalism.

Finally, through conducting action research, the PAP teachers' professional identity may develop, leading to their professionalism. Action research may be regarded as a community of practice (Wenger, 1998) in which the negotiation of knowledge and activities may lead to the identity development of language teachers. Through such negotiations with others, PAP teachers can invest in their relationships to achieve a new identity. In this process, indeed, PAP teachers can also have an impact on others. Based on the community of practice theory (Wenger, 1998), when negotiation happens among individuals, such as PAP teachers, they align themselves with others; which allows "the identity of a larger group to become part of the identity of the individual participants" (Trent, 2010, p. 155). Hence, if action research will be considered as a venue in which different communities of practices will be established for the PAP teachers, then it can be stated that action research has a critical role in developing PAP teachers' professional identity. Consequently, action research can change the role of PAP teachers from the mere transmitters of knowledge (Borg, 2017) to "independent professionalism" (Leung, 2009), based on which PAP teachers can act in different roles, such as PAP material developers, PAP syllabus designers, etc. If this will happen, then one of the PAP teachers' dilemmas that they think they are only the transmitters of knowledge to the students will be solved.

Because they see they can be involved in other issues that happen in their classes. Hence, as Borg (2017, p. 3) stated, “teachers who become action researchers are also engaged (consciously or otherwise) in the process of identity construction.”

5 A Model for Addressing Action Research in PAP Teacher Education

After examining the interrelationships between action research and PAP teacher education, a process-based, dynamic, cyclical model can be proposed to develop PAP teacher education programs to develop PAP teachers’ professionalism through action research. Figure 1 indicates the model. The model shows that PAP teachers can participate in different genres (Genre N) through different collaboration activities by addressing action research in PAP teacher education programs.

Based on this model, action research can be thought of as an engine providing the necessary energy to run reflective practice, consciousness-raising activities, and critical thinking among PAP teachers. Action research is a venue to help teachers conduct reflective practices (Dikilitaş & Griffiths, 2017); moreover, based on the proposed model, action research can provide the opportunity for the PAP teachers who are participating in the action research-based PAP teacher education program to conduct collaborative reflection (Malderez & Bodóczy, 1999). This participation can be highly influential in developing PAP teachers’ professionalism. Based on the model, the collaborative reflection can be done on different genres so that they will be able to find the core knowledge about different genres in PAP. Furthermore, thinking of PAP teacher education as an expert arena, the contribution received from PAP teacher educators on action research done by the PAP teachers can be claimed as the expert coach role (Halai, 2006) in that PAP teachers will receive feedback on their reflections.

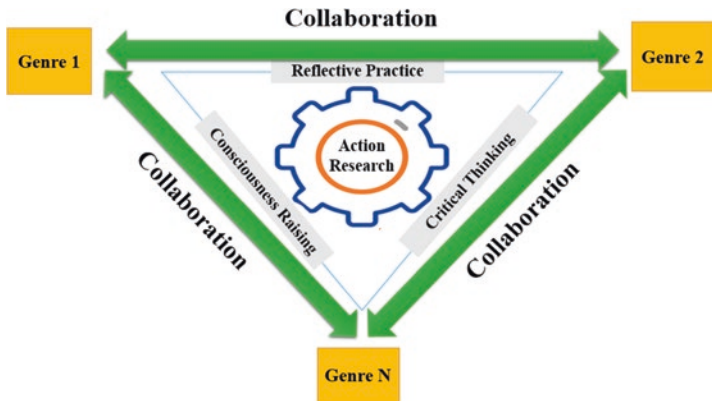


Fig. 1 A Proposed Model for Addressing Action Research in PAP Teacher Education Programs

The model also shows that if PAP teacher education programs address action research in their educational syllabus, PAP teachers will be conscious about different issues in their teaching. It is stated that language teachers' assumptions and beliefs about their teaching are not explicit and at the forefront of their consciousness (Burns, 2010), especially when language teachers are at the beginning of their teaching profession. However, suppose PAP teacher education programs address action research in their syllabus and ask PAP teachers to conduct action research on different topics. In that case, they will be more conscious about their teaching profession. Moreover, as shown in Fig. 1, the collaboration that may be done through such PAP teacher education programs can raise the PAP teachers' consciousness about the different PAP genres. The whole process may lead to development in the PAP teachers' professionalism.

Action research as a metaphorical engine can provide the necessary energy for developing PAP teachers' critical thinking ability in PAP teacher education programs. Critical thinking is the ability to participate in different discourses and genres (López-Facal & Jiménez-Aleixandre, 2009). PAP teaching and learning are the contexts of different discourses and genres that ask PAP teachers to develop their competencies to participate in those discourses and genres. Development in the PAP teachers' critical thinking can lead to the development of their abilities to participate in different discourses and genres. Action research has a dual relationship with critical thinking. On the one hand, doing action research needs critical thinking skills (Dikilitaş & Griffiths, 2017). On the other hand, sustainable engagement in action research over time can develop critical thinking skills (Dikilitaş, 2014). On top of this, based on the proposed model, collaborative critical thinking can be addressed through action research in PAP teacher education programs. Action research will develop the relationship among critical friends (Child & Merrill, 2003) through collaboration, which helps the PAP teachers to use the critical reflections of others and develop their professionalism. Dikilitaş and Griffiths (2017) stated that with the "support from critical friends or a mentor, you could become the teacher you have always dreamt about being" (p. 250). Moreover, as can be seen in the proposed model, the collaborative critical thinking abilities are done among different genres, which can be facilitative to develop the critical thinking abilities of PAP teachers to participate in different genres and discourses related to PAP.

The model overall is a collaborative one. It is because collaboration is the common feature that is shared by both features of action research and teaching PAP. Given that, collaboration can be seen in each part of the model, allowing PAP teachers to develop their critical thinking through collaboration, raise their consciousness by conducting collaborative works, and practice collaborative reflections on their activities. In each of these collaborations, different genres can be selected and worked upon based on the problems identified to be addressed through action research. One notable feature of this collaborative model is that it will be able to conjoin PAP teachers who are working on different genres in a context in which they can share their actions and use their critical friends' comments, opinions and

ideas. That said, a community of practice will be created in which the PAP teachers will be able to socialize their actions.

6 Concluding Remarks

This chapter was an attempt to show the potentials of action research in PAP teacher education and how action research can lead to the development of PAP teachers' professionalism. To such ends, the critical characteristics of action research have been reviewed. Moreover, the features of teaching PAP have been addressed through the main features of teaching languages for academic purposes proposed by Hyland (2013). Then, in a discussion, the promises of action research for conducting PAP teacher education have been explained. Finally, based on the overall discussion, a model has been proposed. Action research is metaphorically considered PAP teacher education programs' engine to develop PAP teachers' critical thinking abilities, reflective practices, and consciousness-raising through collaboration among different genres related to PAP.

PAP teacher practitioners and decision-makers should provide both internal and external support (Yuan & Burns, 2017) for PAP teachers to conduct action research if they want to develop PAP teachers' identity and, finally, their teaching professionalism. PAP teacher practitioners and decision-makers should provide a context in which the syllabus and policies do not hinder PAP teachers to stop doing action research for internal support. Furthermore, external support such as in-service PAP teacher education programs should be held for PAP teachers to update their knowledge and will be able to collaborate with others about the topics of their action research. Suppose the internal and external supports will not be made by the PAP teacher practitioners and decision makers. In that case, the conducive features of action research cannot be reached in PAP contexts, and PAP teachers who do action research may be demotivated.

PAP teacher education programs that consider and address action research in their syllabus represent a community of practices for PAP teachers. Through such a community of practices, PAP teachers can practice whatever they have been instructed in their programs. By so doing, PAP teachers will find the competence to practice action research in the real contexts of teaching. However, if PAP teachers will not be provided with a practice context such as the PAP teacher education program, they may have difficulty in internalizing action research methodology in the real contexts.

It is without saying that conducting action research can develop teachers' professionalism and cause reform in educational contexts (Thomas, 2005). This can be discussed in different aspects. Firstly, the PAP teachers who engage in action research will deliver the results and their actions to their educational contexts. This will lead to the construction and reconstruction of new instructional elements based on recent and real action research. Secondly, action research can raise the voice of PAP teachers to conduct educational reforms. This is important since PAP is still in

its infancy, so the PAP teachers who are in real contexts understand the complexities better than PAP decision-makers who are, more often than not, out of the real PAP contexts.

PAP teacher education is an uninvestigated topic that needs to be considered by the researchers of the field (Mizza & Esmaili-Sardari, 2020). Action research in PAP teacher education is not exceptional and should be addressed more in the future by the researchers. Future research can be done on the problems that may be in PAP teachers' way to conduct action research. Moreover, the proposed model of the current chapter can be empirically studied to identify its pros and cons. Furthermore, PAP teachers' identity development needs to be addressed to obtain new approaches for negotiating PAP teachers' identity. Moreover, future research can investigate how to develop PAP teachers' professionalism to improve the syllabus of their classes by conducting action research. By conducting investigations on such topics, one of the problems related to action research that may hinder PAP teachers from doing action research may be solved (Ary et al., 2014). One more critical topic is to investigate which types of strategies for recognizing problems in classes can be more useful for PAP teachers. There are different strategies such as reflection, explanation, and description, which can be examined to determine the appropriate strategy for PAP teachers to find the problems and conduct their action research.

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Promoting the Status of an Academic Language: Participant Interaction



Reza Falahati and Mahya Shojaei

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 metadiscourse 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 discursual 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) jøftehøje in motøle?e neføn nædød ke tædʒvize tizønidin piʃ æz æmæl bø?ese køheʃe dærd pæs æz æmæle septopløsti dær bimørøn 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

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

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

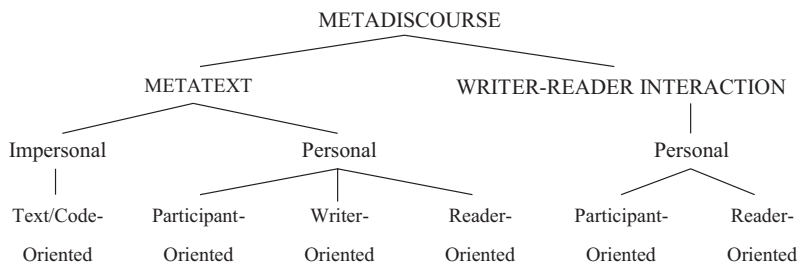


Fig. 1 Reflexive model of metadiscourse. (Adapted from Ädel, 2006, p. 38)

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 & Faghieh, 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 Faghieh (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 metadiscourse 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 metadiscourse 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.

³This 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 metadiscourse expressions. In order to follow this goal, the introduction and discussion sections of all research articles were read carefully and all the metadiscourse 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 metadiscourse 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 tæhgigi ke dærbøreje æbʔnde edʒtemʔiije rævʊnsenʊxtije kotulegi ændʒʊm sode bud jeki æz jerkætkonændeħv tædʒrobei ke dær modæte dʒostodʒiije kør dʊfte rʊ bʊzgu kærde ke dær indʒa eʃpʊre 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) *eʔmʊle in ʃive tænhʊ zæmʊni movædʒæħ væ moʔtæbær xʊhæd bud ke dær jek doreje zæmʊniije moæjæn bʊ goruħi æz ʃpærʊn jʊ ædibʊn movʊdʒeh bʊʃim ke ʃʊʔer jʊ nevisændeħ bozorg rʊ be ostʊdi jʊ be mænʒæleje olguje ædæbije xod pæzi-rofte væ sonæte ædæbije monsædʒem væ tægribæn jekdæsti rʊ ʃekl dʊde bʊʃænd.*

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 edʊme, nætʊyedʒe bærxɪ æz in pæzuħeʃħv rʊ 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 Ádel'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) *hædæf æz in pæzuehʃ tæhlile ʃekæfe kejfæte xædæmøte ømuzeʃe mædʒøzi væ hozuri æz didgøhe døneʃdʒujøn bud.*

The purpose of this study 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

⁴Please 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"

ما تحقیق" *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 tæhgic ɒn bud ke be fæhme biʃtæri æz mæʔluliæt væ tædʒɒprobe æfrɒde dɒrɒje mæʔluliæte dʒesmɒni dæst ʒɒbim.

As mentioned, the purpose of this study was *to gain* 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 (0.47, $n = 21$) 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.

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	Hypothesizing about the Reader	Appealing to the reader	Total
Sociology	1	9	1	1	2	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	1	3	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) lezþ ægær bexþhim nomreje honærdʒujøn rþ be doneʃ væ tævnonʒije onhþ dær dærse mæzku nesbæt dæhim mitævnon goft in honærdʒujøn dær dærshþje mæhþræti væ korgþhi nomeroti behtær kæsb kærdeænd, jæʔni nesbæt be dærshþje næzæri movæfægijæte biʃtæri dþʃteænd.

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 ʃohedim ke dær besjþri æz zæminehþ kenþr gozþʃtæn væ be hþʃije rþndæne in æfrþd tæʔædʒþb bærengiz næbude væ be næhve besjþr 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) bænpærin kæm budæne mizone hæmbæstegi mijþne bærxī æz moælefehþje huþe kælmie kudækone piþdæbestoni þo nomreþe roþde zæþþone þnhþ ro mitævþn ingune todþih nemud ke entezor mirævæd þo æfzþjeþe sene in goruh æz norþuzon hæmbæstegie biþtæri mijþne nomreþe huþe kælmie væ roþde zæþþonie þnhþ ro þohed þoþim.

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 Markers⁸ 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

⁷Please 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.

⁸This 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 metadiscourse 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 metadiscourse markers similarly, but they get separate from each other when it comes to using Personal metadiscourse. 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			
	Adding	Exemplifying	Saying \$ Defining	Concluding	Introducing	Arguing	Current Point	Beginning & Ending	Enumerators	Reviews	Previews	Direct Code Glosses	Indirect Code Glosses	Whole Text	Sub Text	Total
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 jæhri væ moʃbrekæte edʒtemoʔie jæhrvændone sølmænde æhvøzi; jek pejmoʃeje mæntægei

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

طلاق عاطفی؛ علل و شرایط میانجی

tælbge ɒtefi; elæl væ jærvjete miɒndʒi

Emotional Divorce; Causes and Conditions of Mediation, SOCIO_2

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

bæresie ehsøse mænzelæte edʒtemoʔie sølmændon: mogvjesje sølmændone mogim dær mærvkeze negæhdorie jæhre mæʃhæd bə sølmændone geʒre mogim

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

motoleʔeje keʒfie pædideʒe xoʃunæte xonegi ælæjhe zænon

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

مطالعه تجربه زیسته کودکان و نوجوانان در خانواده‌هایی با والد زندانی

motoleʔeje tædʒrobeʒe zisteʒe kudækon væ nodʒævnnon dær xonevodehoʔi bə vølede zendoni

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

(خوابگاه دانشجویی و آسیب‌های اجتماعی دختران (مورد مطالعه: خوابگاه‌های دانشجویی دانشگاه‌های دولتی)

xəbɡəhe dnoʃdʒui væ ɒsibhoʒe edʒtemaʔie doxtærøn (morede motoleʔe: xəbɡəh-hoʒe dnoʃdʒuie dnoʃɡəh-hoʒe dolæti)

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

تحلیل جرم‌شناختی خود-دکرتشی، با تأکید بر خود-دکرتشی انگیزشی

tæhlile dʒorm ʃenɒxtie xod-degærkoʃi, bə tæʔkid bæx xod-degærkoʃie ængizeʒi

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

برساخت اجتماعی هم‌باشی بر اساس تجربه زیسته نمونه‌ای از هم‌باشان

bærsøxte edʒtemoʔie hæmbøʃi bæx æsøse tædʒrobeʒe zisteʒe nemunei æz hæmbøʃon

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

جامعه‌اطلاعاتی و جرائم نوظهور: تلاشی جامعه‌شناختی در تبیین قربانیان تعرض سایبری در شهر تهران

dʒəmeʔeʒe etelɒʔti væ dʒærvøeme nozohur: tæʔʃi dʒəmeʔe ʃenɒxti dær tæbʔine gorbøniane tæʔæroze søjberi dær jæhre tehron

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

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

baresie tæsire fæbækehøje edʒitemoʔi væ moʃprekæt bæ r mæhrumiate edʒitemoʔie zænon morede motoleʔe: zænonne fæhre 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

døge næng væ hoviate edʒitemoʔi: baresie moredie ævomele edʒitemoʔie døge næng zænænde bæ æfrøde døroje mæʔluliate dʒesmonie økør dær fæhre ræft

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 جرایم مواد مخدر در کلان شهر تهران (مورد مطالعه: منطقه 2 شهرداری تهران)

bæresi væ tæhlile fæzoʔie dʒæroʔeme mævøde moxæder dær kælon fæhre tehrøn (morede motoleʔe: mæntæge do fæhrdørie tehrøn)

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: دانشکاه امیرکبیر

tæhlile kejfie ømuzeʒe mædʒøzi væ hozuri; døneʒgøhe 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 تأثیر آن بر یادگیری مفاهیم و کنش های نمونه سازی

tærhoi væ edʒroje olguje jødgiri mobtæni bæ r nemunesøzi væ tæsire øn bæ r jødgirie mæføhim væ koneʃhøje nemunesøzi

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 حل محور در مدارس ایران (1386-96)

færotæhlile æsærbæxʃie moʃøvereje goruhie røhehælmehvær dær mædørese irøn (hezøro sisædo hæftodo ʒef tø nævædo ʒef)

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 viʒegihøje olguje mætlube bæ rnoʃeje dærsie zæbønømuzie doreje øbtædoʔi æz didgøhe moʔælemøn

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 mæsoʔel væ moʃkeløte mortæbet øt tædvin væ søzmondehie mohtævoʃe ketøbhøje æræbie doreje motevæsete æz didgøhe moʔælemøn væ døneʒømuzøne fæhre jøsoj

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 الکترونیک شاخه فنی و حرفه ای

ærzeʃjøbie ømødegie tæhsili væ æmælkærde næhoʔie honærdʒøjøn dær reʃteje ølektroteknik ʃøxeje 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 محنت گیری هدف شغلی با رضایت شغلی معلمان

röbeteje xoşbinie tæhsili væ dʒæhætgirie hæðæfe fogli bə rezɔjæte foglie moʔælemən

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 bærnəmeje ɔmuzefe mæhøræthəje zendegi bæer behbude xodkəɔrəmædi væ dʒɔrʔæt væzi dær dənəʃɔmuzəne pəjeje 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 zæbəne kudæke piʃdæbestəni væ röbeteje ɔn bə huʃe kæləmi, geʃre kæləmi væ huʃe koli

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

خودکارآمدی تحصیلی به عنوان میانجیکر ارتباط کمال‌گرایی خود-مدار و اضطراب امتحان

xodkəɔrəmædie tæhsili be ɔnvəne mijəndʒiʒgære erteboete kæmɔlgæɔnie xodmædər væ ezterəbe emteho

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"

ærzəʃjəbie mohtævəje dærse tərixe ædæbiəte doreje dovome motevæsete bæer æsəse do moælefeje "səxtər" væ "æhdəfe 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 دانش‌آموزان در حل مسئله‌های کلامی ریاضی با توجه به متغیرهای شناختی، فراشناختی و عاطفی

piʃbinie æmælkærde dənəʃɔmuzən dær hæle mæsʔælehəje kæləmie riəzi bə tævædʒəh be motegæjrhəje ʃenəxti, fæɔʃenəxti væ ɔtefi

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 فنروپاتی دیابتی G894T ارتباط پلی مورفیسم

erteboete polimorfisme dʒi hæʃtsædo nævædo ʃjəhər ti zene nitrik asid sentəz endotelial bə diəbete noʔe do væ nefɔɔptie 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 1، 2 و بتا 2 سلول‌های کومولوس تخمدان زنان ناباور با پاسخ ضعیف تخمدانی کاندید لجاج آزمایشگاهی

bæresie bæjəne zene se girændeje ɔdrenerʒike əlfə jek, do væ betə do seluhəje kumuluse toxmdəne zænəne nəbərævər bə pəsoxe zaʔife toxmdənie kəndide legəhe ɔzməʃeʃəphi

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

بررسی اثربخشی پیش‌داروی تیترآئیدین خوراکی در کاهش درد پس از جراحی سیتوپلاستی

bæresie æsærbæxfie piʃdruje tiznidine xoroki dær kophefe dærde pæs æz dʒærohie septoplasti

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

پلاستی مرتبط با حاملگی در بیمار سندرم کرونری حاد با گروه کنترل و مقایسه آن با مارکهای تروپونین قلبی و کراتین A بررسی سطح پروتئین کیناز-MB

bæresie sæthe poroteʒine v pelbsmøʒi mortæbet bõ hõmelegi dær bimbrõne sændrome koronerie hõd bõ goruhe kontorol væ mogvjesenje vñ bõ mørkerhõje teroponine gælbi væ kerõtine kinõz 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

võrunegie ræhem pæs æz jvʒesegi: gozõrefe moredi

Uterine inversion in postmenopausal age: Case report, MED_5

تأثیر مصرف خوراکی عصاره جلبک آفانیزومنون فلوس آکا بر ترمیم زخم های پوستی تمام ضخامت در موش صحرائی

tæʒsire mæsærfæ xorokie osõreje dʒõlbæke vʒõnizomenon flos õkuõ bæ rætæmime zæxmhõje pustie tæmõme zexõmæt dær muʒe sæhrõʒi

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

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

bæresie færvõnie ofunæthõje gõrtʒie sæthi væ jeldi væ bærxie ævõmele moʒæsere bæ vñ dær bimbrõne morõdʒeʒe konænde be dærmõngõhe puste bimbrõstõne bistõdoe bæhmæne sæhre mæʒhæd teje sõlhõje hezõro sisædo nævædo do tõ 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 ازوفازکومی با تعبیه لوله ژئونوستومی و بدون لوله ژئونوستومی

mogvjesenje ezõfõzektomi bõ tæʒbijeje luleje zezõnostomi væ bedune luleje zezõnostomi

Comparison of Esophagectomy with and without Placement of Jejunostomy Tube, MED_8

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

bæresie sõjuʒe zõjõmõne zudræs væ ævõmele mortæbet bõ vñ dær zævõne bõrdõre morõdʒeʒe konænde be bimbrõstõne bentõlhõdõje sæhre bõdʒõnurd

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 سدیدن در عمل جراحی کاتاراکت در بزرگسالان

mogvjesenje æsærbæxfi væ ævõpreze do tærkibe dõruʒie midõzolõm ketõmin væ midõzolõm fentõnil dʒæhæte ændʒõme sedeʒfen dær æmæle dʒærohie kõtõrõkt dær bozõrgsõlõn

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

بررسی هورمون ها و بیان ژن کلاسترین در بیمار آرواسپریم غبراسنادی

baresie hormunhø væ bæjønne zene kelbsterin dær bimørøne øzuesperme gejrje ensedødi

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

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

pišbinie bimørrie multipl esklerozis bø esteføde æz rujukærdhøje dðekøvie džængæle tæsødofi væ møšine bordøre pøštibøn bær æsøse ælgoritme zenetik

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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Application of Frame Semantics to Teach Persian Vocabulary to Non-native Speakers



Leila Rahmati Nejad and Masood Ghayoomi

Abstract There are different approaches to teach a foreign or second language to non-native speakers in the world of education. Learning vocabulary is the most important one within the language learning process; as a result, improving students' knowledge about vocabulary in a language has a priority in language teaching. Fillmore's *Frame Semantics Theory* (Fillmore CJ, Speech, place and action. John Wiley, London, 1982) is one of the newest methods in the field of Cognitive Semantics that utilizes frame semantics to teach vocabulary. It is believed that the meanings of words are perceived within a system of knowledge arisen from the human cultural experience and semantic frames which display sections of an event used for connecting a group of words to a set of meanings. On the other hand, verbs are the most important elements in events and play a significant role in the interpretation of the meaning, too. This chapter addresses the extent of appropriateness of frame semantics to teach Persian vocabulary to non-native speakers. To this end, we selected the verb /ʃodæn/ (to become) as a complex and controversial Persian verb and discuss its semantic properties within frame semantics to determine its senses and create a frame semantic model to be used for teaching.

Keywords Frame semantics · Semantic frame · FrameNet · Language learning · Persian vocabulary

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1 Introduction

Native speakers of a language know the meaning of each word based on their previous experiences, i.e. their encyclopedic knowledge (Evans & Green, 2006); whereas non-native speakers might actually rely on their L1 knowledge. Fillmore (1982) proposed a theory in which the meaning of interdisciplinary words is perceived through knowledge emanated from human social and cultural experiences. He considers *Semantic Frames* as indicators of an event used to connect a set of words to a collection of meanings. According to this theory, Fillmore developed a computational lexicography model at Berkeley University called FrameNet to be used as an online lexicon source along with an annotated corpus to be applicable in lexicography, machine translation, building different kinds of ontology, and teaching language tasks.

The development of this network for English and its rapid development for other languages indicate the importance, innovation and efficiency of this theory. This chapter addresses the issue to show the extent of frame semantics appropriateness and the FrameNet model to teach Persian vocabulary to non-native speakers, and to determine how feasible frame semantics works for students to learn the vocabulary of a language and to use the linguistic knowledge more appropriately. To reach the goal, FrameNet should be developed. Since Persian is our target language, we discuss the development process of Persian FrameNet and focus on creating the main semantic frame of the verb/ʃodæn/ (to become). Finally, we introduce a model of verb semantic frame that can be used for teaching Persian verbs to non-native speakers.

2 Background

Fillmore's frame semantic theory was practically used to develop FrameNet for English. This approach was used to develop such data for other languages, including German FrameNet (GFN) developed by Boas (2002) at Texas University, Spanish FrameNet (SFN) by Subirats-Rüggeberg et al. (2003) at Barcelona University, Swedish FrameNet (SweFN++) by Borin et al. (2010) at Gutenberg University and etc.

Also, a number of studies have been conducted based on Fillmore's theory to investigate this method for teaching language. Atzler (2011) investigated two ways of presenting vocabulary in a German language learning classroom to determine whether frame semantics is a feasible tool with respect to students' vocabulary acquisition, and whether it is appropriate to determine the usage of vocabulary with respect to the culture. Additionally, Boas and Dux (2013) made a pilot study on the usability of a novel on-line frame-based lexicon for foreign language education. They focused on German and developed a lexicon called German Frame-semantic Online Lexicon (G-FOL). They compared two groups of students using G-FOL or

not using this lexicon to determine whether there is any significant advantage for students using the frame-based approach on vocabulary acquisition. They briefly reviewed previous research on pedagogical approaches to vocabulary acquisition. Then, they offered a short overview of linguistic approaches to structure the lexicon, most notably Frame Semantics (Fillmore, 1982) which served as the theoretical backbone of the G-FOL. Afterwards, they presented the architecture of the G-FOL and discussed some important differences in mapping word meanings from English to German based on semantic frames. Finally, they reported the results of a preliminary classroom to investigate how first year German students, who used the G-FOL, learned new vocabulary in comparison to a control group who used traditional resources for vocabulary acquisition. The results of their pilot study indicated that across-the-board, higher scores were achieved among the students who used the G-FOL for vocabulary learning. Xu and Li (2011) utilized semantic frame within an English vocabulary teaching model and studied its properties based on three aspects, namely word accumulation, word in long-term memory, and pragmatic knowledge accumulation, too. They observed that the lack of cultural linguistic contexts among the Chinese students who learned English as a foreign language led to inappropriate vocabulary utilization. Also, they found that frame semantics contributes to vocabulary expansion, memory retention, and recall.

A number of Iranian studies, including Ghayoomi (2009), Khavari (2013), Nayebblouyi et al., (2015), Safari (2015), Hesabi (2016), Motavalian Naeini (2016), Shamli and Hajighasemi (2017), Delarami et al. (2017), Safari and Rahmati Nejad (2017), Ajdadi and Razavi (2018) and Rahmati Nejad et al., (2019), Mousavi and zabihi (2019), conducted within the domain of frame semantic theory and the FrameNet project in general. Contrary to the studies done on Persian and frame semantics, Gandomkar (2014) stated that it is impossible to put the outside world events in specific and definite frames. She believed that Fillmore's claim to achieve lexical elaboration of Persian data proves to be futile; because providing such an approach finally gets us involved in a kind of accreditation which is basically in contrast with the theoretical basis of cognitive linguistics.

3 Review of the Literature

3.1 *Frame Semantics*

Fillmore's *Frame Semantics Theory* (1982) is one of the most important achievements of cognitive semantics which makes the understanding of the meaning of words possible in the form of a dictionary. This theory indicates a major principle in semantics which claims that the meanings of interdisciplinary words are perceived through knowledge emanated from human social and cultural experiences.

In this theory, semantic frames are parts of an event connected to a collection of meanings. The difference between his theory and other lexical semantic theories is

its emphasis on the background knowledge based on which the meaning of words is interpreted (Fillmore & Atkins, 1992, 1994, 2000; Fillmore & Baker, 2010). Fillmore (1982) believes that:

The feature-based approaches using primary categories are not likely to demonstrate the semantic manifestation and fullness of meaning of words because the meanings of words consist of vast information about the words enveloping us which can never be displayed within a few numbers of primary categories (p. 353).

Fillmore also utilized the term *Frame* as a method for semantic analysis of the natural language. This term, in the beginning periods of his proposal, is used not in the concept of the cognitive structural behaviors, but in the meaning of the almost tangibly organized syntactic and semantic phenomena (Chomsky, 1965). Geeraerts (2010) stated:

What Fillmore proposes in Frame Semantic theory, in the first place indicates that language can be used for demonstrating the infrastructural conceptualization of the outside world. In fact, we not only see the world around us in terms of conceptual patterns, but we also express these patterns in different structures. In this condition, each of the method of expressing a conceptual pattern creates a new semantic stratum. These patterns are meaningful methods of contemplation in the outside world. The theoretical foundation of this approach belonging to studying the meaning of the word is that the meaning of words should be described in relation to the manifestation of semantic schematic frames of conceptual structures and patterns of ideas, beliefs, and attitudes (p. 15).

Additionally, the computational lexicography research project named FrameNet has also been brought up based on frame semantic theory (Fillmore et al., 2003, p. 235) that is described briefly in the following section.

3.2 *FrameNet*

Fillmore (1997) pioneered to develop a computerized and corpus-based lexicon called FrameNet, where the meaning of most words is perceived based on semantic frames as mental concepts. A semantic frame, as a cognitive concept is a description of three major elements, namely event, association, and the participants. Frames are evoked by lexical units to display semantic distinctions. Two main aims were followed to develop FrameNet: (a) to display human function how to learn words; and (b) to display how lexical units are processed naturally. In the first phase of the project, the British National Corpus was used for both aims. Next, the American National Corpus was added to this data set and the data was organized in a database. This database contained detailed data from potential syntactic manifestations of frame elements drawn from the aspects existing in the annotated corpus. In this database, instruments were presented for describing semantic frames, marking sentences, searching for results, and providing reports. Also, this database provided evidence from the annotated semantic and syntactic sentences for contemporary English. A set of sentences indicating the domain of comparative possibilities of a lexical unit were represented as a sample to include types of syntactic structures of

the lexical unit to embed the elements of the frame. Finally, the developed data became available online to be used by English language teachers to distinguish the differences between words and frames.

3.3 Semantic Frame and Frame Elements

Each *Semantic Frame* in FrameNet contains five sections. (Fig. 1) displays the sample semantic frame of the English verb *to become* in FrameNet. It needs to be added that semantic frames in FrameNet are often related to each other and this relation is considered as an additional property of FrameNet. In a *Frame-to-Frame Relation*,

(1)	<i>Become</i>
Frame name	
(2) Definition	<p>An [ent Entity] ends up with some [finq Final_quality]--a new fact about the [ent Entity]. Alternatively, based on a cluster of changes of characteristics, the [ent Entity] newly meets the conditions for being a member of a Final category.</p> <ul style="list-style-type: none"> • [ent The weather] TURNED [finq cold]. • [ent You] can BECOME a firefighter [tim today]! <p>This frame should be compared with the Transition_to_state frame, which is more general in allowing arbitrary descriptions of a final situation:</p> <ul style="list-style-type: none"> • We ENDED UP telling him to leave. • There is no way to effectively paraphrase such a sentence in the Becoming frame.
	Core Elements
(3) Core and Non-Core Elements	<p>Entity [ent]</p> <p>The [ent Entity] which undergoes a change, newly ending up in the [finc Final_category] or taking on a new [finq Final_quality].</p> <ul style="list-style-type: none"> • [ent I] GROW impatient with your insolence. <p style="text-align: center;">Core Unexpressed</p> <hr/> <p>Final_category [finc]</p> <p>The category that the [ent Entity] ends up in after the change. Typically, this entails taking on a number of new characteristics.</p> <ul style="list-style-type: none"> • He never could understand how she ENDED UP [finc an evangelist]. <p>Final_quality [finq]</p> <p>A description of a characteristic of the [ent Entity] after the change.</p> <ul style="list-style-type: none"> • Suddenly, she BECAME [finq impatient].
	Non-Core Elements

Fig. 1 Semantic frame of the verb *Become* in English FrameNet

Circumstances [cir]	<p>This FE marks the set of conditions under which the [ent Entity] enters the [finc Final_category] or takes on the characteristic of the [finq Final_quality].</p> <p>How long the [ent Entity] remains in the [finc Final_category], Final_situation, or [finq Final_quality].</p>
Duration_of_final_state[dur] Semantic Type: Duration	<p>How long the [ent Entity] remains in the [finc Final_category], Final_situation, or [finq Final_quality].</p> <p>He BECAME [dur for the next three years] the prophetic voice of the Salvadoran people until his assassination on March 24, 1980.</p> <p>Any eventuality or [ent Entity] which brings about the change of the [ent Entity].</p>
Explanation[Expl] Semantic Type: State_of_affairs Group [grp]	<p>Smithers BECAME tired [Expl from all the work he'd been doing].</p> <p>A description of the kind of entities associated with instances of the [ent Entity] and saliently affected by its change.</p>
Initial_category []	This FE describes the category of the [ent Entity] before a change.
Initial_state []	This FE describes the state of the [ent Entity] before change occurs.
Manner [man] Semantic Type: Manner	<p>Any description of the event which is not covered by more specific FEs, including epistemic modification (probably, presumably, mysteriously), secondary effects (quietly, loudly), and general descriptions comparing events (the same way). In cases where the [ent Entity] is intentional, [man Manner] may indicate salient characteristics of an intentional [ent Entity] that also affect the event (presumptuously, coldly, deliberately, eagerly, carefully).</p> <ul style="list-style-type: none"> • The majority [man slowly] BECAME more and more disenchanted with him.
Place [Place] Semantic Type: Locative_relation	<ul style="list-style-type: none"> • Where the change takes place. • He always BECAME uncomfortable [Place in bars].
Time [tim] Semantic Type: Time	<ul style="list-style-type: none"> • When the change occurs. • [tim By 1945] he had BECOME uncertain of the advisability of anyone having such a weapon.
Transitional_period [trp]	<p>The period during which the [ent Entity] is in transition.</p> <ul style="list-style-type: none"> • [trp Over the last 5 years], I've BECOME sick and tired of your tomfoolery.

(4)
Lexical *become.v, turn.v*
Units

Fig. 1 (continued)

child frame explains parent frame in a hierarchy more elaborately. In this case, child frame is considered as a kind of parent frame for other frames. In this hierarchical relation, more abstract and less dependent frames are recognized as super-frames and less-abstract frames with more dependency recognized as sub-frames. Moreover, the relation can be labeled to determine how frames are related to each other (Ruppenhofer et al., 2016), such as inheritance and causative relations.

- (5) Annotation
- 1 The process went so far in Algeria earlier this year that the army cancelled the results of general elections when it BECAME^{Target} [Final_quality:clear] [Entity:that the Islamic Salvation Front would win an overwhelming victory].
 - 2 [Entity:The lengths to which he is prepared to go] will BECOME^{Target} [Final_quality:clear] [Time:when he and Esau meet].
 - 3 Undecided and still bent over towards her [Entity:he] BECAME^{Target} [Final_quality:aware of the patter of running feet, approaching fast].
 - 4 [Entity:The Nunnery Lane convent] BECAME^{Target} [Final_quality:involved in plans for the Carmelite convent at Mafeking] [Time:after the German sisters were approached by the South African Bishop of Kimberley and got in touch with Darlington].
 - 5 [Place:In the UK] it BECAME^{Target} [Final_quality:increasingly apparent] [Entity:that organisational change in schools was not sufficient to guarantee change in established social attitudes].
 - 6 [Entity:The chosen method which has been implemented] is described below, and BECAME^{Target} [Final_quality:known as the ` backwards ", or ` inverted look-up "].
 - 7 But I understand the cricket committee voted 4-1 to nominate West Indies batsman Richardson for a one-year contract to fill the vacancy until [Entity:Craig McDermott] BECOMES^{Target} [Final_quality:available] [Time:in 1994].

Fig. 1 (continued)

In the followings, the elements of a semantic frame are briefly described.

3.3.1 Title

The first section of a semantic frame is *Title* to convey the general concept of the target word.

3.3.2 Definition

Definition is a section of a frame that deals with the general description of the meaning of a frame and its related examples. In fact, in theory of frame semantics, the meaning of a phoneme is described with respect to its background frame without any relation to other phonemes. In other words, the meaning of a phoneme is in the form of schema based on experience created in the world (Ruppenhofer et al., 2016).

3.3.3 Frame Elements

Frame elements are situational roles that play as semantic roles of a frame. They are considered as the basic units in a frame. These elements are categorized into core roles and non-core roles. *Core Elements* introduce a constituent in such a way that their presence in a frame is mandatory to distinguish a frame from another one. There are principles to govern frames. There is also a set of core elements known as *Core Unexpressed Elements* that are considered necessary elements, but do not have concrete representation. *Non-core Elements* are the ones that describe concepts, such as time, place, status, tool, amount, etc. These elements do not create a frame by themselves; rather they are introduced in any frame that is required and suitable in terms of meaning.

3.3.4 Lexical Units

Lexical Units are the words to evoke a specific frame in mind. In fact, a lexical unit is a pair of words with their meanings. Typically, each sense of a polysemous word belongs to a different semantic frame, a script-like conceptual structure that describes a particular type of situation, object, or event along with its participants and props. For example, the *Apply Heat* frame describes a common situation, involving a *Cook*, some *Food*, and a *Heating Instrument*, that are evoked by words such as bake, blanch, boil, broil, brown, simmer, steam, etc. (Ruppenhofer et al., 2016:8).

3.3.5 Annotated Texts

Annotated Texts are part of a frame along with core and non-core elements.

Moreover, in the FrameNet project, different colors are used to encode core and non-core elements of frames to make distinctions of the semantic elements. In this article, contrary to FrameNet, we annotate the data and add notations to convert the data into Black and White mode.

4 Proposing a Frame Semantic Model for Persian Learning

In the introduction, it was stated that the contribution of this study is how frame semantics is useful to teach Persian vocabulary to non-native speakers to help them to use these sentential basic elements more appropriately. To this end, we describe the semantic properties according to the data structure used in FrameNet. Among the syntactic categories, we focus on the verb category which plays the major role to construct a sentence.

Persian has about 400 simple verbs (Khanlari, 1986, p. 395–405), and a large number of compound verbs composed of a preverbal element such as noun, noun phrase, adjective, preposition or prepositional phrase, and a light verb (Bateni, 2014). There is a set of verbs that are both simple and light. These verbs are very difficult to learn. The verb /ʃodæn/ (to become) is a member of this set. We discuss how to recognize its semantic concepts and frames by using Persian dictionaries and corpora and compare its frames with the frame of the verb *Become* in English FrameNet. Then, we develop the frame semantic model of /ʃodæn/ in Persian. Finally, we investigate some advantages and disadvantages of this method to teach vocabulary using frame semantics.

Table 1 Different functions of the verb /ʃodæn/ in Persian (Golfam et al., 2011)

	Functions of /ʃodæn/	Example	Phonetic transcription	English translation
1	Main verb	بابک به خانه شد.	bəbæk be xāneh ʃod.	Babak <u>came</u> home.
2	Auxiliary verb	آیا می‌شود بروم بیرون؟	ʔajə mifævæd berævæm birun?	<u>May</u> I go out?
3	Linking verb	کلینتون رئیس جمهور شد.	Cilinton reʔis dʒomhur ʃod.	Clinton <u>has become</u> president.
4	A constituent of compound verbs	تمام حضار بلند شدند.	tæmām-e hozzār bolænd ʃodænd.	All the spectators <u>stood up</u> .

4.1 Properties of the verb /ʃodæn/ in Persian

Verbs play a significant role in interpreting the meaning and describing the situation of an event. The verb /ʃodæn/ has been used in past by Persian speakers as one of the most frequent verbs and it plays different roles in a sentence. Dabir-moghaddam (2013) defined two general usages for this verb. One of them is its application in passive construction and the other one is its contribution to construct a compound verb. He proposed two processes to create a compound verb in Persian, either through a *combination process* or a *concatenation process*. Safa and Bahraie (2010) added a property that the verb /ʃodæn/ is used with or without interpretive adverbs due to carrying the aspects of transferring and changing the situations in many conditions for expressing hope and saying prayer. This verb contributes to make a huge set of verbs and concepts among which idiomatic expressions can be found (Safa et al., 2014, p. 1). Golfam et al., (2011, p. 152) proposed four different functions of the verb /ʃodæn/ to display how controversial this verb is, too. (Table 1) shows these functions.

4.2 Semantic Domains and Frames of /ʃodæn/

Lack of availability of a Persian FrameNet enforced us to use rich resources to help us to recognize and to determine the semantic domains and frames of the verb /ʃodæn/. Thus, we choose a number of well-known, reliable Persian dictionaries, such as Sokhan (Anvari, 2009), Persian-English Aryanpur dictionary (Aryanpur Kashani, 2012), and a dictionary of Persian synonyms and antonyms (Khodapasti, 1997) to capture various meaning of the verb /ʃodæn/. Also, we use some Persian linguistic corpora such as Persian Linguistic DataBase (Assi, 1997), FarsNet (Shamsfard et al., 2010), and Dadegan (Rasooli et al., 2011) to collect relevant samples for the target sense. In addition, equivalent frames of the verb *become* from the English FrameNet are required for cross-lingual comparisons. Having studied the verb /ʃodæn/ in the selected dictionaries and based on the consistency with related frames in English FrameNet, we found 14 different senses for this verb in Persian. These senses belong to contemporary and conventional periods, and the

Table 2 Semantic domains and frames of the verb /*fodæn*/ in Persian

	Semantic domains and frames of / <i>fodæn</i> /	Phonetic transcription	English translation
1	تغییر حالت دادن	tægjir-e halæt dādæn	To transform and change
2	روی دادن و اتفاق افتادن	ruy dādæn væ ?etefæg ?oftādæn	To take place and happen
3	انجام شدن	?ændzəm /odæn	To be done
4	محاسبه کردن	mohāsebeh cærdæn	To calculate
5	مردن و نابود شدن	mordæn væ nābud /odæn	To die and annihilate
6	بیمار شدن	bimar /odæn	To become sick
7	مناسب بودن*	monāseb budæn	*To be appropriate
8	اعتراض کردن*	?e?teraz cærdæ	*To complain
9	امکان داشتن*	?emcān dæ /tæn	*To become possible
10	رفتن**	ræftæn	**To go
11	جدا و مجزا شدن**	dʒoda væ modʒæza /odæn	**To become separated
12	به تملک درآوردن**	be tæmæloc dær ?āmædæn	**To own
13	از حد گذشتن**	?æz hæd ʒozæ /tæn	**To exceed
14	بالغ شدن**	baleg /odæn	**To become mature

contemporary senses are used in daily and formal conversations. (Table 2) summarizes 14 semantic domains and frames for the verb /*fodæn*/ in Persian. The verbs marked with (*) are colloquial and the ones with (***) are archaic.

Among the 14 semantic domains and frames recognized in (Table 2) for the verb /*fodæn*/, frames can be created only for the first 9 domains, either formal or colloquial, to be used for teaching. The rest 5 frames are not worth creating because they have an archaic meaning and they are not used in the contemporary Persian. Due to space limitation, we selected only two semantic domains and created their frames according to Fillmore's theory in FrameNet. One of the domains is /tægjir-e halæt dādæn/ (to transform/to change) as the main domain and frame of the verb /*fodæn*/ based on the frequency distribution of the verb extracted from the Persian Linguistics DataBase (Assi, 1997) and the manual analysis. Another frame is presented for the domain /monāseb budæn/ (to be appropriate) as a sample of colloquial meaning used in contemporary Persian.

To understand semantic frames, the information is organized based on the content of (Fig. 1) in (Sect. 3.3) to be presented to non-Persian speakers. To make the frame usable for language learners, each frame contains the Persian description, the phonetic transcription using the International Phonetic Alphabet (IPA), and the English equivalents of Persian texts. The provided information helps to learn about the verb and the appropriate pronunciation of the Persian word and also learning about its English equivalents. Moreover, in these semantic frames, after the *Title* of

	Senses	Phonetic Transcription	English Translation
(1) Frame name	تغییر حالت دادن	/tæçjir-e halæt dadæn/	to transform/to change
(2) Definition	<p>وضعت یا حالت جدیدی پیدا کردن، از حالی به حال دیگر در آمدن، تغییر یافتن، تبدیل شدن به آن (سخن).</p> <p>به حالتی در آمدن، به چیزی شدن، ترادیس شدن، چیز دیگری شدن، تغییر یافتن، دگرگون شدن، تغییر کردن، تغییر شکل یا ماهیت دادن، دگرگونه شدن، دیدگرگون شدن (اریان پور)</p> <p>گردیدن، گشتن (خداپرستی).</p>	<p>væzʔiyæt ya halæt-e dçædidi peyda çærdæn,ʔæz hali be hale diJær dær ʔamædæn, tæçjir yaftæn, tædbil ʃodæn be ʔæn (soxan).</p> <p>be halæti dær ʔamædæn, be tçizi ʃodæn, teradis ʃodæn, tçiz-e diJæri ʃodæn, tæçjir yaftæn, degærJun ʃodæn, tæçjir çærdæn, tæçjir-e Jecl ya mahiyæt dadæn, deJærJuneh ʃodæn, diJærJun ʃodæn (ʔariyan pur).</p>	<p>To get involved in a new situation, to change mood, to change, to change into (Sokhan Dictionary) .</p> <p>To become something, to change into something, to become something else, to change, to transform, to metamorphose, to transform, (Aryanpur Dictionary).</p>
	<ul style="list-style-type: none"> • موجودیت هوا [حالت نهایی سرد] شد. • موجودیت او [حالت نهایی پیر] شده است. 	<ul style="list-style-type: none"> • Jærdidæn, Jæftæn (çoda parasti). • hæva særd ʃod. • ʔou pir ʃodeh ʔæst. 	<p>to become, to change (Khodaparasti Dictionary).</p> <ul style="list-style-type: none"> • The weather TURNED cold. • He/ She has BECOME old.
(3) Core and Non-Core Elements	عناصر اصلی	ʔænasor-e ʔæšli	Core Elements
	<p>موجودیت یا نهاد:</p> <p>موجودیتی که از طریق تغییر و تحول به «مقوله یا حالت نهایی» می رسد.</p> <ul style="list-style-type: none"> • [موجودیت نهال های کوچک] [رویداد که کاشته بودیم] ، [زمان امسال] [حالت نهایی بزرگ] شده اند. 	<p>modçudiyæt ya næhad:</p> <p>modçudiyæti ce ʔæz tærig-e tæçjir vætæhævol be «mæçuleh næhayi» miresæd.</p> <ul style="list-style-type: none"> • næhalhay-e cutJæci ce çæste budim, ʔemsal bozorJ ʃodeh ʔænd. 	<p>Entity:</p> <p>An entity which meets final state or category through transformation.</p> <ul style="list-style-type: none"> • Small saplings that we planted have GROWN this year.
	عناصر اصلی بیان نشده	ʔænasor-e bæyan næʃodeh	Core Unexpressed
	<p>رویداد:</p> <p>رویدادی که در طی آن تغییر و تحول اتفاق می افتد.</p> <ul style="list-style-type: none"> • [جکوبی بسیاری] از [موجودیت شهر های جنوبی ایران] [رویداد در جنگ هشت ساله ایران و عراق] [حالت نهایی ویران] شدند. <p>مقوله یا حالت نهایی:</p> <p>حالت، وضعیت یا مقوله ای که موجودیت پس از یک رویداد به آن می رسد.</p> <ul style="list-style-type: none"> • [سب در اثر گرما] [موجودیت آب دریاها] [حالت نهایی بخار] می شود. 	<p>ruydad:</p> <p>ruydadi ce dær tey-e ʔan tæçjir vætæhævol ʔetefag mi ʔoftæd.</p> <ul style="list-style-type: none"> • besyari ʔæz Jæhrhay-e dçonubi-e ʔiran dær dçænJ-e hæft sale-ve ʔiran vætærag viran ʃodænd. <p>mæçuleh ya halæt-e næhayi:</p> <p>halæt, vætʔiyæt ya mæçulehʔi ce modçudiyæt pæs ʔæz yec ruydad be ʔan miresæd.</p> <ul style="list-style-type: none"> • dær ʔæsær-e Jærma ʔab-e dæryaha boçar miJævæd. 	<p>Event:</p> <p>an event during which a change has occurred.</p> <ul style="list-style-type: none"> • Many of southern cities of Iran have got RUINED in the Iran-Iraq's eight-year war. <p>Final state or category:</p> <p>a state, situation or category such that an entity meets after an event.</p> <ul style="list-style-type: none"> • The water of seas VAPORIZES due to heat.

Fig. 2 Frame of /tæçjir-e halæt dadæn/ (to transform/to change) as the main frame of /ʃodæn/ in Persian

	عناصر فرعی	ʔænasor-e færʔi	Non-Core Elements
	<p>توضیح: توضیحی است برای رخ دادن و ظهور یک رویداد.</p> <ul style="list-style-type: none"> [زمان وقتی] موجودیت علی توضیح موضوع را فہمید، [حالت نہایی پریشان] شد. <p>چگونگی: توصیفات یک رویداد کہ متأثر از عنصر قالب دیگری نباشد؛ از قبیل توصیفات ذاتی، تأثیرات ثانویہ، توصیفات کلی مقایسہی زویداد و ویژگی‌های برجستہی موجودیتہ کہ بر رویداد اثر می‌گذارد.</p> <ul style="list-style-type: none"> [موجودیت اول] [حالت اولیه بیمار بود] ولی [زمان حالا] [چگونگی خیلی] [حالت نہایی خوب] شدہ است. <p>سبب: وضعیتی کہ تغییر موجودیت پاسخی بہ آن است.</p> <ul style="list-style-type: none"> [سبب بہ خاطر گرمای هوا] [موجودیت درختان] [حالت نہایی خشک] شدند. <p>دورہی انتقالی: دورہای کہ در آن موجودیت در حال انتقال است.</p> <ul style="list-style-type: none"> [دورہ انتقالی در طول بہار] [موجودیت شکوفہ‌ها] [حالت نہایی بہ میوہ] تبدیل می‌شوند. <p>زمان: زمان روی دادن تغییر و تحول.</p> <ul style="list-style-type: none"> [موجودیت ہریم] [زمان امسال] [چگونگی خیلی] [حالت نہایی لاغر] شدہ است. <p>شرایط: مجموعہ شرایطی کہ در آن موجودیت بہ حالت یا مقولہ نہایی می‌رسد.</p> <ul style="list-style-type: none"> [چگونگی بسیاری] [موجودیت از عناصر] [زمان در محیط آزمایشگاہ] [شرایط و تحت تأثیر کاتالیزور] [حالت نہایی دچار تغییر و تحول] می‌شوند. 	<p>tozih: tozihī ʔæst bæraye rox dadæn væ zohur-e yec ruydad.</p> <ul style="list-style-type: none"> væcti ʔali mozuʔ ra fæhmīd, pæriʔan ʔod. <p>tʃeʔunæʃi: tosifat-e yec ruydad ce moteʔæser ʔæz ʔonsor-e galeb-e diʔæri næbaʔæd, ʔæz gæbil-e tosfat-e zati, tæʔsirat-e sanæviyeh, tosfat-e colī-e mogayeseye ruydad væ vizæʃihaye bærdʒæsteye moʔʒudiyæt ce bæ ruydad ʔæsar miʔozaræd.</p> <ul style="list-style-type: none"> ʔu bimar bud væli hala ʔæli ʔub ʔodeh ʔæst. <p>sæbæb: væzʔiyæti ce tæcʒir-e moʔʒudiyæt pasoxi be ʔan ʔæst.</p> <ul style="list-style-type: none"> be ʔater-e ʔærmay-e hæva deræʔtan ʔoʃc ʔodænd. <p>dore-ye ʔentegali: dorehʔi ce dær ʔan moʔʒudiyæt dær hal-e ʔentegal ʔæst.</p> <ul style="list-style-type: none"> dær tul-e bæhar ʔocufeha be miveh tæbdil miʔævænd. <p>zæman: zæman ruy dadæn-e tæcʒir væ tæhævol.</p> <ul style="list-style-type: none"> Mæryæm ʔæmsal ʔeyli lögær ʔodeh ʔæst. <p>ʔærayet: mædʒmuʔeh ʔærayeti ce dær ʔan moʔʒudiyæt be hælæt ya mæcule-ye næhayi miresæd.</p> <ul style="list-style-type: none"> besyari ʔæz ʔænasor dær mohit-e ʔazmayeʔʃah væ tæht-e tæʔsir-e catalizor dotʔar-e tæcʒir væ tæhævol miʔævænd. 	<p>Explanation: is an explanation that expresses an occurrence and advent of an event.</p> <ul style="list-style-type: none"> Ali GOT ANNOYED when he found out the problem. <p>Manner: descriptions of an event which are not affected by other frame elements, such as substantial descriptions, secondary effects, general descriptions of comparing an event and outstanding features of an entity affecting the event.</p> <ul style="list-style-type: none"> He was sick, but has GOT more better. <p>Cause: a situation that the transformation of an entity is a response to it.</p> <ul style="list-style-type: none"> Because of the hot weather, the trees DRIED UP. <p>Transitional period: a period in which the entity is being transferred.</p> <ul style="list-style-type: none"> Blossoms TURN INTO fruits during spring. <p>Time: the time of occurring transformation.</p> <ul style="list-style-type: none"> Maryam has LOST WEIGHT a lot this year. <p>Circumstances: a set of conditions in which the entity meets the final category or state.</p> <ul style="list-style-type: none"> Many elements HAVE UNDERGONE TRANSFORMATION in the laboratory by using a catalyst.

Fig. 2 (continued)

	<p>حالت یا مقوله اولیه: مقوله اولیه موجودیت قبل از رخ دادن رویداد.</p> <ul style="list-style-type: none"> • [مکان در سرزمین‌های جنوبی] [حالت اولیه موجودیت: یخ‌ها] [سبب با گرم شدن هوا] [چگونگی خیلی سریع] [حالت نهایی آب] شدند. <p>گروه: جمع یا گروهی مرتبط با موجودیت که به شکل گسترده‌ای تحت تأثیر تغییر آن قرار می‌گیرند.</p> <ul style="list-style-type: none"> • [سبب با آلوده شدن دریاها] [موجودیت زندگی] [چگونگی موجودات دریایی] [حالت نهایی متحول] می‌شود. <p>مدت‌زمان حالت نهایی: مدت‌زمانی که موجودیت در حالت یا مقوله نهایی باقی می‌ماند.</p> <ul style="list-style-type: none"> • [مکان در مناطق سردسیری] [چگونگی بسیاری] از [موجودیت دریاچه‌ها] [مدت زمان حالت نهایی در طول زمستان] [حالت نهایی منجمد] می‌شوند. <p>مکان: محل روی دادن تغییر و تحول.</p> <ul style="list-style-type: none"> • [مکان در باغ و بستان] [موجودیت رنگ درختان] [سبب با تغییر فصل] [حالت نهایی دگرگون] می‌شود. 	<p>holæt ya mægule-ye ?ævæliye: mægule-ye ?ævæliye-ye modžudiyæt gæbl ?æz roχ dādæn-e ruydad.</p> <ul style="list-style-type: none"> • dær særzæminhøy-e dʒonubi yæχhæ bə ʃærm ʃodæn-e hæva χeili særi? ?ab ʃodænd. <p>ʃoruh: dʒæm? ya ʃoruhi mortæbet bə modžudiyæt ce be ʃecl-e ʃostærdeh?i tæht-e tæʔsir-e tægjir-e ?an gærar miʃirænd.</p> <ul style="list-style-type: none"> • bə ?aludeh ʃodæn-e dæryəha zendeʃi coliyeh-ye modžudæt-e dæryəyi motehævel miʃævæd. <p>modæt zæmæn-e holæt-e næhøyi: modæt zæmæni ce modžudiyæt dær halæt ya mægule-ye næhøyi baçi mimænæd.</p> <ul style="list-style-type: none"> • dær mænatec-e særdsiri besyari ?æz dæryatʃeha dær tul-e zemestæn monðæmed miʃævænd. <p>mæcæn: mæhæl-e ruy dādæn-e tægjir væ tæhævol.</p> <ul style="list-style-type: none"> • dær baç væ bostan rænʃ-e deræχtan bə tægjir-e fæsl dejerjun miʃævæd. 	<p>Initial state or category: Initial category of the entity that exists before the occurrence of the event.</p> <ul style="list-style-type: none"> • In Southern lands, <u>ices</u> MELT fast as the weather gets hot. <p>Group: the group of entities that related to the entity which are extensively affected by its change.</p> <ul style="list-style-type: none"> • As the seas get contaminated, the life of all <u>marine creatures</u> UNDERGOES TRANSFORMATION. <p>The period of the final status: the period of time in which the entity remains in the final status or category.</p> <ul style="list-style-type: none"> • In cold regions, most of the lakes GET FROZEN <u>during winter</u>. <p>Place: the place where a transformation occurs.</p> <ul style="list-style-type: none"> • <u>In gardens</u>, the color of trees CHANGES as the seasons change.
(4) Lexical Units	<p>شدن، تبدیل‌شدن، عوض شدن، دگرگون شدن، دگرگون شدن، دگرگونه شدن، چیز دیگری شدن، ترادیس شدن، پشت‌ورو شدن، متغیر شدن، منقلب شدن، دگر‌دیس شدن، تراریخت شدن، دگرسان شدن، بدل شدن</p>	<p>ʃodæn, tæbdil ʃodæn, ?ævæz ʃodæn, deʃærʃun ʃodæn, diʃærʃun ʃodæn, deʃærʃuneh ʃodæn, tʃiz-e diʃæri ʃodæn, teradis ʃodæn, poft-o-ru ʃodæn, moteçæyer ʃodæn, mongæleb ʃodæn, deʃærdis ʃodæn, tærariχt ʃodæn, deʃærsan ʃodæn, bædæl ʃodæn.</p>	<p>to become, to turn into, to change, to transform, to change, to become into something else, to change, to get upside down, to change, to get transformed, to change, to get changed, to convert to.</p>
(5) Annotation	<p>[موجودیت آب] [سبب به دلیل سرما] [حالت نهایی به یخ] تبدیل می‌شود.</p> <p>[موجودیت دختر کوچولو] [حالت نهایی به الهه] مبدل شد.</p> <p>[موجودیت او] [بوره انتقالی از پار سال تا حالا] [چگونگی خیلی] عوض شده است.</p> <p>[سبب با سرد شدن هوا] [موجودیت رودخانه] [دگرگون] می‌شود.</p>	<p>?ab be dæil-e sarmâ be yæχ tæbdil miʃævæd.</p> <p>doxtær cutʃulu be ?elâheh mobædæl ʃod.</p> <p>?u ?æz pærsal ta hala χeyli ?ævæz ʃodeh ?æst.</p> <p>bə særd ʃodæn-e hæva rudyæneh dejerjun miʃævæd.</p>	<p>[Cause due to the cold] [Entity Water] GETS FROZEN.</p> <p>[Entity The little girl] [Final category into goddess] IS TRANSFORMED.</p> <p>[Transitional Period since last year until now] [Entity He] HAS CHANGED [Manner a lot].</p> <p>[Cause As the weather gets cold], [Entity the river] GETS CHANGED.</p>

Fig. 2 (continued)

the frame, *Definition* of the sense from dictionaries and *Core* and *Non-core Elements* are listed. Also, a number of verbs that contain the target concept of the verb /*ʃodæn*/ are selected as *Lexical Units*. Also, *Annotation* involves sentences extracted from Persian corpora and annotated manually in way that the semantic roles are defined in the sentences. (Fig. 2) represents the frame of /*tægjir-e hælæt dædæn*/ (to transform/to change) as the main semantic frame of /*ʃodæn*/.

As can be seen in (Fig. 2), the frame is named as/*tægjir-e hælæt dædæn*/ (to transform/to change). From the Persian dictionaries, we found the meanings of this verb and listed in the *Definition* section of the frame. Then, we focused on core and non-core elements according to the samples found in the Persian corpora. The core element of this verb is an *Entity* which meets a final state or a category through transformation, as in Example (1) /*bozorʃ ʃodæn*/ (grow) determines the final state.

1. næhælhay-e cutʃæci ce caʃte budim, ʔemsal bozorʃ ʃodehʔænd.

Small saplings that we planted **have grown** this year.

This verb has two unexpressed core elements, namely *Event*, and *Final State or Category*. The *Event* refers to an event during which a change has occurred, as in Example (2) the cities ruined.

2. besyari ʔæz ʃæhrhay-e dʒonubi-e ʔiran dær dʒænʃ-e hæʃt sæle-ye ʔiran væ ʔærag viran ʃodænd.

Many of southern cities of Iran **have got ruined** in the Iran-Iraq's eight-year war.

Final State or Category refers to a state, situation or category in such a way that an entity exists after an event, as in Example (3), where vaporizing is happened after heating.

3. dær ʔæsær-e ʔærmæ ʔab-e dæryaha boʒar mi ʃævæd.

The water of seas **vaporizes** due to heat.

There are 10 non-core elements for the frame/*tægjir-e hælæt dædæn*/ (to transform/to change). *Explanation* is one of the non-core elements to express an occurrence and advent of an event, as in Example (4) where someone is annoyed.

4. vægti ʔali mozuʔ ræ fæhmîd, pæriʃæn ʃod.

Ali **got annoyed** when he found out the problem.

Manner is another non-core element to describe an event which is not affected by other frame elements, as in Example (5) where sickness is the event that is talked about.

5. ʔu bimær bud væli hælæ ʔeili ʒub ʃodeh ʔæst.

He was sick, but **has got** more **better** now.

Cause is another non-core element to describe a situation that the transformation of an entity is a response to it, as in Example (6) where the hot weather caused tree to dry.

6. be xāter-e cārmāy-e hāvā derāxtān xoʻfc **ʃodānd.**

Because of the hot weather, the trees **dried up**.

Transitional Period, another non-core element, refers to a period the entity is being transferred, as in Example (7) where during the spring time the blooms turn into fruits and this period of time passes away.

7. dār tul-e bāhār ʃocufehā be miveh **tābdil mi ʃāvānd.**

Blossoms **turn into** fruits during spring.

Time is another non-core element which refers to the time of occurring transformation, as in Example (8) where a status is changed such that the change is occurred in a certain time, such as losing weight in a certain time.

8. Māryām ʔemsāl xyli **lāgār ʃodeh ʔāst.**

Maryam **has lost weight** a lot this year.

Circumstances is another non-core element which refers to a set of conditions in which the entity meets the final category or state, as in Example (9) where elements are changed due to using a catalyst in the laboratory.

9. besyāri ʔāz ʔānāsor dār mohit-e ʔāzmāye ʃāh vā tāht-e tāʔsir-e catalizor **dot ʃār-e tācʃir vā tāhāvōl mi ʃāvānd.**

Many elements **have undergone transformation** in the laboratory by using a catalyst.

Initial State or Category, another non-core element, refers to an entity that exists before the occurrence of an event, as in Example (10) where the melting event changes the ice as the existing element.

10. dār sārzāminhāy-e dʒonubi yāxhā bā ʔārm ʃodān-e hāvā xeili sārīʔ ʔāb ʃodānd.

In Southern lands, ices **melt** fast as the weather gets hot.

Group is another non-core element which refers to the group of entities that are related to the entity which are extensively affected by its change, as in Example (11) where all marine creatures are a group of entities in which any changes has an impact on the whole group.

11. bā ʔāludēh ʃodān-e dāryāhā zendeʃi coliyeh-ye modʒudāt-e dāryāyi **mote-hāvel mi ʃāvānd.**

As the seas get contaminated, the life of all marine creatures **undergoes transformation**.

The Period of the Final Status is another non-core element which refers to the period of time in which the entity remains in the final status or category, as in Example (12) where during winter refers to a period of time. The preposition ‘during’ is the keyword to recognize this non-core element.

12. *dær mænæteg-e særdsiri besyæri ?æz dæryat/ehæ dær tul-e zemestæn monðzæmed mi/fævænd.*

In cold regions, most of the lakes **get frozen** during winter.

Place is the last case of non-core element which refers to the place where a transformation occurs, as in Example (12) where ‘gardens’ refers to a place. The prepositions ‘in/at/on’ are the keywords to recognize this non-core element.

13. *dær bæg væ bostæn rænJ-e deræxtæn bā tægir-e fæsl deJærJun mi/fævæed.*

In gardens, the color of trees **changes** as the seasons change.

In addition to provided information, the fourth section of a semantic frame contains other lexical units that have similar meaning with respect to the target frame sense. As it is clear in the translations of the lexical units, the verbs *to turn into*, *to change*, and *to transform* have related meanings. The last section of a frame belongs to a set of sentences extracted from a corpus. These sentences are annotated semantically, where the thematic roles of the constituents are determined.

Also, (Fig. 3) represents the frame of /monæseb budæn/ (to be appropriate) as a sample of colloquial meaning of the verb /fodæn/ in contemporary Persian. This sense has three core elements, including *Evaluee* which is evaluated in terms of suitability for a purpose or user, *Purpose* for which the suitability of the evaluee is evaluated, and *User* that expresses who a user is, and two non-core elements, including *Degree* that expresses the degree and rate of suitability of an evaluee for the user or purpose and *Explanation* that expresses extra explanation about an evaluee or user.

In (Figs. 2 and 3), we introduced two frames of the verb /fodæn/ and their elements in Persian. Illustrations of frame elements along with examples are manifested based on the perception of the Persian native speaker and Persian dictionaries. Additionally, the part belonged to the annotated texts was completed with relevant sentences.

4.3 Discussion about Advantages and Disadvantages of the Learning Method

Using frame semantic method and semantic frame for teaching vocabulary in Persian have advantages and disadvantages. Although Persian dictionaries such as Sokhan, Dekhoda, and Moein attempted to provide us useful information, they do not provide the required background knowledge for Persian speakers; however, the Persian FrameNet developed in the framework of frame semantics provides this knowledge explicitly. The annotated data in the Persian FrameNet is deeply annotated; therefore, precise information is required. Searching the available corpora to seek more samples causes to collect a large number of data to be annotated in detail. All the analyses have to be stored in the FrameNet. In the frame, syntactic aspects and semantic distinctions are elaborated. This property is almost ignored in the traditional dictionaries. Through data representation in frame semantics, it is

	Senses	Phonetic Transcription	English Translation
(1) Frame name	مناسب بودن	monaseb budæn	to suit, to become suitable, to fit
(2) Definition	مناسب بودن به‌ویژه از نظر اندازه (گفتگو) (سخن). شایستگی داشتن، مناسب بودن (عامیانه) (اریان‌پور). برازنده بودن، درخور (کسی) بودن، به (کسی) آمدن، مناسب، شایسته (صفت)، درخور، برازنده (باطنی). به (کسی) آمدن (معاصر).	monaseb budæn be vižeh ʔæz næzær-e ʔændazeh (JofteJu) (soʔan). [ʔayesteʃi dɑʃtæn, monaseb budæn(ʔamiyaneh) (ʔariyan pur). bæræzændeħ budæn, dær ɣor-e (cæsi) budæn, be (cæsi) ʔamædæn, monaseb, [ʔayesteh(sefæt), dær ɣor, bæræzændeħ(bateni). be (cæsi) ʔamædæn (moʔaser).	To be suitable especially in size (conversation) (speech) (Sokhan Dictionary). To be qualified, to be suitable (colloquial) (Aryanpur Dictionary). To be fit, to be deserving, to suit (someone), suitable, qualified (adj), befitting, graceful (Batani Dictionary). To fit someone (Moaaser Dictionary).
	• توضیح نه [ارزیابی شونده لباس] [کاپری به تنش] می‌شد و [توضیح نه] [ارزیابی شونده گفتش] [کاپری به پایش]. • [ارزیابی شونده این لباس] [کاپری به تن شما] نمی‌شود.	• næ lebas be tæneʃ miʃod væ næ cæʃ be payæʃ. • ʔin lebas be tæn-e [oma nemiʃævæd.	• Neither clothes nor shoes FIT him/her. • This dress doesn't FIT you.
(3) Core and Non-Core Elements	عناصر اصلی	ʔænasor-e ʔæsli	Core Elements
	ارزیابی‌شونده: ارزیابی‌شونده بر مبنای مناسب بودن برای هدف یا کاربری ارزیابی می‌شود. • [ارزیابی شونده لباس‌های بلند] [ارزیابی شونده به او] نمی‌شود. هدف: هدفی است که مناسب بودن ارزیابی‌شونده برای آن بررسی می‌شود. • [ارزیابی شونده پیاده‌روها] [هدف برای عبور] [کاپری افراد معلول و ناتوان] مناسب شده اند.	ʔærzyabi [ʔævændeħ: ʔærzyabi [ʔævændeħ bæŕ mæbnay-e monaseb budæn bæŕay-e hædæf ya cærbær ʔærzyabi miʃævæd. • lebashay-e bolænd be ʔu nemiʃævæd. hædæf: hædæfi ʔæst ce monaseb budæn-e ʔærzyabi [ʔævændeħ bæŕay-e ʔan bæŕresi miʃævæd. • piyaderoħa bæŕay-e ʔobur-e ʔæfræd-e mæʔlul væ natævæn monaseb[odeħ]ʔænd.	Evaluate: An evaluatee is evaluated in terms of suitability for a purpose or user. • Long dresses do not FIT him/her. Purpose: It is a purpose for which the suitability of an evaluatee is evaluated. • Pavements have BECOME SUITABLE for crossing handicapped and disabled people.

Fig. 3 Frame of /monaseb budæn/ (to be appropriate) as colloquial meaning of the verb /ʃodæn/ in Persian

possible to focus on one part of the frame and make it coherent for non-Persian speakers. Relating the frames in a hierarchy and linking the frames in the form of a network make the senses distinct and comparative to other frames. This advantage is more informative when we have a comprehensive FrameNet for Persian. Computer facilities such as visual representation of the networks make the semantic frame relations more comprehensive to language learners.

	<p>کاربر: این عنصر بیان می‌کند که کاربر چه کسی است. • [ارزیابی شونده کفش ها] [درجه خلی] [کاربر به پای او] نمی‌شود.</p>	<p>carbær: ʔin ʔonsor bæyan miconæd ce carbær tʃe cæsi ʔæst. • cæʃʃha ʒeili be pay-e ʔu nemiʃævæd.</p>	<p>User: This element expresses who a user is. • These shoes do not FIT his/her feet much.</p>
	عناصر اصلی بیان‌نشده	ʔænasor-e bæyan næʃodeh	Core Unexpressed
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	عناصر فرعی	ʔænasor-e færʔi	Non-core Elements
	<p>درجه: بیان‌کننده‌ی درجه و میزان مناسب بودن ارزیابی‌شونده برای کاربر یا هدف است. • [ارزیابی شونده این لباس] [درجه بیشتر] [کاربر به تن من] می‌شود. توضیح: توضیحی درباره ارزیابی‌شونده و یا کاربر است. • [ارزیابی شونده دامنی] [توضیح که مادرم خریده بود] [درجه بیشتر] [مناسب] [کاربر من] می‌شد [توضیح تا خواهرم].</p>	<p>dærædʒeh: bæyan conænde-ye dærædʒeh væ mizan-e monæseb budæn-e ʔærzyabi ʃævændeh bæray-e carbær ya hædæf ʔæst. • ʔin lebas biʃtær be tæ-n-e mæn miʃævæd. tozih: tozihi dærbærey-e ʔærzyabi ʃævændeh væ ya carbær ʔæst. • damæni ce madæraem ʒærideh bud biʃtær monæseb-e mæn miʃod ta ʒaharæm.</p>	<p>Degree: It expresses the degree and rate of suitability of an evaluatee for the user or purpose. • This dress SUITS me. Explanation: It is an extra explanation about an evaluatee or user. • The skirt that my mother bought, was more SUITABLE for me than my sister.</p>
(4) Lexical Units	شدن، مناسب شدن	ʃodæn, monæseb budæn	To become, to become suitable
(5) Annotation	<p>[توضیح نه] [ارزیابی شونده بلوز] [کاربر به تنش] می‌شد، نه [ارزیابی شونده شلوار] [کاربر به پایش].</p> <p>[ارزیابی شونده این لباس ها] [درجه بیشتر] [مناسب] [کاربر تو] می‌شود [توضیح تا من] .</p>	<p>næ boluz be tænaeʃ miʃod, næ ʃælvær be payæʃ. ʔin lebasha biʃtær monæseb-e to miʃævæd ta mæn.</p>	<p>Neither [Evaluatee the blouse] nor [Evaluatee the trousers] FIT [user him/her]. [Evaluatee These clothes] SUIT [user you] [Degree more than [user me]].</p>

Fig. 3 (continued)

On the other hand, developing such data with precise information is very difficult, a tedious task, and time consuming. The main reason is that the detailed information has to be extracted from a corpus that requires intensive manual task. As a result, it is time consuming.

Although machine learning methods can be useful to develop such dataset, there are some barriers to use this method. The main barrier is that this approach cannot do deep analyses. But simple tasks can be done through the machine learning approach. Among learning scenarios, unsupervised machine learning approach can be used to find words which have similar properties to be grouped in one cluster

without requiring any prior knowledge to train a model. Supervised machine learning approach can be useful to provide the required information. But this learning scenario requires a large amount of data to build a statistical model. Developing the Persian FrameNet paves the way to use this approach. Anyhow, machinery methods cannot be used for all tasks in the process of FrameNet development. Gildea and Jurafsky (2002) introduced a model to analyze the data in frame semantics. They proposed a two-step model where a frame has to be assigned for a word in the first step, and then the semantic roles have to be assigned to the elements. Semi-supervised learning might be a shortcut to annotate data where a minimum amount of data as informative samples is selected and extracted from the data pool to be annotated manually. This approach reduces human intervention to develop the data as Ghayoomi (2009) has practically showed how to use active learning as a semi-supervised learning scenario to assign frames. Language changes by passage of time, as a result the developed data requires to be updated. Additionally, some new concepts may be added to the language, some existing concepts may change, or some concepts may be outdated. These reasons indicate the importance of updating; however, updating this data set is not very frequent. It needs to be added that since basic tools and annotated data are not available for Persian, the difficulty for data annotation of the Persian FrameNet and updating it doubles.

5 Conclusion

The main contribution of this chapter, which grounds in cognitive, computational and applied linguistics, addresses the frame semantics theory and FrameNet's principles in teaching Persian vocabulary to non-native speakers. To this end, we attempted to analyze the Persian verb /*fodæn*/ (to become) within the framework of Fillmore's frame semantic theory, and focused on the two most frequent senses of this verb. The provided data for the target senses were organized according to the English FrameNet and the annotated data according to the standard of this data were set. As a result, 14 semantic domains and frames of the verb /*fodæn*/ were recognized according to the resources, like using Persian contemporary dictionaries. To develop the frames, we used Persian corpora to find natural samples. To represent Fillmore's theory practically, the frames of /*tægjir-e hølæt dødæn*/ (to transform and change) and /*monæseb budæn*/ (to be appropriate) were created and described in detail.

The provided detailed and organized information about each sense in a frame of a Persian word makes it possible for a language learner to increase his attention during the learning process and to make a better classification of the information in his brain to find out about the relations between the senses along with similarities and dissimilarities between them. Also, the application of frame semantics such as Persian FrameNet eases the learning Persian vocabulary for non-native speakers. However, the finding of this research is in contrast to Gandomkar's (2014) point of view she declared the futility of Fillmore's claim to achieve the lexical explanation

of the data in Persian. To prove the usability of Fillmore's theory, we described how FrameNet can be used to convey semantic information. Furthermore, we discussed the requirements to construct the Persian FrameNet recently developed by Khavari (2013) and Nayeblouyi et al., (2015). Conducting studies on other semantic frames in different domains and providing analyzed data pave the ground to establish the semantic frames for Persian words to be used as a rich language resource in theoretical semantics, cognitive science, and computational linguistics.

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Academic Writing for Academic Persian: A Synthesis of Recent Research



Chiew Hong Ng and Yin Ling Cheung

Abstract Besides enhancing Persian academic reading, in an English only research world, Persian academic stakeholders have to master English and/or Persian academic writing to disseminate findings globally to members of different disciplinary communities through Persian and English language as a lingua franca. This chapter uses the method of qualitative meta-synthesis of 40 empirical studies specifically on academic writing in Persian in refereed journals, book chapters, and conference proceedings published during the period of 2005–2020. An inductive approach to thematic analysis synthesizes (a) the theoretical models for researching Academic Persian in academic writing and (b) the similarities and differences between academic writers from Persian and English for different disciplines. Theoretically and pedagogically, the findings from the comparisons and the systematic content analysis following Sandelowski et al. (Res Nurs Health 20:365–371. [https://doi.org/10.1002/\(SICI\)1098-240X\(199708\)20:4<365::AID-NUR9>3.0.CO;2-E](https://doi.org/10.1002/(SICI)1098-240X(199708)20:4<365::AID-NUR9>3.0.CO;2-E), 1997) contribute to our understanding of styles and genres specific to academic writing for Academic Persian, in terms of theoretical models for research as well as conventions or expectations of different disciplines in academic writing for Academic Persian.

Keywords Academic Persian · Academic writing · Qualitative meta-synthesis · Theoretical models

1 Introduction

In an English only research world (Belcher, 2007), there is the need to enhance Persian academic reading (Aghdassi, 2018) and academic writing for Academic Persian. This is because Persian academic stakeholders have to master English and/

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or Persian academic writing to disseminate findings globally to members of different disciplinary communities through Persian and English language as a lingua franca. Research into the written academic genres has demonstrated that different languages and disciplines have specific writing norms and each community has particular genre or discourse (Zarei & Mansoori, 2007), specific rhetorical structures (Ghasempour & Farnia, 2017), metadiscourse (Hyland & Tse, 2004) and voice construction (Zhang & Cheung, 2017). Research in academic textual analysis studies to investigate the similarities and differences between English and non-English academic writers have emerged in the last 15 years but there has been no synthesis of findings to look at the nature of academic writing for Academic Persian and the chapter addresses this gap.

Yazdanmehr and Samar (2013) define academic writing as essays, articles and theses. Mohammadi (2013) sees academic writing as “the fulcrum on which many other aspects of scholarship depend” (p. 534) as it is the main form of communication in the expression of acquired knowledge within specific subject disciplines through demonstration of theories or arguments using a specified discourse. For students, academic writing pertains to writing essays, articles, and dissertations/theses. For those in the academia, interest has gone beyond the “primary genres (e.g. research articles, journal abstracts, books, dissertations, etc.) to the institutional or occluded genres (Swales, 2004, p. 18) such as research grant proposals, evaluation promotion letters, referees’ review of books or articles, and editorial correspondence” (Mohammadi, 2013). Gillet (2020) lists these as genres in academic writing: essays, reports, case studies, research proposals, book reviews, brief research reports, literature reviews, reflective writing, introductions, research methods, research results, research discussions, writing conclusions, research abstracts, research dissertations and theses. Therefore, academic writing covers a wide range of genres. For writing in Academic Persian, this chapter looks at research articles (RAs) as a key genre used by scientific communities to communicate and circulate knowledge (Adel & Moghadam, 2015). Research article as a specific genre comprises eight main parts: Abstract, Introduction, Review of literature, Methodology, Results, Discussion, Conclusion, and Reference (Adel & Moghadam, 2015).

The chapter reviews the literature by contextualizing writing in the domain of Academic Persian and outlining the theoretical models for researching academic writing. The six steps in the analytical approach and the two research questions are described in the methodology section before the presentation of the findings in terms of the research questions. Research and teaching implications for Academic Persian are discussed in the concluding section.

2 Literature Review

2.1 *Writing and Academic Persian*

Cross-cultural research studies in academic writing have highlighted differences that can be attributed to nationalities with “discernible differences in patterns of intellectual tradition” (Koutsantoni, 2005, p. 97) as “styles and modes of academic interaction that are ultimately defined by cultural norms and values” (p. 98). Therefore, there is a need to study the similarities and differences in academic writing composed in Persian and English.

In terms of writing for Academic Persian, Siami and Abdi (2012) were interested in contributing to “contrastive rhetoric to help prospective Iranian writers in other languages to develop a conscious awareness of engraved rhetorical options” (p. 168). They studied metadiscursive conventions followed by Persian writers in writing Persian articles. Zand-Vakili and Kashani (2012) have advocated a comparative analysis of two types of sub-genres, namely, abstract and introduction parts, written in two different languages of Persian and English, in terms of contrasts and similarities in the moves and language. This is so that students involved in writing in both English and Academic Persian can be explicitly taught academic writing and be familiar with the structure of RAs in English as an international language and Persian. According to Adel and Moghadam (2015), the norms and conventions of Persian writing are still practically under-researched as compared to some other scientific fields for these disciplines: Persian literature, psychology and applied linguistics. They advocate more investigations on the structural and rhetorical organization of genres written in Academic Persian as the tradition of genre studies examining academic writing is not as extensive as it is in English especially for RAs.

2.2 *Theoretical Models for Researching Academic Writing*

Since the 1990s, academics and researchers have analyzed RAs in terms of Genre Analysis (GA) by Swales (1990). Swales (1990) has defined genre as a class of communicative events with some shared set of communicative purposes identifiable by members of the specific professional or academic community of the specific genre. Genre studies have looked into organizational patterns (Pho, 2010), and genre moves such as Abstracts, Introductions, Results, Discussions and Conclusions (Peacock, 2011; Swales, 1990; Yang & Allison, 2003). Genre analysis has examined how language is used in a particular socio-cultural context such as the textual and the socio-cultural interactive features used by writers to engage their audience or establish a writer-reader relationship (Mohammadi, 2013). Linguistic features such as tense, voice, personal pronouns have also been studied (Adel & Moghadam, 2015). According to Bhatia (1997), non-native students and academics under

pressure to publish in reputable international journals and novice writers engaging in writing research papers will benefit from genre analyses.

Genre analysis involves looking at moves. Swales (2004) has defined a move as “a socially recognized, highly structured and communicative discursive event or activity which fulfills a particular communicative or social function in a certain community or in spoken or written discourse” (p. 29). To Yang and Allison (2003), a move is a function of a specific segment of the text in a general level involving steps which are rhetorical means to manifest and realize the move functions. Similarly, Bhatia (1997) sees moves as rhetorical instruments to realize specific communicative purposes of a genre. Moves as semantic and functional units of texts can be realized by clauses, sentences, and paragraphs (Adel & Moghadam, 2015).

Different scholars have proposed various models to analyze moves for different sections of RAs such as Swales' (2004) Create-A-Research-Space (CARS) model to study the introduction section of the academic papers which has been applied to other sections of academic articles – Abstract, Methodology, Result, and Discussion sections. Abstracts are important parts of RAs because researchers are very likely to read the abstracts first before deciding to continue or stop reading the RAs (Ghasempour & Farnia, 2017). Zamani and Ebadi (2016) talk about how the structure of the conclusion section in RAs, presenting a complex array of moves and steps, is of significance in academic writing. Yang and Allison (2003) have offered a series of moves for the conclusion section of an RA and introduced a three-move scheme – summarizing the study, evaluating the study, and deductions from the research. According to Yang and Allison (2003), the objective of the conclusion is to summarize the overall study by stating the results, evaluating and stating probable lines of future study, besides specifying implications for learning and teaching. As there are differences in authors' elaborations of conclusions, this section of the RA still needs to be examined for understanding the practices and processes of academic writing.

As moves are rhetorical instruments, researchers have analyzed RAs in terms of metadiscourse – a system of linguistic and rhetorical devices to enable a writer to convey personality, credibility, audience-sensitivity in academic interaction (Hyland, 2000). Metadiscourse markers link positions and arguments, create logical explanations when there is no absolute proof in academic writing (Gholami et al., 2014). Hyland (2005) divides metadiscourse into two broad categories: interactional and interactive. Interactional features are used to “organize propositional information in ways that the target reader should find coherent and convincing” (p. 50). Interactive features “draw the reader into the discourse and give them an opportunity to contribute to it and respond to it by alerting them to the writer's perspective on propositional information and orientation and intention with respect to that reader” (p. 52). The present study looks at research involving both categories to assess if there are more similarities or differences between RAs written in English and Academic Persian.

3 Methodology

The method used in this chapter is qualitative meta-synthesis of 40 empirical studies (see [Appendix: List of selected studies](#)) specifically on academic writing in both Persian and English in refereed journals, book chapters, and conference proceedings published during the period of 2005–2020. To guide our selection and interpretations of research publications, we formulated two research questions: a) What are the theoretical models for researching academic writing for Academic Persian? b) What are the similarities and differences between academic writers from Persian and English for different disciplines? In looking at empirical studies using systematic content analysis, we use the approach advocated by Sandelowski et al. (1997) which involves “the integration of findings from multiple analytic paths taken within a program of research by the same investigator(s); ... the synthesis of findings across studies conducted by different investigators ... [and] the use of quantitative methods to aggregate qualitative findings from cases across different studies” (p. 367).

To identify research published between 2005 and 2020, we conducted systematic searches of computer data bases (such as Taylor and Francis, Elsevier, ProQuest and Wiley) in the National Institute of Education (Singapore) library and the Internet to retrieve journal articles such as *Journal of English for Academic Purposes*, *Journal of Advances in Linguistics*, *The Journal of Teaching English for Specific and Academic Purposes*, *Iranian Journal of Applied Language Studies* and *International Journal of Language and Applied Linguistics*. These keywords were used for the searches: (1) “Persian” (2) “academic writing” (3) “Academic Persian” and (4) “writing models” or “writing theories”. We also examined the reference sections to identify relevant book chapters, unpublished theses or conference presentations. As an illustration of the search and selection process, though we surfaced 23 articles on the Internet using “Persian” and “academic writing”, we selected only seven for inclusion upon closer reading. We excluded studies that did not involve empirical research; the article was written prior to 2005; there was no mention of Persian academic writing; the article was about academic textbooks, or dealing with theses rather than academic articles.

An inductive approach to thematic analysis was adopted. The six steps in the analytical approach involved: (1) familiarization of data (i.e., reading each of the selected 40 empirical studies to do content analysis), (2) data coding in terms of the two research questions, (3) generating themes in terms of writing theories used in the RAs, (4) reviewing writing theories used, (5) defining and reorganizing the RAs into two sub-themes for the writing theories: a) text organization or genre moves and b) linguistic and rhetorical devices as well as coding in terms of similarities, differences or mixed and (6) writing up the meta-synthesis to highlight similarities and differences between writers from Persian and English for different disciplines (see Tables 1 and 2 for the themes and coding). As this is a qualitative metasynthesis, the findings were derived based on the researchers’ reflexivity to support judgments while discrepancies were resolved through discussions. The results of these

Table 1 Theoretical Models for Academic Writing in Terms of Similarities and Differences: Text Organization or Genre Moves

	Same	Different	Mixed
Toulmin's (2003) model of argumentation		1	
Hunston's (1993) conceptualization of academic conflict		1	
Hyland's (2000) five rhetorical moves		1	1
Hyland's (2000) Information-Purpose-Methods-Products-Conclusion (IPuMPrC) model and Swales' (1990) CARS model		1	
Swales (1990) Eight-Move Structure		1	
Swales' (1990) CARS model and Introduction-Methods-Results-Discussion (Lores, 2004)		2	
Swales (2004) classification of moves and steps		1	1
Yang and Allison's (2003) framework for moves	1	1	
Total number of studies	1	9	2

Table 2 Theoretical Models for Academic Writing in Terms of Similarities and Differences: Linguistic and Rhetorical Devices

	Same	Different	Mixed
Metadiscourse: Hyland (2004)	1	2	
Metadiscourse: Hyland (2005)	1	6	4
Metadiscourse: Hyland and Tse (2004)		4	2
Metadiscourse: Hyland and Tse (2004) & Hyland (2005)			1
Metadiscourse: Vande Kopple's (1985) classification, Mauranen (1993) & Valero-Garces (1996)			1
Hedging		2	
Lexical bundles			1
Reporting Verbs: Hyland (1999) & Francis et al. (1996)		1	
Phrasal complexity in academic writing		1	
Ethnolinguistic influence on citation: Coffin's (2009) integrative analytic framework		1	
Total number of studies	2	17	9

analyses are presented as (a) theoretical models for researching academic writing for Academic Persian and (b) similarities and differences between academic writers from Persian and English for different disciplines in terms of (i) text organization or genre moves and (ii) linguistic and rhetorical devices in the findings below.

4 Findings

4.1 *Theoretical Models for Researching Academic Persian in Academic Writing*

Out of the 40 studies identified, 12 studies pertain to text organization or genre moves: one study used Toulmin's (2003) model of argumentation for the discussion section and another looked at academic conflict in Applied Linguistics using Hunston's (1993) conceptualization. Three studies utilized Hyland's (2000) model, five Swales' (1990) CARS model and two Yang and Allison's (2003) framework for moves (see Table 1).

Twenty-eight studies focused on linguistic and rhetorical devices with 22 specifically on metadiscourse, two on hedging, one on phrasal complexity in academic writing, one on lexical bundles, one on ethnolinguistic Influence on citation using Coffin's (2009) integrative analytic framework and one on reporting verbs (see Table 2).

4.2 *Similarities and Differences Between Academic Writers from Persian and English for Different Disciplines*

In analyzing in terms of theoretical models for academic writing, researchers reported more differences than similarities between academic writers from Persian and English for different disciplines (see Sects. 4.2.1, 4.2.2, Tables 1 and 2).

4.2.1 Text Organization or Genre Moves

In terms of text organization, Reza and Atena (2012) used Toulmin's (2003) model of argumentation to study the discussion sections of 30 native Persian writers, 30 native English writers and 30 inter-language by native Persian speakers. Sadeghi and Alinasab (2020) utilized Hunston's (1993) conceptualization of academic conflict to study the discussion section of applied linguistics papers of 20 native speakers of English, 20 non-native English speakers and 20 Persian papers written by native speakers of Persian. To them, English and Persian articles contained a similar number of recurrent proposed and opposed claim structures and the main area of difference between English papers (written by natives) and Persian articles was in the use of inconsistency indicators and conflict resolution.

Three studies used Hyland's (2000) five-move structure. Ghasempour and Farnia (2017) looked at 90 Persian and English research articles abstracts for law and found all moves (i.e., Introduction, Purpose, Method, Result, and Conclusion) were considered as obligatory structural moves in English abstracts, while move one (Introduction) and move two (Purpose) served as obligatory moves in Persian

abstracts. Farzannia and Farnia (2017) examined the abstracts of 60 English and Persian Mining Engineering RAs to find four conventional moves in abstracts in the English corpus and five conventional moves in Persian abstract – Information-Purpose-Methods-Products-Conclusion (IPMPrC). There was a statistically significant difference in Purpose move but no significance differences in the use of other moves such as product, method, and conclusion moves. Zand-Vakili and Kashani (2012) too studied five English and five Persian abstracts and introduction sections using Hyland's (2000) IPuMPrC and Swales' (1990) CARS model.

Ershadi and Farnia (2015) used Swales' (1990) Eight-Move Structure rhetorical structure for the discussion sections of 46 Iranian and English RAs on computer studies. They found Move 1 "Background Information" and Move 2 "Statement of Results" present as the most frequently used moves in the majority of English RAs (Conventional Moves) while only Move 2 "Statement of Results" was identified as the conventional move in the Persian corpus. Most discussions across the two corpora opened with Move 1 "Background Information". Omidi and Farnia (2016) looked the introductions of Persian and English RAs on Physical Education using Swales' (2004) three-move structure. There were statistically significant differences between move2 step2 "presenting positive justification, move3 step2 "presenting research hypothesis", and move3 step3 "definitional clarification" between the English and Persian corpora. Rahimi and Farnia (2017) found in the introductions of 70 English and Persian RAs on Dentistry, move1 step1 "claiming centrality", move2 step1a "counter-claiming" and move3.1 "Announcing present research descriptively and/or purposively" as the most frequently used moves in English and Persian corpora (Swales, 2004). The majority of all RAs opened with move1.1 "Claiming centrality".

Hastrai et al. (2010) used Swales' (1990) CARS model and Introduction-Methods-Results-Discussion (IMRD) (Lores, 2004) to look at 35 RA abstracts written in Persian in the social sciences/humanities disciplines (6 Linguistics and 12 Persian Literature) and engineering (7 Chemical and 10 Power Engineering). In looking at 90 English and Persian Literature abstracts using IMRD and CARS models, Marefat and Mohammadzadeh (2013) found the writers generally focused on Introduction and Results, neglected Method and Discussion or mentioned the niche in previous related work.

In examining moves using Yang and Allison's (2003) framework, Zamani and Ebadi (2016) found no significant differences in the conclusions of Persian and English Civil Engineering and Applied Linguistics. Adel and Moghadam (2015) unfolded significant variation regarding Move 2 but revealed no marked differences in conclusion sections of the 30 RAs on psychology and applied linguistics.

In summary, in terms of text organization or genre moves, there are more differences and variations between writers writing in English and in Academic Persian for RAs across the various disciplines (see Table 1).

4.2.2 Linguistic and Rhetorical Devices

To Hyland (2004), metadiscourse (MD) reflects how writers seek to represent themselves, their texts and their readers through framing, scaffolding, and presenting their arguments and research findings in discipline recognized and valued ways. From a sociocultural view and using Hyland's (2004) framework, Sorahi and Shabani (2016) found Persian writers' use of metadiscourse resources did not differ enormously from English writers in looking at the introductions of 20 English and 20 Persian RAs on linguistics. Using Hyland's (2004) MD framework, Faghih and Rahimpour (2009) investigated the discussion section of 90 English and Persian RAs in applied linguistics to reveal how academic writers differed in their rhetorical strategies because of their respective mother tongues. Ebadi et al. (2015) looked at the discussion and the conclusion sections of 30 Iranian and native English writers in geology to reveal differences. The quantitative analysis of the result showed that the native English writers used more interactional MD devices than the interactive MD features in the argumentative sections of their RAs.

In terms of metadiscourse studies using the framework by Hyland and Tse (2004), Keshavarz and Kheirieh (2011) analyzed 120 Persian and English applied linguistics and civil engineering RAs to show that the writers from the two disciplines were significantly different in using metadiscourse elements collectively though no difference was found due to language background of the writers. In studying five Persian and five English RAs on engineering, Reza and Mansoori (2011) found the two languages being distinct in their use of metadiscourse. Zarei and Mansoori (2011) revealed differences in metadiscursive resources use both within and between the two languages. Gholami and Ilghami (2016) examined 40 Iranian and 40 Persian RAs on biology to show a strong positive correlation between the frequency of metadiscourse markers (MDMs) and impact factor of the journals. Iranian authors employed interactive and interactional markers slightly more than their American counterparts. In looking at five Persian and four English applied linguistics RAs, Zarei and Mansoori (2010) revealed that while both used interactive resources more than interactional ones, English applied linguistics is reader responsible while Persian applied linguistics is to a lesser degree, writer responsible. Varastehnezhad and Gorjian (2018) studied 80 English RAs (40 applied linguistics, 40 politics) and 80 Persian RAs (40 applied linguistics, 40 politics) to reveal that English writers used metadiscourse markers more than Persian writers. Abdi (2009) studied the metadiscourse strategies of 36 Persian and 36 English RAs using Hyland and Tse (2004) and Hyland (2005). Similarities were in the use of interactive metadiscourse to guide the readers, and significant differences in the use of interactional metadiscourse that could represent the specific cultural identity of the Persian writers.

Six studies using Hyland's (2005) metadiscourse framework (interactional model of stance and engagement such as how writers in different disciplines/cultures acknowledge the presence of their readers) have found differences. Ansarin and Tarlani-Aliabdi (2011) studied 60 applied linguistics RAs (20 English by native English speakers, 20 English articles by native Persian writers and 20 Persian

articles by native Persians). They found significant differences in the use of *engagement* which refers to the ways writers relate to their readers and establish their presence in their texts. Khajavy et al. (2012) looked at the discussion sections of 20 English and Persian sociological RAs (10 English and 10 Persian) to find English RAs used more interactive features than Persian articles in the sociological discipline. The only subcategory that Persian RAs used more frequently was endophoric markers. Siami and Abdi (2012) looked only at 60 Persian RAs from social and natural sciences to find the writers using interactive and interactional strategies differently. Yeganeh and Ghoreyshi (2014) examined 40 English RAs written by native speakers of Persian to find gender differences. For the 120 English and Persian RAs for Chemistry and Sociology, Taki and Jafarpour (2012) discovered sociologists for both languages considered the expression of stance and engagement markers in their writing important and there was a greater effort to interact with readers. Gholami et al. (2014) compared 35 English medical texts and their Persian translation. The statistical results suggest that there was a significant difference in the amount and types of metadiscourse markers in English medical texts and their Persian translation ($P < 0.001$) as well as the distribution of different types of metadiscourse markers. However, in analysing 160 English and Persian medical RAs using Hyland's (2005) MD framework, Mozayan et al. (2017) found a rather cogent homogeneity between the native English writers and Iranian Persian writers in crafting nursing quantitative and qualitative RAs.

Four studies reflected similarities and differences in the findings using Hyland's (2005) framework. Pooresfahani et al. (2012) conducted a contrastive study for the use of interactive and interactional metadiscourse elements of eight RAs from the engineering discipline and eight from applied linguistics by Iranian applied linguistics and engineering writers in English. Results showed that in both groups, writers used more interactive metadiscourse than interactional. However, there were significant differences on the overall frequency of metadiscourse features and the particular occurrence of some categories. In analyzing 50 Persian and 50 English applied linguistics abstracts, Yazdanmehr and Samar (2013) found the Persian abstracts were lengthier than their English versions, but in both, the interactive metadiscursive resources were more prevalent than the interactional ones. Attarn (2014) examined 15 English and 15 Persian RAs about ESP for interactive and interactional metadiscursive features. Both groups used interactive metadiscourse more than interactional. Quantitative analysis of interactive metadiscourse categories revealed significantly statistical similarities (in the case of transition, frame markers, and code glosses) and differences (in the case of endophoric markers and evidential) between English and Iranian writers. There was no significant difference among categories of interactional metadiscourse except for self mention. Farahani (2017) looked at 29 English native writers and Iranian non-native Applied Linguistics writers. Both groups made more use of interactive metadiscourse features than interactional and the texts written by native speakers had more metadiscourse markers compared to texts written by Iranian non-native speakers.

Shokouhi and Baghsiahi (2009) used Vande Kopple's (1985) classification, Mauranen (1993) and Valero-Garces (1996) for English and Persian sociology

articles to find the frequency of textual metadiscourse markers was greater than the interpersonal markers in both languages and both employed text connectors frequently. Modality markers were the second most frequent in both although English writers used nearly twice the number of these markers.

There are studies looking at specific metadiscourse markers. Two studies looked at the use of hedging which allows researchers to establish an early niche for their research. Samaie et al. (2014) looked at the introductions of 20 Persian and 20 English Literature RAs using Hyland (1996, 2000). The results indicated that English writers were more tentative in putting forward claims and in rejecting or confirming the ideas of others than Persian writers. English native writers used modal auxiliaries, evidential main verbs, adjectives and nouns in RAs more frequently than Persian native writers. Ghazanfari and Abassi (2012) selected 16 RAs from Persian Literature and 16 RAs from Chemical Engineering to find the authors use hedging mainly in its threat-minimizing and politeness functions, which are the social aspects. Epistemic modality as a cognitive motivation for hedging appeared to be less of a concern to the authors under the study. Esfandiari and Barbary (2017) studied lexical bundles between English writers and Persian RAs in psychology using frameworks by Biber et al. (2004) and Hyland (2008). The findings showed that Persian writers employed fewer lexical bundles, using them structurally and functionally differently than did English writers. Yeganeh and Boghayeri (2015) looked at reporting verbs in 30 native Persian and 30 English RAs for the introduction and literature review sections using the list of reporting verbs introduced by Hyland (1999) and Francis et al. (1996) to report some differences in the use of reporting verbs between the two corpora.

Ansarifar et al. (2018) looked at phrasal complexity in abstracts for applied linguistics by Persian writers (99 master's theses and 64 PhD dissertations written by L1 Persian students of Applied Linguistics), in addition to 149 RA abstracts by expert writers through the framework provided by Biber et al. (2011). The findings revealed that the MA group differed significantly from the expert writers in the use of four types of modifiers: pre-modifying nouns; -ed participles as postmodifiers; adjective-noun sequences as pre-modifiers; and multiple prepositional phrases as noun post-modifiers. The PhD group however did not show any significant difference in producing noun modifiers when compared to expert writers except for multiple prepositional phrases as noun post-modifiers.

Shooshtari et al. (2017) studied ethnolinguistic influence on citation using Coffin's (2009) integrative analytic framework for 240 English and Persian RAs in applied linguistics and psychology (soft sciences), and computer and mechanical engineering. They found Persian researcher writers making use of integral citations to stress the agents of research rather than acknowledge the works.

The above findings again reveal more differences and variations between writers writing in English and in Academic Persian for RAs across the various disciplines (see Table 2).

5 Discussion

5.1 Discussion of Findings

In terms of organizational structures or genre moves, nine out of 12 studies highlighted differences (see Table 1). Reza and Atena (2012) revealed Iranians transferring their first language argumentation rhetorical patterns to their writing in English such as using different types of parallelism as Persian is an implicit language. Allami and Naeimi (2010) highlight how writers can introduce more than one claim within a paragraph deliberately. Sadeghi and Alinasab (2020) found that English papers (whether written by native or non-native writers) included more academic conflict structures compared to Persian RAs. Studies using Hyland's (2000) five-move structure reveal differences between Persian and English writers (Ghasempour & Farnia, 2017; Farzannia & Farnia, 2017). For Zand-Vakili and Kashani (2012), "Introduction" move was only observed in one Persian article and the conclusion move was found prominent only in English but not in Persian (only one out five articles had this move in Persian). In terms of moves, Omidi and Farnia (2016) discovered move1 step2 "making generalizations of increasing specificity" and move3 step1 "announcing present research descriptively and/or purposively" present in all English RAs as obligatory moves, while move1 step2 "making generalizations of increasing specificity" was the obligatory move in the Persian corpus. Rahimi and Farnia (2017) found a statistically significant difference in certain moves between English and Persian introduction sections. Hastrai et al. (2010) highlight how Persian RA abstracts did not follow the two patterns often associated with English academic prose: Introduction-Methods-Results-Discussion and Swales' (1990) "establishing a territory, establishing a niche, and occupying a niche". To Marefat and Mohammadzadeh (2013), Literature abstracts generally matched CARS more than IMRD while abstracts written by Persian native speakers had minor deviations from both the Persian and the international norms, and exhibited a standard of their own. Zamani and Ebadi (2016) demonstrated how Persian literature articles displayed more variation, suggesting Persian writers follow a standard of their own for writing conclusion sections.

In terms of use of metadiscourse markers, 17 out of 28 studies revealed differences between Persian and English writers (see Table 2). Ebadi et al. (2015) illustrated how native Persian authors applied more interactive metadiscourse resources to organize discourse flow than the interactional one for building interpersonal relationship with the readers. Ansarin and Tarlani-Aliabdi (2011) reported native English writers using reader engagement markers (REMs) twice as many as Persian writers writing in Persian per 1000 words. Taki and Jafarpour (2012) suggested that Persian academic writers reveal more feeling in their writing through the attitude stance markers. To Yeganeh and Ghoreyshi (2014), Iranian males were more inclined to use boosters in their academic writing while Iranian females prefer to use more hedges to express the information.

There are disciplinary differences in the use of metadiscourse markers. Reza and Mansoori (2011) found Persian computer engineering provided more textual elements while English language valued a reader responsible trend. Zarei and Mansoori (2011) discovered writers for applied linguistics representing humanities relied heavily on interactive elements rather than interactional ones, compared with writers for computer engineering. Varastehnezhad and Gorjian (2018) reported some cross-linguistics differences in English and Persian applied linguistics RAs, while English and Persian writers of politics used MMs in almost the same way. To Yazdanmehr and Samar (2013), Iranian applied linguists seemed to make little use of attitude markers and engagement markers in their abstracts irrespective of the language they write in. Use of hedges was significantly lower in Persian abstracts than in the English ones. Self mentions and transitions were found to be more frequent in the Persian abstracts compared to English. Shooshtari et al. (2017) concluded that Persian culture seems to be more people oriented than performance oriented in contrast to the Western tendency to credit the works irrespective of who the researcher is.

5.2 Teaching and Research Implications

In terms of theoretical models for research in writing for Academic Persian, there can be more research for text organization or genre moves for Academic Persian using Toulmin's (2003) model of argumentation, academic conflict using Hunston's (1993) conceptualization, Hyland's (2000) model for moves, Swales' (1990) CARS model and Yang and Allison's (2003) framework for moves. In terms of research on linguistic and rhetorical devices for writing in Academic Persian, as there are 22 studies on metadiscourse, future researchers can focus on specific linguistic devices such as hedging, phrasal complexity, lexical bundles and reporting verbs. Research can also look at ethnolinguistic influence on citation using Coffin's (2009) integrative analytic framework. There can be more research on gender differences such as hedging (Yeganeh & Ghoreyshi, 2014).

In teaching academic writing, educators can create awareness of differences in writing in Academic Persian and English RAs such as the transfer of Persian argumentation rhetorical patterns to their writing in English as in the use of different types of parallelism (Reza & Atena, 2012). Educators can highlight to learners obligatory structural moves in English RA abstracts (i.e. Hyland's (2000) five moves – Introduction, Purpose, Method, Result, and Conclusion according). They can also teach students different models for moves for the various sections of an RA: Swales' (1990) CARS model / Eight-Move Structure (EMS) rhetorical structure, Swales' (2004) three-move structure or Yang and Allison's (2003) framework to help them understand significant variations in comparing Persian and English RAs when reading for Academic Persian. Creating such awareness will also enable Masters and PhD students to understand how to structure appropriately their RAs for submission to both Persian and international English journals.

In terms of teaching linguistic and rhetorical devices for writing in Academic Persian, educators can draw on the 28 studies on metadiscourse to teach students how they can represent themselves as writers, how to frame and scaffold texts to present their arguments and research findings in discipline recognized and valued ways (Hyland, 2004). Educators can highlight disciplinary differences in the use of metadiscourse features. For instance, Keshavarz and Kheirieh (2011) show that the English linguistics and civil engineering writers were significantly different in using metadiscourse elements. Zarei and Mansoori (2011) too revealed how applied linguistics relied heavily on interactive elements rather than interactional ones, compared with computer engineering. Educators can also create awareness by comparing Persian and English RAs. For instance, Reza and Mansoori (2011) found the Persian and English RAs being distinct in their use of metadiscourse with Persian relying on interactive resources more than English. Zarei and Mansoori (2010) revealed English applied linguistics as reader responsible while Persian applied linguistics is writer responsible. Educators can also teach learners specific linguistics devices to refine the academic writing such as the use of hedging, phrasal complexity, lexical bundles, and reporting verbs.

6 Conclusion

The present chapter has captured a complex web of factors affecting Academic Persian and academic writing for RAs in terms of the ways researchers are expected to present their claims to the scientific community and the rhetoric and styles of persuasion for Persian writers publishing for Academic Persian or in English for an international audience. The complexity ranges from cultural characteristics (such as the more frequent use of parallelism in Academic Persian) to notions of what constitutes acceptable academic writing in Academic Persian and English, and the degree of each individual's socialization in a given disciplinary community. There is the possibility of addressing differences as Bennet and Muresan (2016) have in suggesting ways to address the differences in English academic discourse and traditional scholarly discourse of the Romance cultures (Portuguese, Spanish, Italian, French and Romanian) with preference for complex syntax, lexical abstraction and propensity for indirectness. For Academic French, O'Sullivan (2010) has explored the use of academic text corpora in French to enhance language learners' academic writing skills for citation and this can be considered for Academic Persian. The RAs written by authors of diverse disciplines show more differences than similarities – reflecting disciplinary differences and cultural differences. For instance, six studies using Hyland's (2005) metadiscourse framework (interactional model of stance and engagement such as how writers in different disciplines/cultures acknowledge the presence of their readers) have found differences. Abdi (2009) using Hyland and Tse (2004) and Hyland (2005) to study the metadiscourse strategies of Persian and English RAs found similarities in the employment of interactive metadiscourse and significant differences in the use of interactional metadiscourse that could represent

the specific cultural identity of the Persian writers. Ansarin and Tarlani-Aliabdi (2011) found native English writers using reader engagement markers twice as many as Persian writers writing in Persian. As there are more differences than similarities, to conclude, researchers and educators engaged in academic writing for Academic Persian need to take account of the web of complexity both in writing for publication and teaching academic writing styles.

Appendix: List of selected studies

Author (Year of publication)	Title
Abdi (2009)	Projecting cultural identity through metadiscourse marking: A comparison of Persian and English research articles
Adel and Moghadam (2015)	A comparison of moves in conclusion sections of research articles in psychology, Persian Literature and Applied Linguistics.
Ansarifar, Shahriari and Pishghadam (2018)	Phrasal complexity in academic writing: A comparison of abstracts written by graduate students and expert writers in applied linguistics.
Ansarin and Tarlani-Aliabdi (2011)	Reader engagement in English and Persian Applied Linguistics articles.
Attarn (2014)	Study of metadiscourse in ESP articles: A comparison of English articles written by Iranian and English native speakers.
Ebadi et al. (2015)	A comparative study of the use of metadiscourse markers in Persian and English academic papers.
Ershadi and Farnia (2015)	Comparative generic analysis of discussions of English and Persian computer research articles.
Esfandiari and Barbary (2017)	A contrastive corpus-driven study of lexical bundles between English writers and Persian writers in psychology research articles
Faghih and Rahimpour (2009)	Contrastive rhetoric of English and Persian written texts: Metadiscourse in applied linguistics research articles.
Farahani (2017)	Investigating the application and distribution of metadiscourse features in research articles in Applied Linguistics between English native writers and Iranian writers: A comparative corpus-based inquiry.
Farzannia and Farnia (2017)	Genre-based analysis of English and Persian research article abstracts in mining engineering journals.
Ghasempour and Farnia (2017)	Contrastive move analysis: Persian and English research articles abstracts in law
Ghazanfari and Abassi (2012)	Functions of hedging: The case of Academic Persian prose in one of Iranian universities.
Gholami and Ilghami (2016)	Metadiscourse markers in biological research articles and journal impact factor: Non-native writers vs. native writers.

(continued)

Author (Year of publication)	Title
Gholami et al. (2014)	Metadiscourse markers in English medical texts and their Persian translation based on Hyland's model.
Hastrai et al. (2010)	A genre analysis of Persian research article abstracts: Communicative moves and author identity.
Khajavy et al. (2012)	A comparative analysis of interactive metadiscourse features in discussion section of research articles written in English and Persian.
Keshavarz and Kheirieh (2011)	Metadiscourse elements in English research articles written by native English and non-native Iranian writers in Applied Linguistics and Civil Engineering.
Marefat and Mohammadzadeh (2013)	Genre analysis of literature research article abstracts: A cross-linguistic, cross-cultural study.
Mozayan et al. (2017)	Metadiscourse features in medical research articles: Subdisciplinary and paradigmatic influences in English and Persian.
Omidi and Farnia (2016)	Comparative generic analysis of introductions of English and Persian physical education research articles.
Pooresfahani et al. (2012)	A contrastive study of metadiscourse elements in research articles written by Iranian applied linguistics and engineering writers in English.
Rahimi and Farnia (2017)	Comparative generic analysis of introductions of English and Persian dentistry research articles.
Reza and Atena (2012)	Rhetorical patterns of argumentation in EFL journals of Persian and English.
Reza and Mansoori (2011)	Metadiscursive distinction between Persian and English: An analysis of computer engineering research articles.
Sadeghi and Alinasab (2020)	Academic conflict in Applied Linguistics research article discussions: The case of native and non-native writers.
Samaie et al. (2014)	The frequency and types of hedges in research article introductions by Persian and English native authors.
Shokouhi and Baghsiahi (2009)	Metadiscourse functions in English and Persian sociology articles: A study in contrastive rhetoric.
Shoostari et al. (2017)	Ethnolinguistic influence on citation in English and Persian hard and soft science research articles.
Siami and Abdi (2012)	Metadiscourse strategies in Persian research articles: Implications for teaching writing English articles.
Sorahi and Shabani (2016)	Metadiscourse in Persian and English research article introductions.
Taki and Jafarpour (2012)	Engagement and stance in academic writing: A study of English and Persian research articles.
Varastehnezhad and Gorjian (2018)	A comparative study on the uses of metadiscourse markers (MMs) in research articles (RAs): Applied linguistics versus politics.
Yazdanmehr and Samar (2013)	Comparing interpersonal metadiscourse in English and Persian abstracts of Iranian applied linguistics journals.
Yeganeh and Boghayeri (2015)	The frequency and function of reporting verbs in research articles written by native Persian and English speakers.

(continued)

Author (Year of publication)	Title
Yeganeh and Ghoreyshi (2014)	Exploring gender differences in the use of discourse markers in Iranian academic research articles.
Zamani and Ebadi (2016)	Move analysis of the conclusion sections of research papers in Persian and English.
Zand-Vakili and Kashani (2012)	The contrastive move analysis: An investigation of Persian and English research articles' abstract and introduction parts.
Zarei and Mansoori (2010)	Are English and Persian distinct in their discursive elements: An analysis of applied linguistics texts.
Zarei and Mansoori (2011)	A contrastive study on metadiscourse elements used in humanities vs. non humanities across Persian and English.

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Moving Forward in Writing a Persian Academic Text: an Introduction to Cohesive Devices



Maryam Sadat Ghiasian

Abstract Teaching Persian academic writing as one of the crucial issues seems to have been neglected. Reviewing the written books on writing and editing Persian indicates there is no difference between general and professional Persian and the writers consider formal standards in Persian scripts such as punctuation, continuity, discontinuity in words, and prescriptive grammatical rules in the sentence level. On the other hand, paying attention to the text has been done in several academic textbooks in which researchers report a quantitative statistics of cohesive devices in their corpus. As an advanced foreign language learner in general Persian language who tends to study MA/MS, PhD, or medicine cannot write an academic article in her/his field based on the current mentioned books or research, this chapter explores specific features of an academic text in Persian language and elaborates on how and which cohesive ties and grammatical metaphors contribute to producing a fluent and comprehensible text for professional readers. To reach this purpose, the data will be extracted randomly from many professional articles in different fields of medical, basic sciences, humanities and social sciences published in the authentic journals. Findings of the study show the crucial role of cohesive devices and grammatical metaphors in approving and publishing an article. Furthermore, in spite of previous literature, substitution and ellipsis cannot be applied in academic writings.

Keywords Functional linguistics · Persian academic writing · Cohesion · Coherence · Grammatical metaphor

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1 Introduction

Many research papers and MA theses or PhD dissertations have been written by Persian scholars or students about what *text* is and what gives *texture* to it. They enumerate all types of *cohesions* in the examined corpus and compare them quantitatively. Furthermore, several textbooks on standards of writing in Persian language have been published by Academy of Persian Language and Literature and Textbook preparation and compilation organization (SAMT¹), two governmental organizations for language planning and compiling university textbooks in humanities respectively. Formal principles of writing Persian, no matter general or academic, like rules for punctuations, rules or regularities of separable and inseparable words and some grammatical rules in sentence structure are the fundamentals of the above-mentioned textbooks. None of these research projects and books can resolve the writing problems of a foreign student who has learnt Persian in an advanced level or the one whose mother tongue is not Persian but has been acquainted with Persian language during 12 years of education² in Iran. One can add native Persian speakers to the list of learners, to whom producing a report, writing MA thesis, PhD dissertation or an academic paper in Persian would be an enormous challenge. This chapter is designed to meet the demands of postgraduate students, who are *Persian language learners* (PLLs) as a second or foreign language, and to help them in how to write an academic report or paper in Persian in their relevant field of study.

One can argue that many textbooks have been produced on Persian language grammar in Persian or English to prepare PLLs to write Persian properly. As a linguistics university teacher, majoring in functional linguistics for 20 years, I criticize the traditional Persian grammar books for not taking academic language into account, producing prescriptive stereotype rules, and not being practical in professional or even general language. On the other hand, most of the modern Persian grammar books have been written based on formal grammar and sentence structure. Focusing exclusively on sentences, they exclude PLLs from paragraph writing and prevent them from seeing language as integrated and well-constructed pieces or “chunks” (Brown & Yule, 1983: p. 190) with a shared topic and purpose rather than a “random collections” (Johnson, 2017: p. 3) of simple or complex sentences.

The terms *well-formed* i.e. *grammatical* and *ill-formed* i.e. *ungrammatical* are crucial in formal grammar (Chomsky, 1957) on the one side, and *acceptable* and *unacceptable* in functional grammar on the other side. If a chunk conforms to prescriptive “grammatical rules” (Richards et al., 1992: p. 192), it is well-formed or grammatical, and if it is acceptable for “one group, variety” or situation, it will not to be acceptable to another (Richards et al., 1992: p. 2). These statements confirm my criticisms in previous paragraph and clarify the necessity of the application of

¹This abbreviation extracted from the name of this organization in Persian language and its application is very common between Iranian scholars.

²This period refers to the primary studies before university.

functional approach in teachings PLLs. In fact, functional grammar has received more and more attention from linguistic scholars in Iran since 1960s, but it is still new to Persian foreign language (PFL)/Persian Second Language (PSL) teachers and students.

Expression of key concepts of functional grammar in a plain language will pave the way for grammar application in practice. Functional linguistics was developed by Michael Halliday in 1961, and based on his social-semiotic approach to language, *systemic functional linguistics*, he published a book on *functional grammar* (1985, 1994), which was later revised in collaboration with Christen Matthiessen (2004). By *functional*, he means “natural grammar, in the sense that everything in it can be explained, ultimately, by reference to how language is used” (Halliday, 1994: p. xiii) and by *systemic*, Halliday defines language as a “system of choices” (1994: p. F40) which we make whenever we use it: choices of structures, vocabularies and registers in different contexts of situation. After functional and systematic, register is the most related term to the context of situation; Reports and research papers are samples of scientific registers. In addition to these concepts, text and texture are crucial terms in functional linguistics and relate to language beyond the sentence level. These terms along with cohesion and coherence will constitute the Sect. 3.

2 Methodology

In this chapter, functional grammar has been considered for theoretical framework, and the discursive instruments of cohesion, coherence and grammatical metaphor are the main elements which will be examined in the sample texts. As most of our target audiences are not Persian native speakers, first, the theoretical framework will be explained with evidences in English texts, then, in Persian. The sample is selected randomly from academic papers published in authentic journals in the fields of medical, basic sciences, humanities and social sciences.

3 Cohesion and Coherence in Academic Writing

The main fundamental difference between functional and formal linguistics is their approach to language. As Saussure believed, “language considered in itself and for its own sake” (1916: p. 230) Formal approach to language focuses on forms and structures of words and sentences, while functional approach concentrates on language in use, thus forms and structures follow function. For a piece of writing, a writer has options and preliminaries based on social and cultural contexts s/he encounters. Conforming a structure to a situation is what makes a text interpretable for a reader. No one can ignore the necessity of producing the grammatical sentences for a writer, but as Brown and Yule (1983: p. 223) specified, it is a mistake to

think that readers can rely only with these literal inputs to their understanding. This statement differentiates the *text* from non-text as Halliday and Hasan (1976: p. 23) demonstrated: “A text is a passage of discourse which is *coherent* in these two regards: it is coherent with respect to the context of situation and therefore consistent in register and it is coherent with respect to itself, and therefore *cohesive*”. Two concepts of cohesion and coherence integrate with each other and I suggest they are two sides of the same coin, i.e. text and therefore cohesion can be defined as a linguistic realization of coherence. Some scholars (see Carrell, 1982) interpreted Halliday and Hasan’s views on coherence and cohesion as the same concept and elaborated several justifications that they were wrong. In addition, Carrell (1982) claimed that Halliday and Hasan conveyed the term *texture* in a way that equals with the coherence, but I believe they considered the *texture* as a product of being cohesive. Following my suggestion about coherence and cohesion as two sides of the same coin, the texture is arisen from this relationship and it is not exclusively related to cohesion. Halliday and Hasan (1976) categorized cohesion into five types: reference, substitution, ellipsis, conjunction and lexical cohesion³ with every category having its variant subcategories which will be explained in the following sections in details.

3.1 Reference

In traditional approach, the term reference is “the symbolic relationship that a linguistic expression has with the concrete object or abstraction it represents” (SIL glossary of linguistic terms) or what Brown and Yule defined as “relationship between expressions in a text and entities in the world” (1983: p. 204). The second meaning of reference which Halliday and Hasan used for the first time is “the [semantic] relationship of one linguistic expression to another, in which one provides the information necessary to interpret the other” (SIL glossary of linguistic terms). Brown and Yule (1983) offered a substituted term *co-reference*⁴ as a relationship between expressions in different parts of a text. So, as a reader, you have been directed to find the related information for the references. Whenever you find the information outside of the text, “referring to something in the culture that is understood” (Johnson, 2017: p. 2), the relationship is *exophoric*⁵ and if the interpretation of the reference is derived from the environment of the text, the relationship is *endophoric* which in turn is of two kinds: *cataphoric* reference, which is the result of looking forward in the text to find its interpretation and *anaphoric*

³Lexical cohesion is not explained here.

⁴Halliday and Matthiessen (2004: p. 553) utilize the term “co-reference for the same referent” and “comparative reference for another referent of the same class”.

⁵Halliday and Matthiessen (2004: p. 552) assert that third person exophora like *he, she, it and they* does not contribute directly to the text cohesion but if they are being referred repeatedly in a dialogue, their produced chain will contribute to the cohesion.

reference enhanced by looking backward in the text for its interpretation (Halliday & Hasan, 1976). Here are some examples of each concept in authentic academic written texts:

Anaphoric

1. *Functional grammar* has aroused great interest for researchers. In spite of controversies about its application into classroom, teaching functional grammar is gaining popularity in schools (Feng, 2013).

Cataphoric

2. In *his* classic book *An Introduction to Functional Grammar*, Halliday (1994) points out that *functional grammar* is so-called because *its* conceptual framework is a functional one rather than a formal one (Feng, 2013).

Halliday and Hasan classified types of references into three categories (1976: p. 37), *personal*, *demonstrative* and *comparative*. In personal reference, there are two sub-categories of *determinative personal pronouns* and *possessive determiners*. Determinatives are head in the nominal group and determiners are modifiers for the nominal group. Generally, a writer has two options of personal reference and specified noun with two subcategories of proper and common noun. I will exemplify all the mentioned classes in the Persian language part.

Demonstrative references are time (now, then), place (here, there), and participant (this, that, these, those). There is an example for demonstrative *this* as a specific near pronoun:

3. The scientific community has been discussing whether the COVID-19 virus, might also spread through aerosols in the absence of aerosol generating procedures (AGPs). *This* is an area of active research. (World Health Organization, 2020a, b).

In example 4, *currently* is an exophoric demonstrative reference which refers to the current situation in COVID-19 pandemic:

Demonstrative

4. *Currently*, the extent to which children contribute to transmission of SARS-CoV-2 is not completely understood (WHO, 2020a, b).

Comparative references are classified as *general and particular*. General references are divided into three subclasses of *identity*, *similarity and difference* and particular references are of two kinds: *numerative* and *epithet*. General comparison reveals the sameness, similarities or differences “without respect to any particular property” (Halliday & Hasan, 1976: p. 77) and particular comparison shows the quality or quantity. The following examples illustrate some comparative references in an academic text:

General comparison of similarity

5. Although culture-competent virus has been isolated from symptomatic children with viral load levels found to be *similar* to that in adults, evidence from available studies of contacts of COVID-19 cases and cluster investigations suggests that children are unlikely to be the main drivers of COVID-19 transmission (WHO, 2020a, b).
6. This may include processes for safe storage of used masks for reuse by *the same* child after eating or exercising, storing soiled masks (e.g. in dedicated bags or containers) before they can

be laundered and storage and supply of additional clean masks if a child's mask becomes soiled, wet, or is lost (WHO, 2020a, b).

General comparison of difference

7. In some countries, guidance and policies recommend a *different* and lower age cut-off for mask use (WHO, 2020a, b).

General comparison of identity

8. A pre-print (non-peer-reviewed) study from Germany reported *no differences* in the amount of viral RNA among adults and children (WHO, 2020a, b).

Particular comparison of quantity

9. Face shields may be considered as an alternative to masks as respiratory droplet protection or as source control, based on availability, improved feasibility and *better* tolerability (WHO, 2020a, b).

3.2 Substitution

Continuing cohesion types, now *substitution* will be introduced as a “replacement of one item by another” (Halliday & Hasan, 1976: p. 88). Unlike reference which is a relation between meanings, substitution is a “grammatical relation” (1976: p. 90) rather than semantic one. So, based on their grammatical functions, the substitute items are of three kinds: *nominal*, *verbal*, and *clausal*. Here each kind will be explained briefly and In the Persian part, all cases are exemplified in Persian in more details:

3.2.1 Nominal Substitution

In English, “*one/ones* are always considered as the head of a nominal group and can replace an item which is itself head of a nominal group” (Halliday & Hasan, 1976: p. 91):

10. Like me, you will not win the Nobel Prize for literature, but Hemingway's *style* is a good *one* to emulate (Mulholland, 2018).

In example 10, *one* replaces *style* and as a substitute. It excludes the “defining modifier” (Halliday & Hasan, 1976: p. 92) *Hemingway's*. The substitute routinely brings its own modifier instead, in this instance *good*. Halliday and Hasan (1976: p. 98) distinguished other types of *one* different from the substitution *one*. These are personal pronoun, cardinal number, indefinite article, and pro-noun. Personal pronoun *one* refers to a generic person in example no 11:

11. *One* would expect frequent mention of words like Churchill, he, him, his (Carrell, 1982)

As you can see in example 12, cardinal number *one* is used as a modifier in the nominal group *one sentence*, not as a head, as the substitute *one* does.

12. If a speaker of English hears or reads a passage of language which is more than *one* sentence in length, he can normally decide without difficulty whether it forms a unified whole or is just a collection of unrelated sentences (Carrell, 1982)

The third type is indefinite *one* that can be replaced with *a/an* as an indefinite article:

13. It is important to emphasize that the use of masks is *one* tool and that children should also adhere to physical distancing, hand hygiene and respiratory etiquette (WHO, 2020a, b).

The last *one* is pro-noun which refers to a human reference and corresponds to *who* as an interrogative. As this case is not regularly used in the academic texts, there is no need to be exemplified here.

In addition to *one/ones*, *same* is another nominal substitute in English, a replacement for the whole nominal group, including modifiers, preceded by *the*:

14. That is the reason it is called the practice of surgery. *The same* holds true for most physicians, regardless of their specialty (Mulholland, 2018).

3.2.2 Verbal Substitution

In this kind of cohesion, *do* in all of its morphological forms (*do, does, did, doing, done* and *do so* if there is any choice) functions as the head of verbal group and replaces lexical verb in English. Halliday and Hasan (1976: p. 117) believed that verbal substitution is used more in spoken language than in written one and based on my research in linguistics, psychology, medical and mathematical journal articles and also Altikriti & Obaidat's records (2017) show low frequency in verbal substitution in academic texts. Here four examples are given from psychology and mathematics journals and more details of verbal substitution will be presented in the Persian part:

15. We calculated subscales for the activities involving electronic media use and those that *did not* (Mellor et al., 2020).
16. For each labeling of a graph E as in the proof of Lemma 11.1, one obtains explicit embedding of both the graph C^* -algebras and the Leavitt path algebras into O_2 and $LR(E_2)$, respectively, in terms of their canonical generators. This is *done* by expanding the scheme in [11, Proposition 5.1] (Nyland & Ortega, 2019)
17. First of all we have to extend the definition of the topological full group to the locally compact setting. This is *done* in Definition (Nyland & Ortega, 2019)
18. We find a significant connection between greater social cohesion and the strength of the personality traits of openness, conscientiousness and agreeableness. In *doing so*, we provide evidence for the link between social cohesion and variation in personality, and highlight the special role of personality in understanding social cohesion (Larsen et al., 2020).

3.2.3 Clausal Substitution

“In this kind of substitution the entire clause is presupposed and the contrasting element which provides the context for substitution is outside the clause” (Halliday & Hasan, 1976: p. 130). The substitute elements are *so* and *not* and the contexts of their appearance are report, condition, and modality (see Halliday & Hasan, 1976:

p. 131). I could not find any examples for this kind of substitution in the academic journals as this kind of substitution is “specifically related to the question–answer process in dialogue” (Halliday & Matthiessen, 2004: p. 563).

3.3 *Ellipsis*

Halliday and Hasan (1976) believed ellipsis is a substitution replaced by zero and like substitution, it is nominal, verbal, and clausal. Halliday and Matthiessen state that like all cohesive relations, “ellipsis contributes to the semantic structure of the discourse” (2004: p. 562); It does not organize a semantic relation by itself like reference, but “a relationship in the wording”. On the other hand, “ellipsis is not investigated from intra-sentence point of view” (Varhánek, 2007: p. 21) since every sentence has its own structural relation independent from cohesion. Therefore, Varhánek concluded that “the cohesive ellipsis was a typical feature of a conversational style and a scientific style seemed to be typical by the presence of incohesive ellipses of clausal elements, especially of ellipsis of subject and auxiliary” (2007: p. 59) found in coordinate sentences, but it is not our concern here. If we consider Halliday and Matthiessen’s instances for ellipsis, most of them are in a conversational question-answer format (pp. 563–569). In my opinion, as the academic text has a different structure, vocabulary, and register, and everything should be explained in a clear way without any ambiguity, this kind of cohesion cannot be used in this kind of text. In addition, no instance of cohesive ellipsis was found in English scientific text.

3.4 *Conjunction*

The last grammatical cohesive relation is conjunction. This kind of cohesion differs from reference, substitution, and ellipsis “in nature” (Halliday & Hasan, 1976: p. 226). On account of the particular meaning represented by them, conjunctive elements are cohesive and they imply the existence of other elements in the text. On the other hand, there are structural conjunctions of modal comment adjuncts like *in fact*, *as a matter of fact*, *generally*, *evidently*, that compulsorily are thematic and should be separated from cohesive conjunctions that are frequently thematic⁶. Halliday and Matthiessen (2004: p. 540) refer to conjunction as a “logico-semantic relation of expansion” and classified three types of elaborating, extending and enhancing conjunctions, each with hierarchically delicate sub-classifications of two more levels which the third level is not being further elaborated for not being perplexed. Here I

⁶As it will be explained in nominalization part, being thematic in English means to be the left most constituent in a sentence or clause (Halliday’s term) and in Persian, it would be the right one.

just exemplify some conjunctions in the following instances, and I will examine Persian conjunctive in details later:

Additive

19. While we targeted 24 IU twice daily as the most commonly used dose in previous studies, we *also* used flexible dosing to allow for selection of the most efficacious and well-tolerated dose, including allowing clinicians and caregivers/participants to increase beyond the target dose in the later portions of the trial (Spanos et al., 2020).

Exemplifying

20. Health workers are all people primarily engaged in actions with the primary intent of enhancing health. *Examples* are: Nursing and midwifery professionals, doctors, cleaners, other staff who work in health facilities, social workers, and community health workers, etc. (WHO, 2020a, b).

Adversative

21. Concerns regarding a child's social response, being referred to another professional at the first consultation, parent satisfaction and needing to consult more professionals were correlated with the timeliness of diagnosis; *however* these latter variables were not significant unique predictors in the regression (Bent et al., 2020)
22. Causal and temporal respectively-These all will be briefly characterized in the following chapters; however, at first, the distinction between simple and complex ellipsis should be clarified (Varhánek, 2007).

4 Specific Structures of Academic Texts

Let's discuss academic writing and features differentiating it from spoken texts. Although the spoken and written language are different from each other, generally, academic writing has specific features not found in non-academic written texts.

As Halliday (1994: p. F40) considers language as a "system of choices", a proposition can be expressed by the variety of syntactic structures, i.e. one form corresponds to one conveyed function by a writer. The main regular syntactic forms in Persian are:

- (a) Declarative with Active voice
- (b) Declarative with Passive voice
- (c) Nominalization
- (d) Impersonal verbs
- (e) It-Cleft
- (f) Pseudo-cleft and reverse pseudo-cleft

A *declarative sentence* is "in the form of statement which describes a state of affairs, action, feeling or belief" (Richards et al., 1992: pp. 97 & 351). As the language of academic texts must be clear and without any ambiguities, form and function of every statement require one to one correspondence and both must be declarative rather than a form of declarative and function of interrogative or imperative usually found in colloquial language. *Voice* is another "category to express the way

sentences may alter the relationship between subject and object of a verb, without changing the meaning of the sentence” (Crystal, 2003: p. 495). However, what affects the writer’s choice of active and passive voice is more than the mentioned formal differences: being more appropriate with the text register and context or “may be a change in emphasis” (Richards et al., 1992: p. 402). Through using passive, a writer replaces subject by object in order to background the agency and foreground and highlight the receivers or experiencers’ actions or events:

23- کهنشویی دومین عامل ناتوان‌کننده زندگی بعد از افسردگی گزارش شده است. پرسشنامه سنجش رضایتمندی از سمعک در زندگی روزمره یک خود ارزیاب طراحی شده توسط Cox و Alexander در سال 1999 بود که رضایتمندی فرد را در ابعاد مختلف استفاده از سمعک بررسی می‌نماید که در پژوهش حاضر از آن استفاده شد (Faraji, 2015; Khiavi, Bayat, Dashti, & Sameni, 2015)

Kam shenavayi dovommin ‘amel-e natavan konande-ye zendegi ba’d az afsordegi gozaresh shodeh ast. Porseshname-ye sanjesh-e rezayatmandi az sam’ak dar zendegi-ye ruzmareh yek khod’arziab-e tarahi shode tavassot-e cox va alexander dar sal-e 1999 bud ke rezayat-mandi-ye fard ra dar ‘ab’ad-e mokhtalef-e estefade az sam’ak Barresi minamayad ke dar pazhuhesh-e hazer az an estefadeh shod.

In the example 23, extracted from an academic article published in a journal, the focus of the writers is on *hearing loss* (کهنشویی) (*Kam shenavayi*) as an important event in the paper rather than the researchers reporting the event. Furthermore, the writers have given the priority to “the questionnaire for Measuring satisfaction with amplification in daily life” (پرسشنامه سنجش رضایتمندی از سمعک در زندگی روزمره) (*Porseshname-ye sanjesh-e rezayatmandi az sam’ak dar zandegi-ye ruzmareh*) as a research instrument and left a trace of questionnaire makers at the end of the statement. They also chose to exclude themselves as the administrators of current research and highlighted “current research” (پژوهش حاضر) (*pazhuhesh-e hazer*) consequently. So, the main reasons for preferring passive constructions to active ones are 1- avoiding repeating the name of the doer/s of actions as it is mentioned in the subtitle of each paper or can be retrieved somewhere in the text. In other words, events, factors, actions, conclusions, and experiencers are more important elements to be focused than the researchers. 2- Young researchers are strongly recommended to exclude themselves in their research reports (thesis, dissertation and article) as a sign of humility and deference for readers. 3- Avoiding inflammatory remarks by passive agent deletion and “suppressing” (van Leeuwen, 2008: p. 29) the subject, with no reference to it anywhere in the text. First and second items are exemplified in no. 23 and the third case will be a realized in the following examples 24 and 25:

24- امروزه گمانه‌زنی‌هایی مطرح می‌شود مبنی بر اینکه ویروس کرونا ممکن است به سقوط حاکمیت کمونیستی در چین

ختم شود (Taheri & Taheri Matin, 2020)

Emruzeh gomaneh zani-hayi matrah mishavad mabni bar inke virus-e korona momken ast be soghut-e hakemiyat-e komonisti dar chin khatm shaved.

25- شبیه دیگری که ممکن است مطرح شود این است که چنانچه مردی به عمد زنی را به قتل برساند، فقیهان از یک سو و اولیای دم را مخیر می‌کنند که با پرداخت دیه، مرد را قصاص کنند و از سوی دیگر قتل عمد را تصالیحی می‌دانند. (Asghari, Ghane,)

(Nourmandipour, 2015)

shobhe-ye digari ke momken ast matrah shaved in ast ke chenancheh mardī be ‘amd zani ra be qatl beresand, faqi-han az yek su owliya-ye dam ra mokhayyar mikonand ke ba pardakht-e diyeh, mard ra qesas konand va az su-ye digar, qatl-e ‘amd ra tasalohi mi-danand

Van Leeuwen (2008) refers to the kinds of excluding agent of actions: passive agent deletion (mentioned above) and *nominalization*, i.e. grammatical derivation of actions (verbs) and adjectives to nouns, so their function changes from process and attribute respectively to a thing in a nominal group (Halliday, 1994: p. 352). He defines nominalization as “the single most powerful resource for creating grammatical metaphor” and refers to the gradual devolvement of this change first in “scientific and technical registers” and later in other registers (p. 353). As science needs more consistency in meaning, therefore, processes and properties with flexibility movements in the structures of congruent spoken clauses change into a more abstract complex nominal clauses which is static in an academic text. Consider the following examples:

26- یکی از شاخص‌های توسعه در هر جامعه‌ای مشارکت زنان در محیط‌های اجتماعی است (Sajedi, 2020).
 yeki az shakhese-ha-ye towse'e dar har jame'e-yi mosharekat-e زنان dar mohit-ha-ye
 ejtema'i ast.

By nominalizing *participation* مشارکت (mosharekat) from the verb *participate* شرکت کردن (sherkat kardan) and constructing a nominal group from an “underlying clause” (Crystal, 2003: p. 314), the ambiguity of whether *women* زنان (zanan) are subject of the clause *women participate* زنان شرکت میکنند (zanan sherkat mikonand) or object in the passive construction *women are participated* زنان شرکت داده می‌شوند (zanan sherkat داده mi-shavand) occurs and as Halliday believes (p. 353), an [expert] writer use this grammatical metaphor for distinguish the experts from uninitiated readers:

27- برابر اصل 44 قانون اساسی، سیاست خصوصی سازی در بخشها و نهادهای مختلف به معنی واگذاری امور از جمله امور ورزشی به بخش غیر دولتی برای کاستن از بزرگی دولت است (Sajedi, 2020).
 barabar-e asl-e 44 qanun-e asasi, siyosat-e khosusi sazi dar bakhsh-ha va nahad-ha-ye
 mokhtalef be ma'na-ye vagozari-ye omur az jomleh omur-e varzeshi be bakhsh-e gheir-e
 dowlati baraye kastan az bozorgi-ye dowlat ast.

In example 27, four congruent clauses were derived from one complex incongruent clause with many nominalizations as ‘privatization’ (خصوصی‌سازی) (khususi sazi) is derived from the infinitive verb *privatize* خصوصی کردن (khususi kardan) by deletion of the auxiliary verb *making* کردن (kardan) and addition of a derivational suffix for making noun, *transfer* واگذاری (vagozari) derived from the infinitive verb *transfer* واگذار کردن (vagozar kardan), then deleting the auxiliary verb *do* کردن (kardan) and inserting the derivational suffix -ی (-ye), *reducing* کاستن⁷ (kastan) derived from the infinitive verb *reduce* کاهش دادن (kahesh dadan), changing the verb to the past stem *kast* (kast) and adding the infinitive making suffix -ن (-n) and enlargement بزرگی (bozorgi) which is formed by changing the adjective *enlarged* بزرگ (bozorg) adding the noun making suffix -ی (-ye)

Another kind of grammatical metaphor is known as *metaphor of modality*. In the spoken congruent texts without any metaphor, modality is expressed in a group within the propositional clause, while in academic written texts, it is realized in a

⁷It seems that this verb with the same present stem with (کاهش دادن), usually used for abstract cases.

“separate clause” (Halliday, 1994, p. 354; Halliday & Matthiessen, 2004: p. 646) that embeds “the clause to which a modal value is assigned”:

- 28- در حال حاضر دقیقاً مشخص نیست که COVID کروناویروس - چه مدت بر روی سطوح زنده می‌ماند، اما/ احتمالاً شبیه به سایر کروناویروس‌ها رفتار می‌کند. (Tavakili, Vahdat, & Keshavarz, 2020).
- dar hal-e hazer daqiqan moshakhas nist ke covid korona virus che moddat bar ru-ye sath zنده mimanad, amma ehtemalan shabih be digar korona virus-ha rafter mikonad
- 29- زن‌های مرتبط با ایمنی بر روی کروموزوم ایکس و هورمون‌های جنسی که پاسخ‌های ایمنی ذاتی و اکتسابی را تحت تأثیر قرار می‌دهند، ممکن است توجیه کننده استعداد بیشتر مردان به این عفونت باشند. احتمال بالاتر این مواجهه با این ویروس به دلیل خطر شغلی می‌تواند فاکتور مشارکت کننده دیگری برای این موضوع باشد. (Tavakili, Vahdat, & Keshavarz, 2020).
- zhen-ha-ye mortabet ba imeni bar ru-ye koromozom-e iks va hormon-ha-ye jensi ke pasokh-ha-ye imeni-ye zati va ektesabi ra that-e ta'sir qarar mi-dahand, momken ast towjih konande-ye este'dad-e bishtar-e mardan be in ofunat bashand. Ehtemal-e balatar-e movajehe ba in virus be dalil-e khatar-e shoghli mi-tavand faktor-e mosharekat konande-ye digari baraye in mowzu' bashad.
- 30- بر اساس اطلاعاتی که در حال حاضر وجود دارد، به نظر می‌رسد که میزان اولیه و طبیعی کروناویروس جدید، فاش‌ها هستند (Tavakili, Vahdat, & Keshavarz, 2020).
- bar asas-e etela'ati ke dar hal-e hazer vojod darad, be nazar miresad ke mizban-e avvaliye va tabi'i-ye korona virus-e jadid, khoffash-ha hastand.
- 31- چنانچه تأثیر و اهمیت ورزش در عرصه‌های گوناگون اجتماعی و ایفای نقش بی‌چون و چرایش در بالا بردن سلامت اجتماعی و همچنین تأثیر و کمک آن به صلح و دوستی جهانی باارستگی درک شود، آن زمان است که غفلت از این مهم کنار گذاشته خواهد شد و از هزینه‌ها و خسارت‌های احتمالی که بر جامعه تحمیل می‌کند، می‌توان جلوگیری نمود (Sajedi, 2020).

chenanche ta'sir va ahammiyat-e varzesh dar 'arse-ha-ye gunagun-e ejtema'I va ifa-ye naqsh-e bi chun-o-chera-yash dar bala bordan-e salamat-e ejtema'i va hamchenin ta'sir va komak-e an ba solh va dusti-ye jahani be dorosti dark shavad, an zaman ast ke gheflat az in mohem کنار gozashteh khahad shod va az hazine-ha va khesarat-ha-ye ehtemali ke bar jame'e tahmil mikonad, mi-tavan jologiri kard.

As seen in example 28, the writer used the adverb *probably* (ehtemalan) in a separate quite simple clause without any grammatical metaphor whose metaphorical variant is realized in example 29 by forming the noun *probability* (ehtemal) from the adverb *probable* (ehtemalan). This is an example for interpersonal metaphor alongside of the *impersonal verbs* it is possible است (momken ast), *it seems that* می‌توان جلگیری کرد (mi-tavan jologiri kard) (be nazar mi-resad) and *can prevent* (mi-tavan jologiri kard). Making use of impersonal verbs besides hedging elements like can, may, seem, possible and probable/y help the writer to avoid absolute certainty in scientific remarks.

There are still other structures in indefinite subjects to prevent shouldering responsibility by a definite subject:

32- برخی نقیها گفته اند (Asghari, Ghane, Nourmandipour, 2015).

barkhi foqa-ha gofteh-and...

33- بسیاری از جامعه‌شناسان ورزش را یک رشته نوپایی می‌دانند (Sajedi, 2020).

besiyari az jame'e-shenasan varzesh ra yek reshte-ye nowpayi mi-danand.

34- امروزه بسیاری از کارشناسان ورزشی اظهار می‌دارند که ورزش فوتبال نه تنها تأثیرگذار بر روابط میان دولتها بوده و از آن به‌عنوان دیپلماسی ورزش نام می‌برند بلکه در بسیاری از کشورها عامل مهم و تأثیرگذار بر نهادهایی چون سیاست، اقتصاد، و اجتماع جامعه می‌دانند (Sajedi, 2020).

emruzeh besiyari az karshenasan-e varzeshi ezhar midarand ke varzesh-e futbol na tanha ta'sirgozar bar ravabet-e miyan-e dowlat-ha budeh va az an be 'onvan-e diplomasi-ye varzesh nam mibarand, balke dar besiyari az keshvar-ha 'amel-e mohem va ta'sirgozar ba nahad-hayi chon siyasat, eqtesad, va ejtema'-e jame'eh mi-danand.

Another choice for ridding subject of responsibility is what Halliday and Matthiessen (2004: p. 42) named *collective we* (also called *inclusive we*), which includes speaker and other person(s):

35- زمانی که از منافع ملی صحبت می‌کنیم این سوال را بایستی بررسی کنیم که منافع ملی چیست؟ (Ashgarkhani & Shafi'iyeh Inche'I, 2015).

zamani ke az manafe'-e melli sohbat mi-konim in so'al ra bayad bepersim ke manafe'-e melli chist?

Persian language is a pro-drop language in which the subject pronoun in declarative sentences can be deleted when it is inferred through inflectional verbal suffix indicating person and number of the subject. In example 36, the subject pronoun *we* ما (*ma*) is deleted in both underlined sentences and can be identified in the ending *-im* / *-im* / of both present indicative auxiliary verb *do* می‌کنیم (*mi-konim*) and lexical verb *ask* in its present subjunctive mood پرسیم (*be-porsim*). It can be seen that there are some constrains in using pro-drop parameter in Persian language; For generic impersonal third person pronoun *one* هر فرد، هر کس، آدم، (har fard, har kas, adam) the subject insertion would be necessary. Furthermore, sentences in which plural pronoun *we* has a contrastive or emphasis function, it must fill the subject position.

36- فرهنگ‌های دیگر پس از شروع ویروس، توانایی تولید یک نظام نفاذانه را داشتند، آیا ما نیز در جهان پساکروناوی مان این توانایی را خواهیم داشت؟ (Shamsini Ghiasvand, 2020).

farhang-ha-ye digar pas az shoru'-e virus, tavanayi-e towlid-e yek nezam-e naqqadaneh ra dashtand, aya ma niz dar jahan-e pasa-koronayi-e-man in tavanayi ra kha-him dasht?

In this example, *we* as a subject is given the sense of contrastive selection with *other cultures* فرهنگ‌های دیگر (*farhang-ha-ye digar*), so its insertion is obligatory.

It-Clefts, pseudo-clefts, and reverse pseudo-clefts are other structures that a writer can choose for their specific functions, namely emphasis, contrast, and avoiding ambiguity. What happens in the it-cleft is changing a monoclausal structure to biclausal "with a largely unambiguous focus structure" (Pavey, 2004: p. II?). In Persian language, it-cleft sentences usually initiate with an optional cleft demonstrative pronoun *this* این (*in*) as an emphatic marker followed by an emphasized clefted noun phrase (NP), prepositional phrase (PP) or a shared adverb plus a form of verb *be* and immediately the second clause occurs in a form of relative clause. The cleft demonstrative pronoun here does not function as a modifier for the cleft NP constituent, so there is not any agreement between the pronoun and the verb *be* (Moezzi-pour, 2010):

37- همچنین در دیدگاه هگل سیستم به معنای تفاوت کل با جمع اجزای سیستم است و این کل است که ماهیت اجزا را تعریف می‌کند. بنابراین این به سود هر دو طبقه [کارگر و سرمایه‌دار] است که در نقطه همکاری به عنوان نقطه‌ای که بیابانگر منافع مشترک یکدیگر می‌باشد توقف کنند. اما در نهایت این سیستم است که به دلیل ماهیت غیرخطی خود و همچنین وجود عوامل پیش‌بینی نشده مشخص می‌سازد که آیا اقدام الف که همگان بر روی آن به عنوان یک عمل در راستای منافع ملی اشتراک داشتند می‌تواند نتیجه مثبتی به همراه داشته باشد و یا برخلاف پیش‌بینی‌ها موجب آسیب بر منافع ملی خواهد شد (Ashgarkhani & Shafi'iyeh Inche'I, 2015).

hamchenin dar didgah-e hegel sistem be ma'na-ye tafavot-e kol ya jam'-e ajza-ye sistem ast va in kol hast ke mahiyat-e joz' ra ta'rif mikonad... banabarin in be sud-e har dow tabaqe [karegar va sarmayehdar] ast ke dar noqteh-yeh hamkari be 'onvan-e noqteh-i ke bayangar-e manafe'-e moshatarek-e yekdigar mi-bashad, tavaqqof konand... amma dar nahayat in sistem ast ke be-dalil-e mahiyat-e gheyr-e khati-ye khod va hamchenin vojude 'avamel-e pishbini-na-shodeh moshakhhhas mi-sazad ke aya eqdam-e alef ke hamegan bar ru-ye an be 'onvan-e yek 'amal dar rasta-ye manafe'-e melli eshterak dashtand mitavand natijeh-yeh mosbati be hamrah dashteh bashad va ya bar khalaf-e pishbini-ha mojob-e asib bar manafe'-e melli khahad shod.

As seen in cases above, every item after *this* این (in) contains new information which is often contrastive:

The it-cleft construction is specificational, providing the value for a presupposed variable. It "present[s] a referent into the "place" or "scene" of the discourse 156. The it-cleft takes the existence of a referent as described in the subordinate cleft clause as presupposed. In narrowing the identity to the correct interpretation, it follows that others are excluded, and thus the asserted 'value' is inherently contrasted with other potential values (Pavey, 2004: pp. 156 & 38).

The contrastiveness is seen in it-clefts in 37: *and this is the whole....* ... و این کل است (va in kol ast) means not parts of a system but all of it or in the sentence *this is for the benefit of both classes* این به سود هر دو طبقه است (in be sud-e har dow tabaqe ast), the contrast is not between two capitalist and working classes but instead, the it-cleft emphasizes the benefit of both and not only one of them.

Biclausal cleft construction with a wh-clause as the subject is known as pseudo-cleft and with a wh-clause as a complement is called reverse pseudo-cleft. Following Lambrecht (2001), information structure for three following kinds of it-cleft, pseudo-cleft and reverse pseudo-cleft in 38 is as in 39:

38- a. This is the whole that defines the nature of its parts (it-cleft).

این کل است که ماهیت اجزا را تعریف می‌کند

In kol ast ke mahiyat-e ajza' ra ta'rif mi-konad

b. What defines the nature of its parts is the whole (pseudo-cleft known also WH-cleft).

آنچه که ماهیت اجزا را تعریف می‌کند کل است

Anche ke mahiyat-e ajza' ra ta'rif mi-konad kol ast

c. The whole is what defines the nature of its parts (reverse pseudo-cleft or reverse WH-cleft).

کل آن چیزی است که ماهیت اجزا را تعریف می‌کند

Kol an chizi ast ke mahiyat-e ajza' ra ta'rif mi-konad

39- Presupposition: 'x defines the nature of its parts'.

Focus: 'the whole'

Assertion: 'x= the whole'

The specific semantic component for pseudo-cleft is exclusiveness (Halliday & Matthiessen, 2004: p. 71) which means "this and this alone". Although Weinert and Mliller (1996: p. 196) refer to this function as a "micro-function inside the immediate clause complex" of wh-cleft in comparison to "macro-function in larger stretches of discourse":

40- برای نمونه در بازیهای دو تیم طرفدار استقلال و پرسپولیس رسانه‌های ایران از واژه‌های خاصی (که از نظر جامعه شناسی دارای بار منفی و تأثیر نامطلوب در رفتار و گفتار مردم جامعه می‌گذارد) برای گزارش استفاده می‌کنند که آنچه برای طرفداران این دو تیم مهم است تنها نتیجه برد بازی برای آنهاست و نه یک بازی زیبا و جوانمردانه (Sajedi, 2020).

bara-ye nemuneh dar bazi-ha-ye dow tim-e por-tarafdar-e esteqlal va perspolis resane-ha-ye iran az vazhe-ha-ye khassi (ke 'az nazar-e jame'eshenasan daray-e bar-e manfi va ta'sir-e na-matlub dar rafter va goftar-e mardom-e jame'e mi-gozarad) bara-ye gozaresh estefadeh mi-konand ke anچهh bara-ye tarafdaran-e dow tim mohamad ast tanha natijeh-e bord-e bazi bara-ye an-ha-st va na yek bazi-ye ziba va javanmardaneh.

In the above bolded pseudo-cleft sentence, 'What is important for the fans of these two teams is *only* winning the game and not a beautiful and fair game'. The exclusiveness is represented by the redundant word *only* تنها (*tanha*), which is not usually common to use in pseudo-cleft as it is implied in the cleft structure.

Returning to macro-functions of wh-cleft, Weinert and Mliller ⁸(1996: p.196) consider two functions: forward pointing and showing the conclusion in a discussion both of which are represented simultaneously in the following example:

41- به این ترتیب، در رویکردی غیر گشتاری می‌توان ماهیت مشخص‌گرا بودن ساخت اسنادی‌شده و موصولی مانند بودن اسنادی را در هم آمیخت و ساخت اسنادی‌شده را آن گونه که هست مورد تحلیل قرار داد؛ به عبارت دیگر آنچه واضح است نیاز برای یکی کردن این دو رویکرد در مورد ساختهای اسنادی‌شده است و به عبارتی، یک تحلیل ترکیبی بسیار سودمند خواهد بود و معتقدیم که رویکردی غیرگشتاری همچون دستور نقش و ارجاع می‌تواند چارچوبی مناسب برای تحلیل این ساخت به شمار آید (Rezaee & Neisani, 2014).

be in tartib, dar ruykardi gheir-e gashtari mi-tavan mahiyyat-e moshakhkhasgara budan-e sakht-e esnadi shodeh va mowsuli manand-e budan band-e esnadi ra dar ham amikht va sakht-e esnadi shodeh ra an guneh ke hast mowred-e tahlil qarar dad; be ebarat-e digar anچهh vazeh ast niyaz bara-ye yeki kardan-e in do ruykard dar mored-e sakht-ha-ye esnadi shodeh ast va be ebarati, yek tahlil-e tarkibi-ye besiyar sudmand khahad bud va mo'taqedim ke ruykardi gheyr-e gashtari hamchon dastur-e naqsh va erja' mi-tavanad charchubi monaseb bara-ye tahlil-e in sakht be shomar ayad.

This example is extracted from a linguistic paper written on cleft structure and the text is the last part of the conclusion section. After discussion, the Wh-cleft sentence functions as a last conclusive remarks which in turn is a forward pointing for the last sentence.

As there are syntactic and pragmatic differences between it-clefts and wh-clefts, they are not interchangeable, not only in English, but also in Persian (Paveey, 2004; khormae & Tabatabaee, 2012). I discussed the pragmatic differences before and in the following texts, I will elaborate syntactic differences as a formal guide to identify them and by applying the pragmatic and syntactic clues, you can produce a well-formed and appropriate text in Persian.

As it was asserted in the cleft constructions, a clefted constituent in it-cleft structure must be a NP, a PP or a NP/PP which functions as an adverb, but verbal phrase and sentence are two items not allowed to use in the clefted constituent positions in Persian. However, the clefted constituent in pseudo-clefts can be a NP or a sentence but cannot be a PP, an adverb or verbal phrase. There is an exception in pseudo-clefts in English that a chosen NP as clefted constituent should not be animate. In contrast, Persian writers are free to use both animate and inanimate NPs for the mentioned constituent in pseudo-clefts. Regarding the adverb in it-cleft structures, one cannot use a pure adverb like *certainly* مسلماً (*mosallaman*), *never* هرگز (*hargez*),

⁸Weinert and Mliller project was originally in spoken discourse, but I checked their results in the Persian academic written texts.

later بعدا (ba'dan) but a NP or PP which acts as adverbials (called adverbial noun or preposition) is allowed. If one examines example 38, *whole* کل (kol) and *for the benefit of both classes* به سود هر دو طبقه (be sud-e har do tabaqeh), are samples of noun and prepositional phrases as the clefted item in the it-cleft construction respectively. Last but not least crucial structural feature of wh-cleft and reverse wh-cleft is that their clefted constituent is an "instance of nominalization" (Halliday & Matthiessen, 2004: p. 69), so they are structures suitable for academic and professional texts. Halliday called wh-clefts and reverse ones as "thematic equatives" and "marked thematic equatives" respectively (1967/8 cited in Halliday & Matthiessen). By the term equative, he means theme=rheme and you can reverse wh-cleft from unmarked (normal) structure to the marked one and creates reverse wh-cleft. From the information structure point of view, normally every declarative sentence starts with old information as a theme followed by the new information as a rheme. Theme and rheme are the terms in functional grammar which in above mentioned structures function as a subject and predicate respectively in traditional grammar. In English, both kinds of wh-clefts are equative, i.e. one can reverse their places with each other without any change in vocabulary. However, in Persian instead of wh-words *what*, *where*, *who*, *when* and *why*, you can use indefinite nouns such as آنچه چیزی که (an chizi ke/ ancheh ke) (dalili ke), دلیلی که، زمانی که، کمی که (kasi ke)، (jayi ke) جایی که، respectively. The only change occurs from wh-cleft to reverse one in Persian is the word آنچه که (ancheh ke) changes into آن چیزی که (anchizi ke) in reverse (see example no. 39 b, c). To sum up, all different mentioned syntactic structures exemplified in the Table 1.

Table 1 Frequent syntactic structures in Persian academic texts

Syntactic forms	Examples
Declarative with Active voice	فرهنگ‌های دیگر پس از شروع ویروس، توانایی تولید یک نظام ففاده را داشتند farhang-ha-ye digar pas az shoru'-e virus, tavanayi-e tolid-e yek nezam-e naqqadaneh ra dashtand
Declarative with Passive voice	امروزه گیاه-زنی‌هایی مطرح می‌شود مبنی بر اینکه ویروس کرونا ممکن است به سقوط حاکمیت کونیستی در چین ختم شود Emruzeh gomanezani-hayi matrah mi-shavad mabni bar inke virus-e korona momken ast be soghut-e hakemiyat-e komonisti dar chin khatm shaved
Nominalization	برابر اصل 44 قانون اساسی، سیاست خصوصی سازی در بخشها و نهادهای مختلف به معنی وآکناری امور از جمله امور ورزشی به بخش غیر دولتی برای کاستن از بزرگی دولت است barabar-e asl-e 44 qanun-e asasi, siyosat-e khususi sazi dar bakhsh-ha va nahad-ha-ye mokhtalef be ma'na-ye vagozari-ye omur az jomleh omur-e varzeshi be bakhsh-e gheir-e dolati baraye kastan az bozorgi-ye dolat ast
Impersonal verbs	بسیاری از جامعه شناسان ورزش را یک رشته نوپایی می دانند besiyari az jame'e-shenasan varzesh ra yek reshte-ye nopayi mi-danand
It-Cleft	این کل است که ماهیت اجزا را تعریف می کند In kol ast ke mahiyat-e ajza' ra ta'rif mi-konad
Pseudo-cleft	آنچه که ماهیت اجزا را تعریف می کند کل است Ancheh ke mahiyat-e ajza' ra ta'rif mi-konad kol ast
Reverse pseudo-cleft	کل آن چیزی است که ماهیت اجزا را تعریف می کند Kol inachizi ast ke mahiyat-e ajza' ra ta'rif mi-konad

5 Cohesion in Persian

As mentioned in the introduction, many projects, quantitatively accounted all types of cohesion done in Persian such as (Alavipour, 2012; Hashemi, 2012 Jalileh, 2017; mirzaee, 2019; Pakrah, 2014; Zahedi, 2017; Zare', 2009; Zarinkhu, 2014). However, no one can learn from these examinations how to use cohesive instruments in writing an academic article, report or thesis in Persian. The main purpose of this chapter is teaching the important cues in using grammatical cohesive relations in a piece of Persian academic writing.

5.1 Reference

As it was mentioned before, “reference is a relationship in meaning” (Halliday & Matthiessen, 2004: p. 561), in other words, a semantic relation between the reference and its antecedent/posterior referent. The most frequent kind of cohesion is reference and among its subcategories, anaphoric co-reference is more frequent than others in Persian. Let’s start with the personal pronouns in Persian. By using the term determinative, these pronouns are substituted for a nominal group by itself. *I* من (*man*), *you* تو (*to*), *he/she* او⁹ (*vey/u*), *it* آن (*an*), *we* ما (*ma*), *you* شما (*shoma*) and *they* آنها (*an-ha*) are personal pronouns in Persian language. As you see, for second personal pronoun (singular and plural), same in English, Persian language has two different entries of تو (*to*) and شما (*shoma*) respectively. The next important item is third-person singular pronoun او⁹ (*vey/u*) that unlike English, is neutral for gender and you can use it for both feminine and masculine referents. Persian possessive pronouns are: *my* -م (*-m*), *your* -ت (*-t*), *his/her* -ش (*-sh*), *our* -مان (*-man*), *your* -تان (*tan*) and *their* -شان (*shan*).

Anaphoric co-reference relation is not restricted to the mentioned instances. The same relationship can be seen in the (partially) repeated form of a referent (Brown & Yule, 1983) as well.

42- اولین مطالعات در زمینه انواع زبان‌های ضمیرانداز به زمان ریتزی برمی‌گردد. پی بردن به انواع مختلف زبان‌های فا عل تھی زبان-شناسانی مانند وی را بر آن داشته است که به دنبال وضع پارامترهایی باشد که انواع مختلف زبان‌های ضمیر انداز را در برمی‌گیرد. وی بیش از یک پارامتر را در تشخیص این امر که ضمیر فا علی در زبانی می‌تواند تھی باشد یا نه دخیل می‌داند. ریتزی در اولین صورت‌بندی پارامتر ضمیراندازی، دو پارامتر ارائه می‌دهد. (Motavallian, 2017)

avvalin motale'at dar zamineh-ye anva'-e zaban-haye zamir-andaz be zaman-e ritzi bar mi-gardad. Pey bordan be anva'-e mokhtalef-e zaban-ha-ye fa'el tohi zabanshenasani manand vey ra bar an dashteh ast ke be donbal-e vaz'-e parameter-hayi bashad ke anva'-e zaban-ha-ye zamir-andaz ra dar bar mi-girad. Vey bish az yek parameter ra dar tashkhis-e in amr ke zamir-e fa'eli dar zabani mitavand tohi bashad ya na dakhil mi-danad. Ritzi dar avvalin suratbandi-ye parameter-e zamir-andazi, do parameter erayeh mi-dahad.

⁹The second word 'وی' is more formal than the first one 'او' but they are used interchangeably.

In example 42, *pro-drop languages* زبان‌های ضمیرانداز- (zaban-ha-ye zamir-andaz) in the first sentence, is a lexical expression repeated in the second sentence too. *Rizzi* ریتزی (*ritzi*) is also a proper noun used as an anaphoric reference for *he* وی (*vey*) in the second and third sentence but when the writer decides to draw attention of the reader or avoiding pronominal form وی (*vey*), she repeats *Rizzi* in the last sentence. Furthermore, in repeating the lexical expression, for common nouns, the first indefinite expression like *parameters* پارامترهایی (*parameter-ha-yi*) will change to definite *two parameters* دو پارامتر (*do parameter*) in its next occurrences. In Persian, the indefinite marker سی (-y) comes at the end of a noun and by adding number *two* دو (*do*), changes into the definite noun پارامتر (*parameter*).

Demonstrative references are also very common in Persian language and can be used as a pronoun *this/these* این/اینها (*in/in-ha*) and *that/those* آن/آنها¹⁰ (*an/an-ha*), as a deictic modifier of a noun آن/آنها (*an/an-ha*), این/اینها (*in/in-ha*) or as an adverbial group *here* اینجا (*inja*) and *there* آنجا (*anja*).

43 - منافع ملی واژه‌ای است که از آن به فراوانی صحبت می‌شود و در هر متنی که مرتبط با علوم سیاسی و روابط بین الملل باشد می‌توان نشانه- ای از حضور این کلمه یافت، اما بر خلاف کاربرد رایج آن، معنای این واژه در ابهام قرار دارد.

manafe'-e melli vazheh-i ast ke az an be faravani sohbat mi-shavad va dar har matni ke mortabet ba 'olum-e siyasi va ravabet-e beyn-ol-melal bashad mitavan neshaneh-i az hozur-e in kalameh yaft, amma bar khalaf-e karbord-e rayej-e 'an, ma'na-ye in vazhe dar 'ebham qarar darad.

As seen, third person non-specific singular pronoun *it* آن (*an*) in the first sentence has an anaphoric relation with an indefinite noun a word *vazheh-i* (واژه) in the first sentence and also the same relationship with definite nominal group *this word* این کلمه (*in kalameh*) in the second occurrence. Avoiding the repetitious words, the writers have utilized third personal pronoun *it* and nominal group *this word* interchangeably (Asgharkhani & Shafi'iyeh Inche'i, 2015). As Brown and Yule (1983: p. 193) mentioned, a writer can posit *repeated form*, *partially repeated form*, *pronominal form* (all types of personal pronouns explained here), *lexical replacement* (in the example 43, the writers replace *word* واژه (*vazheh*) with its synonym کلمه (*kalameh*) as a cohesive tie) and *substituted form* as a cohesive instrument.

5.2 Substitution and Ellipsis

Most of the mentioned instances of nominal and verbal substitution and also ellipsis are recognized in a question- answer dialogue format or in a piece of personal narration. In addition, clausal substitution and clausal ellipsis are dedicated to the question- answer dialogue. So neither substitution nor ellipsis of any kind concerns us in academic texts. However, I searched several different scientific journal articles in Persian for the above mentioned cohesive ties and there were no instances available.

¹⁰As the word 'آن' used for both of third person singular pronoun 'it' and demonstrative reference 'that', it is more inclusive than its pair 'this' and can be used as a general reference to a thing/non-specific noun.

5.3 Conjunction

Conjunction is a system of logico-semantic relations of expansion by which a writer can *elaborate*, *extend* or *enhance* preceding text. The three mentioned types of conjunction have their secondary sub-types in turn which are shown in Fig. 1:

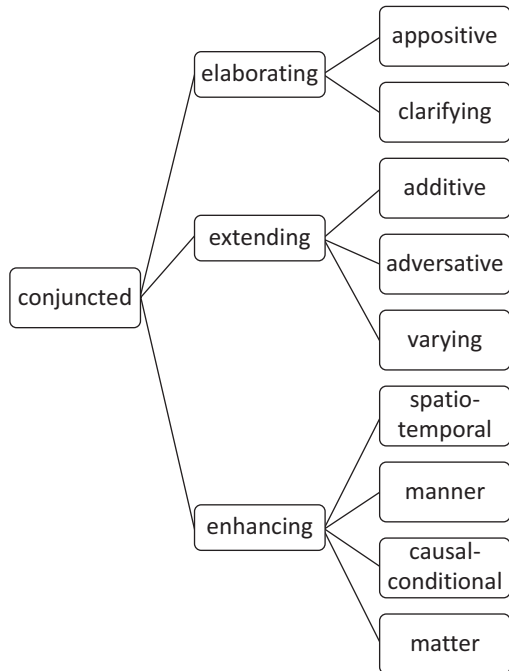
Now, each type will be explained and exemplified in Persian scientific texts.

Elaboration.

Reiterate or paraphrase the preceding text utilizing *appositive conjunctions* like *that is* (*ya'ni*), *in other words*, *به عبارت دیگر*, *(be 'ebarat-e digar)*, *به معنی دیگر*, *(be sokhan-e digar)*, *for example* (*be 'onvan-e nemuneh/ mesal*) *مثال/نمونه*, *برای نمونه*, *به عنوان نمونه*, *(masalan)* *مثلا*, *برای نمونه*, *به عنوان نمونه*, *مثال* *(masalan)* or *clarification*, confirm the previous statements precisely or summarize it by *in particular* *به ویژه* *(be khosus/ be vizhe)* *بخصوص* *به خصوص* *به ویژه* or *briefly* *خلاصه* *اینکه* *به طور خلاصه* *(be tor-e kholase/ kholase inke)*.

44 - میزان بالای کلسترول در انسان باعث خطر ابتلا به بیماری‌های قلبی عروقی، سکتة و انواعی از سرطان می‌شود. یک جیره غذایی 300 گرمی میگو، حاوی 590 میلی‌گرم کلسترول است و باعث افزایش 7/1 درصدی ال دی ال خون انسان می‌شود که این میزان به خصوص در میان افراد سالخورده نگران‌کننده است. به خصوص اینکه میزان کلسترول میگوی وانامی بسیار بالا می‌باشد. ... برای حل این مشکل می‌توان از ترکیبات گیاهی کمک گرفت زیرا بسیاری از ترکیبات گیاهان دارای اثراتی چون ضد استرس، ضد میکروب، محرک رشد، محرک اشتها و انرژی‌زا هستند. همچنین این محصولات گیاهی، بسیار ارزان و در دسترس بوده و به آسانی مصرف می‌شوند. به عنوان مثال افزودن زنجبیل به غذای میگو باعث افزایش رشد و ارتقاء سطح ایمنی و مقاومت در برابر بیماریها می‌شود. (Nirumand, M. et al. 2020)

Fig. 1 The system of conjunction by Halliday and Matthiessen (2004)



mizan-e bala-ye kolesterol dar ensan ba'es-e khatar-e ebtela' be bimari-ha-ye qalbi 'oruqi, sekteh va anva'I az saratan mishavad. Yek jire-ye ghaza-yi-e 300 gerami-ye meygu, havi-ye 590 miligram kolesterol ast va be's-e afzayesh-e 7.1 darsadi-ye el di el-e khun-e ensan mishavad ke in mizan bekhusus dar miyan-e afrad-e salkhordeh negaran konandeh ast. Be khosus ke mizan-e kolesterol-e meygu-ye vanami besiyar bala mibashad...bara-ye hal-e in moshkel mitavan az tarkibat-e giyahi komak gereft zira besiyari az tarkibat-e giya-han dar asarati chon zedd-e esterese, zedd-e mikrob, moharrekk-e roshd, moharekk-e eshteha va enerzhiza hastand. Hamchenin in mahsulat-e giyahi, besiyar arzan va dar dastres budeh va be asani masraf mishavand. Be 'onvan-e mesal afzudan-e zanjebil be ghaza-ye meygu ba's-e afzayesh-e roshd va erteqa'-e sath-e imeni va moqavemat dar barabar-e bimari-ha mishavad.

45 - ديه مالی است که به عهده جانی یا عايله او است و به سبب آن فشار و ناراحتی متوجه جسم و جان وارد کننده صدمه نمی‌شود، در حالی که در مجازات ها اصل بر این است که برای مجرم توأم با درد و ناراحتی باشد و خلاصه اینکه در اکثر موارد ديه را عايله جانی می‌پردازد.

(Asghari et al., 2015)

diyeh-e mali ast ke be 'ohdeh-ye jani ya 'ayele-ye u ast va be sabab-e an feshar va narahati motevajeh-e jesm va jan-e vared konandeh-e sadameh nemishavad, dar hali ke dar mojazat-ha asl bar in ast ke bara-ye mojrem to'am ba dard va narahati bashad va kholase in ke dar aksar-e mavared diyeh ra 'ayeleh-e jani mipardazad.

Extension.

Addition or variation. Additive conjunctions, are positive like the following instances: *and* و (*va*), *also* همچنین (*hamchenin*), (*ham*), *moreover* نیز (*niz*), *be علاوه بر این* (*be 'alave bar in*), *furthermore* (*'alave bar in* علاوه بر این), *negative for example nor* نه (*na*) and *adversative such as but vali* (*ba vojude inke*) با وجود اینکه (*ba in hal*), *nevertheless* (*az su-ye digar*), *in spite of that* علی رغم (*'alavagham-e*) and *although* (*dorost ast ke, agarche, garche*). As the meaning of adversative shows, these kinds of conjunctions have been applied to express antithesis for what has been stated before *Variation*. By considering instances of this type of conjunction, such as *instead* در عوض (*dar 'avaz-e*), *apart from that* (*ghat'-e nazar az*), *joda-ye az*, جدای از, قطع نظر از (*az*), you can recognize its application for suggesting another possibility or option:

46... او نیز با اشاره به قوانین اجتماعی، به مفهوم منافع ملی نزدیک می‌شود/ما بر این باور است که این مفهوم پاسخگوی نیاز جامعه نیست و در مقابل منافع حقیقی فرد قرار دارد.

(Asgharkhani & Shafi'iyeh Inche'I, 2015).

u niz ba eshareh be qavanin-e ejtema'i, be mafhum-e manafe'-e melli nazdik mishavad amma bar in bavar ast ke in mafhum pasokhgu-ye niyaz-e jame'e nist va dar moqabel-ee manafe'-e haqiqi-ye fard qarar darad.

47- علیرغم تقاضای گسترده برای این میگو و بازارپسندی آن، بسیاری از افراد از خوردن آن به دلیل محتوی بالای کلسترول،

خودداری می‌کنند

(Nirumand et al., 2020).

'alaraghm-e taqaza-ye gostardevh bara-ye in meygu va bazarpasandi-ye an, besiyari az afrad az khordan-e an be dalil-e mohtava-ye bala-ye kolesterol-e, khoddari mikonand.

48 - با وجود اینکه این ورزش از قرن‌ها پیش مورد استفاده برخی از ملل جهان قرار داشت ولی اولین انجمن رسمی فوتبال در سال 1863 تاسیس و رسمیت یافت... این درست است که بیشتر مواقع دولتها به راه‌های زیادی از انواع ورزشها به ویژه ورزش فوتبال نصیب خود می‌کنند، ولی گهگاهی نیز با تمام تلاشی که آنها برای کسب نتایج موفقیت آمیز انجام میدهند، سکوی ورزشگاهها تبدیل به اعتراضات و مخالفت‌ها بر علیه آنها می‌شود. (Sajedi, 2020).

¹¹ In religious texts, the word 'likan' (likan) also used as a synonym with these.

ba vojude inke in varzesh az gharb-ha pish mored-e estefadeh-e barkhi melal-e jahan qarar dasht vali avvalin anjoman-e rasmi-ye futbol dar sal-e 1863 ta'sis va rasmiyat yaft... in dorost ast ke bishtar-e mavaqe' be rah-ha-ye ziyadi az anva'-e varzesh-ha be vizhe varzesh-e futbol nasib-e khod mikonand, vali gahgahi niz ba tamami-ye talashi ke an-ha bara-ye kasb-e natayej-e movafaqiyat-amiz anjam midahand, sakku-ye varzeshgah-ha tabdil be e'terazat va mokhalefat-ha ba 'alayh-e an-ha mishavad

Enhancement consists of four types of *spatio-temporal*, *manner*, *causal-conditional* and *matter*. *Spatial* conjunctions are usually spatial metaphors in the first place (*nokhost anke* اول، نخست آنکه (avvalan) and in the second place (dar sani/dovvom anke/dovvoman) در ثانی/دوم آنکه/ثانیاً، دوماً). *Temporal* conjunctions represent the chronological order of events or arguments in the discourse. Examples: *first* (*avval inke/ebteda'*) اول اینکه/ابتدا، *then* (*ba'd, sepa*) بعد، سپس، *next*، بعد، *ba'd, sepa, ba'dan*) بعداً، سپس، *at the same time* (dar an zaman, dar yek zaman, be tor-e hamzaman) در آن زمان، در یک زمان، به طور همزمان، *previously* (pish az in) پیش از این، *previously* (pish az in, qblan, pishtar), *finally* (dar nahayat) سرانجام، در نهایت

Manner conjunctives produce cohesion by positive or negative *comparison* such as *likewise* (*be hamin surat, haman tor*) به همان ترتیب، به همان صورت، *similarly* (be hamin surat, haman tor) به همان ترتیب، به همان صورت، *or by referring to means* such as *thus* (bar in asas, be in nahv, be in tariq) and thereby (dar natije, bedin vasileh, be mojob'e an) در نتیجه، بدین وسیله، در نتیجه.

Causal-conditional conjunctives illustrate reasons, purposes or results of what has been done or happened previously. Some of these expressions are general such as *so* (hamin dalil, leza') then (banabarin, az in ru, be hamin jahat, be hamin dalil, leza') *then* (banabarin, angah), *therefore* (az in ru, banabarin, dar natijeh), *consequently* (dar natijeh, banabarin, be taba'-e an), *because of that* (be 'ellat-e..., be sabab-e..., be dalil-e ..., be mojob-e ...). Some are special like *otherwise* (dar gheir-e in surat), *in that case* (dar an surat), *for that purpose* (be hadaf-e), *for that reason* (bedan 'ellat, bedan dalil), *despite this* (ba vojude in, be raghm-e in).

Matter conjunctives are often metaphorical place references like *here* (inja) and *there* (anja) which refer to what has happened before. Some of the classified conjunctions has been shown in the following texts:

49- برای ساخت جیره‌ها، مواد اولیه توزین شده و به مدت 20 دقیقه در میکسر به خوبی هم زده شدند و سپس آب مقطر برای تهیه یک خمیر یکنواخت، به مخلوط اضافه گردید. این مواد از چرخ گوشت با چشمه 3 میلی متر عبور داده شدند. سپس جیره‌های غذایی به صورت جداگانه، روی پالستیک‌های تمیز، به مدت 00 ساعت در معرض باد فن قرار گرفتند. در نهایت پلت‌های غذایی در کیسه‌های زیپدار نایلونی بسته‌بندی و در فریزر 20- درجه سانتیگراد نگهداری شدند.

(Nirumand et al., 2020).

bara-ye sakt-e jireh-ha mavad-e avvaliyeh towzin shodeh va be moddat-e 20 daqiqeh dar mikser be khubi ham zadeh shodand va sepa ab-e moqattar bara-ye tahiye-e yek khamir-e yeknavakht, be makhlut ezafeh gardid. In mavad az charkh-e gusht ya cheshmeh 3 mili metr 'obur dadeh shodand. Sepas jireh-ha-ye ghazayi be surat-e jodaganeh, ru-ye pelastik-ha-ye tamiz, be modat-e 00 saat dar ma'raz-e bad-e fan qarar gereftand.

Dar nahayat palet-ha-ye ghazayi dar kiseh-ha-ye zipdar-e nayloni basteh bandi va dar frizer -e -20 darajeh-e santigerad negahdari shodand.

50- بدون شک در حال حاضر از میان تمامی رشته‌های ورزشی، ورزش فوتبال از محبوبترین و جذابترین ورزشهای دنیا می‌باشد و از اهمیت و جایگاه ویژه‌ای برخوردار است. چرا که این ورزش به‌صورت یک پدیده فراگیر با بسیاری از حوزه‌های اجتماعی (مانند خانواده، آموزش و پرورش، فرهنگ، مذهب، رسانه، اقتصاد، سیاست) افراد دارای ارتباط نزدیکی است. ورزش فوتبال به‌عنوان یک کالای مهم و استراتژیکی در تمامی نقاط دنیا مورد قبول واقع گردیده و از قالب یک ورزش صرف خارج و تاثیر زیادی بر شنونات زندگی مردم جهان از جمله ملت ایران گذارده است. بدین سبب است که بسیاری از اندیشمندان اظهار می‌نمایند که این ورزش در حوزه‌های مختلف جامعه به‌عنوان یک پدیده فراگیر دخالت داشته و تاثیرات شگرفی بر آنها می‌گذارد. (Sajedi, 2020).

bedun-e shak dar hal-e hazer az miyan-e tamami-ye reshteh-ha-ye varzeshi, varzesh-e futbol az mahubtarin va jazzabtarin varzesh-ha-ye donya ast mibashad va az ahamiyyat va jaygah-e vizheh-'i barkhordar ast chera ke in varzesh be surat-e yek padideh-e faragir ba besiyari az howzeh-ha-ye ejtema'i-e (manand-e khanevadeh, amuzesh va parvaresh, farhang, mazhab, resane, eqtesad, siyasat) afrad dara-ye ertebat-e nazdiki ast. Varzesh-e futbol be 'onvan-e yek kala-ye mohem va esteratezhiki dar tamam-e noqat-e donya mored-e qabul vaqe' gardideh va az qaleb-e yek varzesh-e serf kharej va ta'sir-e ziyadi bar sho'nat-e zendegi-ye mardom-e jahan az jomleh mellat-e iran gozardeh ast. Bedin sabab ast ke besiyari az andishmandan ezhar minamayand ke in varzesh dar howzeh-ha-ye mokhtalef-e jame'e be 'onvan-e yek padideh-e faragir dekhlat dashteh va ta'sirat-e shegarfi bar an-ha migozarad.

51- این سطح کلسترول غذا باعث بالا رفتن کلسترول خون انسان در سطح بسیار مضر می‌شود. بنابراین هرچه کلسترول میگو پایینتر باشد بازارپسندی آن بیشتر خواهد بود

(Nirumand et al., 2020).

in sath-e kolesterol-e ghaza ba'es-e bala raftan-e kolesterol-e khun-e ensan dar sath-e besiyar mozeri mishavad. banabarin , harche kolesterol-e meygu payintar bashad bazarpas-andi-ye an bishtar khahad bud.

It seems that most of the cohesive conjunctions in Persian language are theme, i.e. they occur at the initial position of a sentence, but several instances were found whose occurrence was not obligatory, although their high frequency to be thematic and demands more research. These conjunctions which are mostly more than one word are called clusters (see Hyland, 2008) or formulaic patterns. As ray and Perkins (2000, cited in Hyland: 43) believe, they are "being stored and retrieved whole from memory at the time of use rather than generated anew on each occasion".

6 Conclusion

Every piece of writing needs several features to be predictable and interpretable by a reader. Following structural, semantic, and pragmatic rules can help a writer to create a cohesive and coherent text. As it was stated in this chapter, cohesion and coherence are two sides of a coin named text. At first and superficial glance, one can differentiate these from each other and attribute cohesion to the surface-structure of a text and coherence to the underlying connectedness of a text, but after scrutinizing

cohesion as a whole, it is not possible to separate cohesion and coherence from each other. Regardless of lexical cohesion, which was not our concern here, cohesive relationship of reference, substitution, ellipsis and conjunction, all works as a system to represent facts about the world in a text based on the writer and reader's shared knowledge of the world and finally create a coherent text. My main purpose in this study was to explore specific features of an academic text in Persian language and elaborate how and which cohesive ties contribute to producing a fluent and comprehensible text for professional readers. The findings reveal that a professional academic text, for instance a research article, apart from its genre, is determined by several discursive instruments such as cohesion, grammatical metaphor, and two/three words conjunctives clusters to be published and approved. As the focus of chapter was on the above mentioned means, other factors are not being considered.

The findings conflict with earlier studies of cohesion in Persian academic textbooks by Alavipour (2012); Jalileh (2017); Mirzaee (2019); Zahedi (2017); Zare (2009); Zarinkhu, (2014) which show considerable records for all types of cohesion and in spite of finding no instances of substitution and ellipsis in Persian academic papers, they found many cases for both. It is obvious that they considered reference as substitution, and their mistake was accounting incohesive ellipsis in coordination and not cohesive ellipsis. The findings also have considerable implication for PFL and PSL teachers and students. As the data are extracted from many authentic professional articles in different fields of medical, basic sciences, humanities and social sciences, they are reliable to be followed and learnt.

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Representations and Uses of Conjunctions in Persian Learners' Academic Writings: The Predictive Power of Saadi Foundation Writing Rubric



Masoomeh Estaji and Leila Kia Shemshaki

Abstract This study examined the type, frequency, and accuracy of conjunction use in a collection of Persian learners' academic essays. To this end, the learners' essays were graded based on the Saadi Foundation writing rubric, one of the components of which is cohesion and coherence of the text. Then a list of Persian conjunctions was extracted from four corpora: Bijan Khan, Hamshahri, Seraji, and the Saadi Foundation basic words. The conjunctions, using Fraser's (Toward a theory of discourse markers. In: Fischer K (ed) *Approaches to discourse particles*. Elsevier Press, pp 189–204, 2005; *Int Rev Pragm* 14(2): 1–28, 2009) framework, were then classified as high-frequent, medium-frequent, and low-frequent. Afterward, 20 essays were selected from the data at each language level and the type, frequency, and correctness of the application of the conjunctions were extracted and identified. The results revealed that the use of conjunctions, both in terms of number and type, increased as language levels raised. However, no significant relationship was found between language level and the use of low-frequency conjunctions or the correct application of these conjunctions. The examination of Saadi Foundation's writing rubric showed that the predictions made at different levels regarding discourse conjunctions were not entirely comprehensive. This study has contributed to the field by developing a table of the most widely used conjunctions in each level of Persian proficiency.

Keywords Academic writing · Cohesion · Coherence · Conjunctions · Writing Rubric · Language level

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1 Introduction

Discussion of cohesion and coherence in the field of discourse analysis is one of the key areas in the analysis of Farsi learners' writings as well as an important topic addressed by foreign / second language teaching researchers. In a section on pragmatic competence, the Common European Framework of Reference (CEFR) provides specific predictions regarding the application of cohesion and coherence in language learners' linguistic production (de Europa, 2018). In Persian, the ability of language learners in terms of cohesion and coherence is also described in the book entitled "Standard Framework for Teaching Persian Language", in the writing skills section for each of the sevenfold levels (Sahraei & Marsoos, 2016). Similarly, a rubric has been developed in Saadi Foundation for evaluating the writing skill of Farsi learners, in which a section is devoted to describing the ability of language learners in terms of cohesion and coherence. The descriptions provided in the cohesion and coherence part of the Writing Evaluation Rubric as well as the classification used in this reference are listed in the following two tables. Meanwhile, it should be noted that this classification is in compliance with the classification mentioned in Standard Framework for Teaching Persian Language (Sahraei & Marsoos, 2016) (Tables 1 and 2).

Conjunctions, which are linking cohesive devices, comprise one of the key areas in the analysis of Farsi learners' writings, and to fully understand the concept on cohesion, one must first define text. Richards and Schmidt (2010, p. 594) define text as a piece of either spoken or written language with the following characteristics:

Table 1 Language learning levels according to Saadi Foundation standard

Level	Beginner	Elementary	Pre-intermediate	Intermediate	Upper-intermediate	Advanced	Expert
	1	2	3	4	5	6	7

Table 2 Descriptions of cohesion and coherence in the Writing Evaluation Rubric

Level	Writing Evaluation Rubric
Beginner	He uses very limited cohesive devices, and fails to employ logical connectives correctly.
Pre-Intermediate	He uses certain basic cohesive devices, but they are repetitive and incorrect. Also, he does not employ logical connectives correctly.
Intermediate	He uses almost all cohesive tools correctly but makes mistakes in employing logical connectives.
Upper-Intermediate	He uses cohesive devices properly, and employs unmarked and high-frequency logical connectives. The marked and low-frequency logical connectives between sentences are, however, mechanical and low-frequency.
Advanced	He uses cohesive devices and logical connectives appropriately while he may do so either excessively or insufficiently.
Expert	His text is so coherent that it is similar to a native Farsi speaker's writing.

1. It usually consists of several sentences that, together, form a structure or unit, such as a letter, report, or article (of course, there are one-word texts as well, such as the word “danger” as a warning);
2. It has distinct structural and discourse properties;
3. It serves a specific communicative function or goal; and
4. It is often fully understood only in the context in which it occurs.

According to Hassan and Halliday (1976), a text is any piece of speech or writing of any size that forms a unified whole, and it can be poetry or prose, conversation or monologue either in written or spoken form. For them, a text is a functional unit of language, not a grammatical unit such as a clause or sentence. They, therefore, maintain that text is not a big sentence, but rather a semantic unit. Widdowson (1979) defines a text as “a set of formal determinations that are put together by patterns of equality, frequency, or cohesive devices” (p. 96). Beaugrande and Dressler (1981) consider a text “to have seven standards, including cohesion, coherence, intentionality, acceptability, informativity, situationality, and intertextuality, all of which constitute text and create communication” (p. 3).

Every text has a certain texture, and this is the feature distinguishing text from non-text. Hassan and Halliday (1976) define texture as the interaction between cohesion and coherence (as cited in Taboada, 2019). In fact, cohesion involves “the grammatical and/or lexical relationships between different components of a text that may exist either between different sentences or different parts of a sentence” (Richards & Schmidt, 2010, p. 94).

Cohesive devices have been introduced in researchers' studies under different titles, and there is no consensus among researchers in this regard. Through reviewing multiple studies, Maschler and Schiffrin (2015) identified three different discourse, pragmatic, and interactional linguistics perspectives, and this indicates researchers' disagreement even at preliminary stages, i.e. the names of markers and their definitions. Fraser (1999), for example, defines cohesive devices as discourse markers while Blakemore (1987), Hassan and Halliday (1976) consider them to be discourse connectives, sentence connectives, and discourse operators respectively (Ali & Mahadin, 2016).

Likewise, these elements have been addressed as logical connectives in several studies (Goro, 2016; Murray, 1995; Ozono & Ito, 2003; Román et al., 2016; Sternberg, 1979). Hassan and Halliday (1976) identify cohesion as a semantic concept and divide cohesive devices into the five categories of reference, ellipsis, substitution, conjunction, and lexical cohesion. Similarly, Halliday and Matthiessen (2014) divide cohesive devices differently as conjunctions, references, ellipsis, and lexical organization. For them, conjunctions are devices that can link words, groups, sentences, or even clauses.

Another classification that many researchers are interested in and has been the subject of much research is Fraser's classification (2005, 2009). To Fraser (2005), discourse markers are types of pragmatic markers which signal a relation between the discourse segment which hosts them and the prior discourse segment. In this classification, he has divided discourse markers into the four categories of contrastive markers, elaborative markers, inferential markers, and temporal markers.

Only two studies have been conducted on Farsi learners' use of cohesive devices so far. Hamedei Shirvan and Abbasnejad (2016) analyzed and compared the grammatical and lexical cohesive devices of text in the writings of advanced Farsi learners. In fact, based on the ideas of Hassan and Halliday (1976) and Helidi and Mattison (2014), the authors extracted and summarized all cohesive factors and determined the frequency and percentage of each of them. Findings showed that there was a significant difference in the use of cohesive devices in two groups of Persian students, i.e. the group with the highest score and the group with the lowest score, and the cohesive factors used by the first group was 2.5 times more than that of the second group. It was also found that in both groups, "repetition" had the highest percentage and frequency, followed by "conjunction and reference", respectively.

In his thesis, Zahedi (2017) examined the process of cohesion learning in the writings of foreign Farsi-learner students at three elementary, intermediate, and advanced levels. The participants were 60 foreign Farsi learners studying at Ferdowsi University of Mashhad. Results showed that there was significant improvement in grammatical cohesion from the elementary to the advanced level while no significant difference existed in the lexical and conjunctive cohesion of elementary, intermediate, and advanced language learners from elementary to advanced level.

Research abounds in the literature on cohesion, coherence, and language learners' productions, and some studies have addressed the relationship between the use of cohesive devices and proficiency level. In his corpus-based study, Carlsen (2010) examined the use of a range of different conjunctions in Norwegian learners' writings to extract the pattern of their excessive or insufficient use of conjunctions. He selected 36 articles (except articles of time) in Norwegian language, and identified their frequency based on a review of texts selected by native Norwegian speakers. Research data was selected from ASK, the Norwegian learners' electronic corpus which contains Norwegian students' writings in ten different first languages. Results of this study supported the predictions of Common European Framework of Reference for Languages (CEFR). Furthermore, it was found that low-frequency conjunctions were used more in higher levels of the framework of reference, and their use in advanced levels might decrease. The author argued that this was due to the fact that the learner used other cohesive factors at these levels to create coherence in his/her text.

Similarly, Rahimi (2011) examined the frequency and type of discourse markers used in English argumentative and explanatory texts by Iranian students and the differences in the features of the text in these two genres. Results revealed that elaborative markers (mainly "and") enjoyed the highest frequency in both text types, followed by contrastive and inferential markers, respectively. Reason, exemplifier, and conclusive markers had the least frequency. It was also found that the average use of discourse markers in argumentative texts is significantly higher than in explanatory articles. Finally, the results demonstrated that the use of discourse markers could not predict the quality of writing of these two types of text.

In a seminal study, Tejada et al. (2015) sought to identify the discourse proficiency level of B1, B2, and C1 levels in CLEC corpus (CEFR-Labeled English Corpus) using quantitative and qualitative approaches. Results of their research

supported certain predictions of CEFR as the range of cohesive devices at high-proficiency levels was high. Like Carlsen's study, however, this analysis showed that low-frequency conjunctions were employed in high levels of proficiency (C1) more than in lower levels (B1). Of course, there were certain low-frequency conjunctions that were gradually used at higher levels, but they reduced at the highest level of proficiency.

In a practical study, Ali and Mahadin (2016) examined Jordanian English learners' writings with different proficiency levels. Comparative analysis of the literature revealed that advanced and intermediate-level learners use a comparable number of discourse devices in their writing. Nevertheless, intermediate-level learners were found to use a more limited set of discourse markers than the advanced-level learners. Moreover, intermediate-level learners employed discourse markers to realize a more limited range of functions and in more limited situations. Likewise, discourse markers applied by intermediate-level learners were selected mostly from intransitive syntactic classes compared to that of advanced-level learners. The researchers concluded that the use of discourse markers changes under the influence of English learners' proficiency levels.

This study seeks to examine a cohesive factor, i.e. conjunction in Farsi learners' writings in order to quantitatively and qualitatively determine its frequency and type of use in different Persian language proficiency levels. The importance of this research study lies in the fact that the descriptions provided on language learners' ability in the Writing Evaluation Rubric regarding cohesion and coherence are quite general, thereby leading to different interpretations of the definitions. This has created problems and disagreements concerning Farsi learners' writing evaluation to such an extent that, in many cases, evaluators assess written texts intuitively. Not much research has been conducted on the cohesive devices found in Farsi learners' writings and, to the best knowledge of the researchers, no study has particularly identified conjunctions at different levels of Farsi learners' writings.

The purpose of this study was to determine the frequency and accuracy of conjunctions in the writings of Farsi learners at different proficiency levels. Likewise, the Writing Evaluation Rubric has been reviewed based on the research findings. All in all, this study sought to answer the following questions.

1. What conjunctions are used in the written texts of Farsi learners at higher levels of proficiency?
2. To what extent, if any, are lower-frequency conjunctions used at higher levels of proficiency?
3. To what extent, if any, is the correct use of low-frequency conjunctions represented at higher levels of proficiency?
4. Which conjunctions in the writings of Farsi learners enjoy the highest frequency at each level of proficiency?
5. To what extent do the predictions provided in the Writing Skill Evaluation Rubric regarding cohesive devices correspond to the written data of the learners?

2 Research Methodology

2.1 Corpus

The data used in this study were selected from the written data of Farsi learners who had participated in Saadi Foundation's knowledge-enhancement courses, from which 20 texts were selected for each of the proficiency levels of 2, 3, 4, 5, and 6. Levels 1 and 7 were not examined in this study since no language production is made at level 1, and at level 7, the language learner achieves native-like proficiency, and no serious problem is found in the evaluation of such language productions. Moreover, not many written texts at expert level (7) were available in the writing collection of Farsi learners.

2.2 Data Analysis Procedure

In order to prepare a list of Persian conjunctions, first, four corpora of Seraji (2015), Bijankhan (2011), press core vocabulary (Sahraei et al., 2009), and Hamshahri (Al-e Ahmad et al., 2009) were examined, the sizes of which are displayed in Table 3. The size of each corpus has been quoted from the report of the corpus itself, but in the case of Hamshahri corpus whose size was not reported, the size was determined using regular expression in Notepad++ environment, version 7.8.6 (Don Ho, 2020).

Next, all conjunctions found in the corpora were extracted, and the frequency of each conjunction in these four corpora was identified. A total of 260 conjunctions with a total frequency of 12.027.722 were extracted from the corpora, and they were grouped based on their frequency into the three categories of high frequency, medium, and low frequency. In the table below, conjunctions with the frequency of more than 1000 are listed with their frequency mentioned while the other conjunctions are not. The main criterion for the selection of the linking words has been Fraser's (2005, 2009) model, and that conjunctions with frequencies above 1000 have been extracted from the four mentioned corpora. The rationale for such a cut-point has been to cover more conjunctions and exclude low-frequency conjunctions or the ones over which there has been no consensus (Table 4).

Table 3 Sizes of Reference Corpora

Corpus name	Corpus size
Seraji	151.625 words
Bijankhan	10.612.187 words
Press core vocabulary	1.203.598 words
Hamshahri	124.090.827 words
Total size	136.058.237 words

Table 4 Conjunctions extracted from the reference corpora

Conjunction	Frequency
و And	6159830
سپس Then	2629123
تا Till	422382
نیز Also	380517
هم Too	360468
یا Or	273690
اما But	266982
پس So	168887
اگر If	152818
هم چنین Likewise	127044
چه Either	122039
چند How many	99366
ولی Yet	93179
اینکه That	92750
بعد Next	88039
چنین Such	76909
چون Since	68711
یعنی That is	61183
وقتی When	53095
بلکه Rather	49966
آیا Whether	47825
زیرا For	37753
بنابراین Therefore	35494
که That	32493
لذا Hence	19082
هم چون Like	19050
اگرچه Although	12042
چنانچه In case	10585
اگرچه Though	10481
هرچند Albeit	9676
در حالی While	9161
در واقع In fact	5108
همان طور As	4264
همان گونه Just as	2273
در حالی که Whereas	1809
جز Except	1436
همین طور Likewise	1170
علاوه بر In addition	1141
هم چنانکه So that	1132
چراکه Due to the fact that	1083

(continued)

Table 4 (continued)

Conjunction	Frequency
<p>Medium-frequency conjunctions: Meanwhile (در عین حال), such that (چنانکه), then (آنگاه), likewise (و همچنین), such that (به طوریکه), hereupon (از این رو), just as (همان طورکه), anyway ((به حال), that (آنکه), consequently (در نتیجه), meanwhile (ضمناً), when (هنگامیکه), even so (لیکن), since (با این حال), still (همچنان), on the other hand (از سوی دیگر), in fact (در حقیقت), nevertheless (با این حال), as much (همان قدر), in the meanwhile (در این حال), additionally (به علاوه), in addition (علاوه بر این), while (و فلان), otherwise (وگرنه), even though (هرچندکه), except (مگر), as a result (بنابراین), while (و فلان), nonetheless (لکن), on the one hand (از سوی), or else (و یا), when (وقتیکه), meanwhile (در ضمن), and then (و بعد), in addition to that (علاوه بر آن), even if (ولو), as (چو), in the meantime (در این میان), even so (با وجود), to the extent that (آن چنانکه), until (تا آنکه), due to the fact that (با وجود این), whilst (ضمن اینکه), depending (بسته), just as (همان طوریکه), despite this (با وجود این), in the meantime (در همین حال), unless (مگر آنکه),</p>	
<p>Low-frequency conjunctions: After all (با این همه), without (بی آنکه), therefore (به این ترتیب), as (با توجه به اینکه), despite the fact that (با اینکه), on the one hand (از یکسو), given that (باتوجه به اینکه), on the one hand (از طرف دیگر), anyway (در هر حال), on the other hand (از طرف دیگر), such that (به), as far as (تا آن جاکه), as a result (ولذا), even so (ولیکن), once (همینکه), in addition to the fact that (با وجودی که), however (مستثنی), in other words (به عبارت دیگر), despite that (با وجود اینکه), owing to the fact that (با وجود اینکه), aside (از گذشته), such that (آن طور که), even though (با وجود اینکه), notwithstanding (رغبتاً), although (مع هذا), besides (و آنکه), as long as (مادامیکه), when (زمانیکه), still (به محض اینکه), on the one hand (از یکطرف), furthermore (بعدهم), as soon as (به محض اینکه), other than (غیر از), anyway (باری), beside (علاوه بر آنکه), in this regard (لهدا), as long as (مادامیکه), despite (مع ذلک), since (معدنک), after all (بلاخره), despite this (مع الوصف), accordingly (علی هذا), however (لیکن), rather (ولولایکه), before (پیش از آنکه), even if (اگرچه), in fact (در واقع), as if (چندانکه), if (مگر), not that (نه اینکه), like this (همین جور), and in fact (و در واقع), additionally (علاوه بر این), on the contrary (برعکس), particularly (به خصوص), as long as (مادامی), undoubtedly (بدون شک), in this case (در این صورت), for the time being (علی حال), at the same time as (در عین حالکه), while (هنگامی), otherwise (ورنه), similar to (ممثل اینکه), despite (علیرغم), in the same way (هنگان), first (اولاً), such that (همان گونه که), in other words (به عبارتی), as long as (مادام), not that (نه آنکه), accordingly (بنابر آن), moreover (از دیگر سو), on the other hand (از آن گذشته), simultaneously (در این بین), nevertheless (ولکن), until (تا آنکه), if not so (در غیر این صورت), for example (مثلاً), so much that (در هر صورت), on the other hand (از طرف دیگر), briefly (الغرض), as (آن طوریکه), considering that (باتوجه به آنکه), especially (به محض آنکه), as soon as (به محض آنکه), as soon as (به محض آنکه), as if (انگار), as if (انگار), otherwise (از سوی دیگر), on the other hand (حالا اینکه), whereas (فانها), similarly (ایضاً), such that (آن چنانیکه), such that (آن گونه که), according to this (بر این اساس), later (بعدها), unlike (برعکس), on the contrary (برعکس), except (به استثناء), in other words (به عبارتی دیگر), other than (غیر از), suddenly (بناگاه), prior to (پیش از این که), as (کاتانکه), however (مستثنی), no matter how much (هر چند هم که), even if (ولو آنکه), although (اگرچه), otherwise (اگرچه), including (از دیگر سوی), on the other hand (از جهت اینکه), so as to (از جهت آنکه), so that (از آن میان), consequently (در نتیجه), of course (البته), additionally (علاوه بر این ها), where (در آنجا), eventually (در آخر), despite this (با وجود آن), except that (مگر آنکه), without (بدون اینکه), in a way that (بدین سانکه), in this way (بدین گونه), in order that (برای آن که), such that (یعنی و بین الله), truly (به هر صورت), anyway (به هر صورت), after (پس از آنکه), that which (چه که), such that (چونانکه), currently (حالی), now (حالیه), about that (در باره اینکه), from now on (از این پس), that (زین که), such that (زین که), specially (علی الخصوص), for the time being (علی حال), since (کاینکه), when (کی), as if (گویانکه), necessarily (لا بدی), from (من), suddenly (بناگهان), even (همش), as (همچنانیکه), also (همی), nonetheless (ولیکن), surprisingly (و من العجایب والغرایب)</p>	

Afterward, 20 writings were selected from Farsi learners' written corpora for each level, the conjunctions found in each of them were extracted, and their frequency, type, and accurate or inaccurate use were determined. The model used in this study was Fraser's classification (2005, 2009), based on which Persian conjunctions were divided into four categories as follows:

- Contrastive discourse markers: Markers that signify either direct or indirect contrast between two sentences, such as but, yet, rather, on the other hand, while, and so on.
- Elaborative discourse markers: Markers that provide explanation in the second sentence about information in the first sentence, such as and, too, also, in addition, for example, if, that is, likewise, and so on.
- Inferential discourse markers: Markers that show that the first sentence provides a basis for inferring the second sentence. These markers include therefore, for, because, consequently, so, because of this, hence, for this reason, till, and so on.
- Temporal discourse markers: Markers that indicate that the event in the dependent clause provides a time frame for the event in the independent clause (Grote, 1998). These include then, when, first of all, later, next, ever since, and so on.

3 Discussion and Conclusion

The descriptive statistics derived from the conjunctions, which were extracted from each level, are displayed in the following table. Items listed in the "conjunction frequency" column under the title "unidentified" are conjunctions not included in the list of conjunctions found in the reference corpora (Table 5).

Conjunctions used in Farsi learners' corpora are grouped by the type of conjunction as follows, and the conjunctions in each row of the table are ranked based on their frequency (Table 6).

The statistical tests of this study were performed using SPSS software version 24 (IBM Corp. Released, 2016), and to answer the first research question, single conjunctions used at each level in the table were examined. Conjunctions in each row of the table are listed in the order of frequency, and the numbers in parentheses represent the frequencies of conjunctions at those levels.

Obviously, as the learners' level of proficiency increases, the number of conjunctions as well as the number of single conjunctions rises, and this is displayed in Fig. 1, drawn using Microsoft Excel software (Microsoft, 2016). It should be noted that the number of single conjunctions at level 6 is quantitatively lower than level 5, and Table 7 provides the answer to question four of the research.

To answer the second research question, the relationship between the level and frequency of conjunctions was obtained as shown in the table below. According to the table, as the proficiency level of learners increases, a higher number of low-frequency conjunctions is employed. However, the level of significance of Pearson Chi-Square (1900) is 0.186 which is higher than 0.05. Therefore, the Chi-squared

Table 5 Descriptive statistics of conjunctions found in Farsi learners' writings

Level	Conjunction number	Conjunction type	Conjunction frequency	Conjunction use
2	84	Inferential: 11 conjunctions Elaborative: 58 conjunctions Contrastive: 12 conjunctions Temporal: 3 conjunctions	High-frequency: 75 conjunctions Medium: 3 conjunctions Low-frequency: 3 conjunctions Unidentified: 3 conjunctions	Correct: 56 conjunctions Incorrect: 28 conjunctions
3	218	Inferential: 41 conjunctions Elaborative: 136 conjunctions Contrastive: 30 conjunctions Temporal: 11 conjunctions	High-frequency: 184 conjunctions Medium: 20 conjunctions Low-frequency: 10 conjunctions Unidentified: 4 conjunctions	Correct: 192 Conjunctions Incorrect: 26 conjunctions
4	357	Inferential: 50 conjunctions Elaborative: 244 conjunctions Contrastive: 52 conjunctions Temporal: 11 conjunctions	High-frequency: 314 conjunctions Medium: 28 conjunctions Low-frequency: 10 conjunctions Unidentified: 5 conjunctions	Correct: 314 conjunctions Incorrect: 43 conjunctions
5	443	Inferential: 52 conjunctions Elaborative: 310 conjunctions Contrastive: 55 conjunctions Temporal: 26 conjunctions	High-frequency: 365 conjunctions Medium: 31 conjunctions Low-frequency: 26 conjunctions Unidentified: 21 conjunctions	Correct: 412 conjunctions Incorrect: 31 conjunctions
6	463	Inferential: 69 conjunctions Elaborative: 342 conjunctions Contrastive: 40 conjunctions Temporal: 12 conjunctions	High-frequency: 403 conjunctions Medium: 24 conjunctions Low-frequency: 17 conjunctions Unidentified: 19 conjunctions	Correct: 443 conjunctions Incorrect: 20 conjunctions
Total	1565	Inferential: 223 conjunctions Elaborative: 1090 conjunctions Contrastive: 189 conjunctions Temporal: 63 conjunctions	High-frequency: 1341 conjunctions Medium: 106 conjunctions Low-frequency: 66 conjunctions Unidentified: 52 conjunctions	Correct: 1417 conjunctions Incorrect: 148 conjunctions

Table 6 Types of conjunctions used in Farsi learners' texts

Conjunction type	Conjunction number	Number of single conjunctions	Conjunctions
Inferential	223	43	Because (به این دلیل), hereupon (از این نظر که از این), since (چون که), so (پس), therefore (بنابراین), for this reason (به این علت که), for the reason that (به این خاطر که), consequently (در نتیجه), because (چونکه), in terms of (از این جهت), in this case (در این صورت), that (برای این منظور), thus (بنابراین), that being the case (به این ترتیب), for this reason (به این علت که), in order that (تا آنکه), as such (به این جهت), because (چونکه), (that is why) (به این دلیل), consequently (در نتیجه), as a result (به این جهت), for this purpose (برای این منظور), in order that (تا آنکه), since (چونکه), owing to the fact that (به این علت که), due to the fact that (به این علت که), because of this (به این جهت), for this reason (به این علت که), so (پس), in order that (تا آنکه), until (تا آنکه), why (چونکه), since (چونکه), owing to the fact that (به این علت که), so that (تا آنکه), in the same way (همین‌طور)
Elaborative	1090	53	And (و), that (که), both (و هر دو), if (اگر), or (یا), for example (برای مثال), likewise (همین‌طور), that is (یعنی), also (همچنین), such that (تا حدی), and (و), whether (چه), that (تا آنکه), in general (عموماً), so that (به طوری که), to the extent that (تا آنکه), additionally (علاوه بر این), neither (نه), both ... and (هم و ...), likewise (همین‌طور), including (از جمله), moreover (علاوه بر این), if (اگرچه), but (اما), unlike (برعکس), in other words (به عبارت دیگر), rather (نه تنها ... but also) (نه تنها ... بلکه), as (چونکه), provided that (به شرطی که), for example (برای مثال), in other words (به عبارت دیگر), furthermore (علاوه بر این), moreover (علاوه بر این), additionally (علاوه بر این), to the extent that (تا آنکه), in addition to (علاوه بر این), meanwhile (در حالی که), not only ... but also (نه تنها ... بلکه), about that (در مورد این), as (چونکه), not only ... but also (نه تنها ... بلکه), still (همچنان), likewise (همین‌طور), as (چونکه), meaning that (یعنی این که), firstly (ابتدا)

(continued)

Table 6 (continued)

Conjunction type	Conjunction number	Number of single conjunctions	Conjunctions
Contrastive	189	26	But (با اینکه), yet (بله), rather (بناگه), on the other hand (از طرف دیگر), but (بناگه), on the other hand (از طرف دیگر), on the other hand (از طرف دیگر), on the one hand (از طرف دیگر), if not (اگر نه), but (rather) (اما بناگه), although (با اینکه), although (با اینکه), despite the fact that (در صورتی که), while (در حالی که), whereas (در حالی که), except (مگر), but (yet) (ولی), unless (مگر این که), unless (مگر این که), nevertheless (بناگه), nonetheless (بناگه)
Temporal	63	20	When (وقتی که), when (بعد), next (بعد), secondly (دوم این که), ever since (از وقتی که), ever since (وقتی که), first of all (اول این که), firstly (اول), this time (این وقت), after (بعد از آنکه), later (بعدا), in the end (در آخر), at the same time (وقتی که), when (این وقت), then (پس), whenever (هر وقت که), and then (بعدا), when (وقتی که), when (این وقت), when (وقتی که)

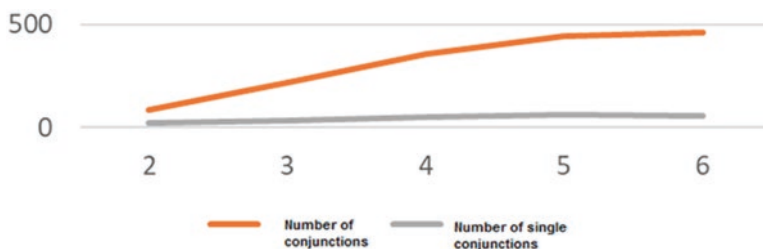


Fig. 1 The relationship between language proficiency level and number of conjunctions and single conjunctions

test is insignificant (Agresti, 2018), meaning that the relationship between proficiency level and frequency is not supported in this study (Table 8).

To answer the third research question, the relationship between the correct or incorrect use of conjunctions by level was determined and is demonstrated in the table below. As the proficiency level of learners improves, their incorrect use of conjunctions reduces while their correct use increases. Result of Chi-squared test (level of significance = 0.351 in level comparison based on frequency in incorrect cases and 0.097 in correct cases), however, reveals that there is no significant relationship between proficiency level and use of correct conjunctions (Table 9).

To answer the fifth research question, the following table, which is a combination of Tables 2 and 5, was drawn (Table 10).

Question 5 had to be addressed qualitatively. Nevertheless, it should be noted that although this study supported the rise in the number of conjunctions used as proficiency level increased, no significant relationship between proficiency level and frequency of conjunctions or between proficiency level and the correct use of conjunctions was found. Therefore, in adjusting the results of the study with the Writing Rubric, care should be taken with the frequency of conjunctions or the correct application of conjunctions.

The ability of Level 2 language learner (Elementary) is described in the “Writing Skill Evaluation Rubric” as follows: “He uses very limited cohesive devices, and does not employ logical connectives correctly”. Here, it should be noted that logical connectives are the same as conjunctions, and by examining the results of the research, it can be argued that this prediction is changeable as, according to the results, language learners had employed 50 percent of conjunctions correctly, and were especially successful in using high-frequency conjunctions correctly. It, therefore, cannot be definitely maintained that logical connectives are not employed at Level 2. Level 3 (Pre-Intermediate) is described as follows: “He uses certain basic cohesive devices but they are repetitive and incorrect. Also, he does not employ logical connectives properly”. Results, however, demonstrate that at this level, not only have the language learners employed high-frequency conjunctions correctly, but some of them have also managed to use medium and low-frequency conjunctions correctly.

Table 7 Conjunctions based on language learners' proficiency

Level	Conjunction number	Number of single conjunctions	Conjunctions
2	84	23	And (26) (و), that (17) (که), but (8) (اما), both (5) (هم), because (4) (چون), if (3) (اگر), therefore (2) (بنابراین), which (that) ((چه (که)), both ... and (2) (و), yet (2) (ولی), if (1) (اگرچه), this time (1) (در این وقت), for this (1) (برای این), for the reason that (for this reason) (1) (به جایی به این دلیل), why (1) (چرا), since (1) (چونکه), for (1) (زیرا), unless (1) (مگر این که), when (1) (وقتی که), when (1) (وقتی که), nonetheless (1) (ولیکنی), or (1) (یا), meaning that (1) (یعنی که).
3	218	33	and (46) (و), that (44) (که), but (18) (اما), because (16) (چون), if (15) (اگر), since (12) (چونکه), both (12) (هم), or (9) (یا), when (6) (همچنین), till (5) (تا), yet (3) (ولی), likewise (3) (همچنین), but (2) (به این دلیل), therefore (2) (بنابراین), for the reason that ((به این دلیل)), for example (2) (مثلاً), when (2) (وقتی), that is (2) (یعنی), hereupon (1) (از این رو), on the other hand (1) (از طرف دوم), on the one hand (1) (از طرف یکم), ever since (when) ((وقتی که)), if not (1) (اگر نه), although (1) (با اینکه), for the reason that (به علاوه) (1) (next (بعد), rather (1) (بلکه), moreover (1) (برای این که), so (1) (پس), in the end (1) (در آخر), for (1) (زیرا), not only ... but also (1) (نه تنها ... بلکه), nevertheless (1) (ولیکن).
4	357	51	And (80) (و), that (66) (که), but (30) (اما), both (28) (هم), or (20) (یا), if (18) (اگر), yet (17) (ولی), because (15) (چون), till ((تا) (7)), since (7) (چونکه), for example (7) (مثلاً), that is (7) (یعنی), so (6) (بعد), therefore (4) (بنابراین), when (3) (وقتی), next (2) (بعد), for this reason (2) (به این دلیل), such that (2) (چنانکه), neither ((نه) (2)), likewise (2) (همچنین), when (2) (وقتی که), hereupon ((از این رو) (1)), on the other hand (1) (از دیگر طرف), on the other hand (از) (1) (طرف دیگر), but (rather) (1) (اما (بلکه)), firstly (1) (اولاً), thus (1) (بنابراین), in order that (1) (برای آن که), in other words (به آن گونه که) (1) (بعد از آنکه), as ((به طور دیگر (به عبارت دیگر)) (1)), in general (1) (به طور کلی), in other words (1) (به عبارت دیگر), additionally (1) (به علاوه), till (in order that) (1) (تا (برای اینکه)), to the extent that (1) (تا این حد که), to the extent that (1) (تا حدی که), due to the fact that (1) (چراکه), either (1) (چه), in this case (در) (1) (زیرا), at the same time (1) (در همین وقت (زمان)), for (1) (زیرا), owing to the fact that (1) (زیرا که), then (1) (سپس), in addition to that (1) (لیکن), but (1) (که تا), even so (1) (مگر (ولی)), not only ... but also (1) (نه تنها ... بلکه), also (1) (نیز), likewise (همینطور).

(continued)

Table 7 (continued)

Level	Conjunction number	Number of single conjunctions	Conjunctions
5	443	62	<p>And (112) (و), that (95) (که), both (36) (هم), yet (26) (ولی), but (19) (اما), if (16) (اگر), because (16) (چون), when (وقتی که) (چون), for example (11) (مثلا), or (9) (یا), till (6) (تا), since (چنانکه) (6) (که), that is (6) (یعنی), likewise (5) (همچنین), such that (4) (که), for this reason (3) (به این دلیل), when (وقت وقتی) (3) (وقتی), when (وقتی), in terms of (2) (از این نظر که), whether (2) (تأی), rather (بلکه) (2), because of this (2) (به خاطر این که), because of (به این علت که) (2), due to the fact that (considering that) (به این علت که) (2), to the extent that (تا حدی که) (2), for the reason that (2) (زیرا که), forasmuch as (1) (از آنجایی که), that being the case (1) (از این طور که) (به این ترتیب), ever since (از وقتی که) (1) (از این که), moreover (1) (افزون بر این), although (1) (با این که), despite this (1) (بدون این که), unlike (despite) (برخلاف) (1) (بعدا), later (1) (بعد), because of this (1) (به این منظور), for this purpose (1) (به این علت که), so that (به همین سبب) (1) (فurthermore), furthermore (1) (به علاوه), for this cause (طوری که) (1) (چه ... چه) (1) (به همین علت), either ... or (1) (چه ... چه), while (1) (در این صورت), whereas (در حالی که), about that (1) (در مورد این که), consequently (در نتیجه) (1) (که), meanwhile (در ضمن), for (1) (زیرا), despite the fact that (لنا) (1) (که), though (1) (که), hence (1) (و), that (and) (1) (این که), except (1) (مگر), also (1) (نیز), whenever (1) (هر وقت که), in the same way (1) (همینطور), still (1) (همچنان), likewise (1) (همینطور), as (1) (و بعد)</p>
6	463	58	<p>And (130) (و), that (102) (که), if (22) (اگر), but (19) (اما), both (19) (هم), because (18) (چون), or (17) (یا), yet (14) (ولی), till (تا) (12) (وقتی که) (7) (همچنین), likewise (10) (نیز), when (7) (یعنی), for example (6) (مثلا), so (5) (پس), since (5) (چون که), that is (5) (یعنی), rather (3) (بلکه), therefore (3) (بنابراین), consequently (3) (از این رو), for (3) (زیرا), that (and) (3) (و), hereupon (2) (این که), on the other hand (2) (از طرف دیگر), that (این که) (2), because (2) (به این دلیل), for the reason that (2) (برای این که), because (2) (دوم اینکه), secondly (2) (همین طور), as well (2) (علاوه بر این), including (1) (از جمله), first of all (1) (اول این که), thus (بدین ترتیب) (1) (بدین هدف بدین دلیل), for this purpose (for this reason) (1) (بطور نتیجه در نتیجه), consequently (1) (در نتیجه), rather (not only ... but also) (1) (به این ترتیب), as such (1) (بلکه نه تنها ... بلکه), for the reason that ... (1) (به این دلیل ... که), provided that (1) (به شرطی که), in general (1) (به طور کلی), for example (1) (به طور مثال), so that (به این علت که) (1) (به این منظور), due to the fact that (1) (به این علت که), until (1) (تااینکه), in the event that (زیرا که) (1) (زمانی که), for the reason that (1) (علوه بر این که), in addition to that (1) (علاوه بر آن), in addition to (1) (نه فقط ... بلکه), hence (1) (لذا), unless (1) (مگر این که), not only ... but also (وقتی که) (1) (همین گونه به همین گونه), likewise (1) (همین گونه), when (یکی این که) (1) (یعنی این که)</p>

Table 8 Relationship between level of proficiency and frequency of conjunctions

		Frequency			Total
		High frequency	Medium	Low frequency	
Level 2	Number	75	3	3	81
	Percentage of frequency	5.6%	4.6%	2.8%	5.4%
Level 3	Number	184	9	20	213
	Percentage of frequency	13.7%	13.8%	18.9%	14.1%
Level 4	Number	314	10	28	352
	Percentage of frequency	23.4%	15.4%	26.4%	23.3%
Level 5	Number	365	26	31	422
	Percentage of frequency	27.2%	40.0%	29.2%	27.9%
Level 6	Number	403	17	24	444
	Percentage of frequency	30.1%	26.2%	22.6%	29.4%
Total	Number	1341	65	106	1512
	Percentage of frequency	100.0%	100.0%	100.0%	100.0%

The ability of Level 4 language learners (Intermediate) in creating cohesion and coherence is described as follows: “He uses almost all cohesive devices correctly but makes mistakes in using logical connectives”. Here, a highly general description of the rubric description is provided. In fact, as per the results, the number of correct high-frequency conjunctions was significantly high, and the medium and low-frequency conjunctions were employed correctly, as well.

At Level 5 (Upper-Intermediate), the evaluation rubric provides the following description: “He employs cohesive devices properly. Unmarked and high-frequency logical connectives are used but marked and low-frequency logical connectives between sentences are mechanical and low-frequency”. It can, however, be claimed that at this level, the correct use of marked and low-frequency logical connectives has highly increased.

At Level 6 (Advanced), language learner’s ability is described as follows: “He uses cohesive devices and logical connectives appropriately. However, they may be employed either excessively or insufficiently”. Based on the research results, low-frequency logical connectives at this level were highly successfully employed. In order to identify the conjunctions in each corpus, the labels and reports of that corpus were used which, in some cases, might have been mistakenly grouped as conjunctions like “certainly”, “suddenly”, and “particularly”. Also, the criterion for identifying the level of Farsi learners’ texts was the level assigned by the evaluators. These levels were allocated based on the Farsi learner’s proficiency level in speaking, writing, and multiple-choice test, and the level in writing test might be different (in the report of Saadi Foundation’s Language Learner Corpus, levels are not specified separately for each test).

Another limitation of the study was the selection of 20 texts from each proficiency level as well as the fact that all Farsi learners were affiliated with one educational center, i.e. Saadi Foundation. Use of writing level instead of the general level, selection of more texts, and variety in Farsi learning centers can all increase research

Table 9 Relationship between level of proficiency and accuracy of conjunction use

Correct/incorrect			Frequency			Total	
			High frequency	Medium	Low frequency		
Incorrect	Level 2	Number	21	2	3	26	
		Percentage of frequency	20.6%	15.4%	16.7%	19.5%	
	Level 3	Number	15	3	7	25	
		Percentage of frequency	14.7%	23.1%	38.9%	18.8%	
	Level 4	Number	31	4	6	41	
		Percentage of frequency	30.4%	30.8%	33.3%	30.8%	
	Level 5	Number	20	3	2	25	
		Percentage of frequency	19.6%	23.1%	11.1%	18.8%	
	Level 6	Number	15	1	0	16	
		Percentage of frequency	14.7%	7.7%	0.0%	12.0%	
	Total		Number	102	13	18	133
			Percentage of frequency	100.0%	100.0%	100.0%	100.0%
	Correct	Level 2	Number	54	1	0	55
			Percentage of frequency	4.4%	1.9%	0.0%	4.0%
Level 3		Number	169	6	13	188	
		Percentage of frequency	13.6%	11.5%	14.8%	13.6%	
Level 4		Number	283	6	22	311	
		Percentage of frequency	22.8%	11.5%	25.0%	22.6%	
Level 5		Number	345	23	29	397	
		Percentage of frequency	27.8%	44.2%	33.0%	28.8%	
Level 6		Number	388	16	24	428	
		Percentage of frequency	31.3%	30.8%	27.3%	31.0%	
Total		Number	1239	52	88	1379	
		Percentage of frequency	100.0%	100.0%	100.0%	100.0%	

accuracy. According to the results of this study, use of conjunctions, either in terms of number or variety, increases with proficiency level improvement (research question 1). Nevertheless, no significant relationship was found between the increased level of proficiency and use of low-frequency conjunctions or the correct use of the conjunctions (research questions 2 and 3). Also, a table of the most widely used conjunctions at each level of Farsi learning was prepared (question 4). As for

Table 10 Description of conjunctions of each level compared to the Writing Evaluation Rubric

Level	Conjunction Frequency	Conjunction Use	Writing Evaluation Rubric
Beginner	–	–	–
Elementary	High-frequency: 75 conjunctions Medium: 3 conjunctions Low-frequency: 3 conjunctions Unidentified: 3 conjunctions	Correct: 56 conjunctions Incorrect: 28 conjunctions	He uses very limited cohesive devices, and does not employ logical connectives correctly.
Pre-Intermediate	High-frequency: 184 conjunctions Medium: 20 conjunctions Low-frequency: 10 conjunctions Unidentified: 4 conjunctions	Correct: 192 conjunctions Incorrect: 26 conjunctions	He uses certain basic cohesive devices but they are repetitive and incorrect. Also, he does not employ logical connectives properly.
Intermediate	High-frequency: 314 conjunctions Medium: 28 conjunctions Low-frequency: 10 conjunctions Unidentified: 5 conjunctions	Correct: 314 conjunctions Incorrect: 43 conjunctions	He uses almost all cohesive devices correctly but makes mistakes in using logical connectives.
Upper-Intermediate	High-frequency: 365 conjunctions Medium: 31 conjunctions Low-frequency: 26 conjunctions Unidentified: 21 conjunctions	Correct: 412 conjunctions Incorrect: 31 conjunctions	He employs cohesive devices properly. Unmarked and high-frequency logical connectives are used but marked and low-frequency logical connectives between sentences are mechanical and low-frequency.
Advanced	High-frequency: 403 conjunctions Medium: 24 conjunctions Low-frequency: 17 conjunctions Unidentified: 19 conjunctions	Correct: 443 conjunctions Incorrect: 20 conjunctions	He uses cohesive devices and logical connectives appropriately. However, they may be employed either excessively or insufficiently.
Expert	–	–	His text is so coherent that it is similar to a native Farsi speaker's writing.

question 5, the findings demonstrated that referring and relying on evaluation rubrics alone to determine the ability of language learners in terms of logical connectives' application is not an efficient approach. Finally, the rubric calls for a comprehensive review in terms of text disambiguation and its approach to conjunctions, and further detailed studies should be conducted on the quality of logical connectives' application in Farsi learners' writings.

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