

In the Name of God



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Aim and Scope

The aim of this journal is to provide a platform for scholars, researchers, and practitioners to explore and exchange cutting-edge knowledge, insights, and innovations in the dynamic fields of translation and interpreting. The journal fosters a comprehensive understanding of translation and interpreting, covering a broad range of topics, including but not limited to translation theory, translation practice, methodology, intercultural communication, translation technologies, and professional ethics. Contributions are welcomed that delve into the challenges, trends, and advancements in translation and interpreting, facilitating interdisciplinary discussions and promoting excellence in the field. By encouraging rigorous research, critical analysis, and practical implications, the journal serves as a catalyst for advancing scholarly discourse and professional development within the realm of translation and interpreting.

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A Study of Text-Image Interaction at *Omidvar Brothers Museum*

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Abstract

Museums are crucial cultural and educational institutions that facilitate visitors' learning by integrating diverse modes of engagement, including linguistic, visual, auditory, and spatial elements. Consequently, coherence of these elements is crucial for effectively presenting information and maximizing its impact on visitors. Utilizing Kress and van Leeuwen's (2020) principles of composition, specifically focusing on information value and salience, this study sought to assess text-image interaction in the images at the *Omidvar Brothers Museum* and their corresponding Persian labels, as well as to compare the interaction in the Persian labels with that in the English labels. The analysis revealed that the criterion "information value: left vs. right" received minimal attention, while the "information value: center vs. margins" criterion was the most consistently met in both Persian and English descriptions. However, the overall accuracy of multimodal interaction between the images and labels decreased by 7.40% in the English labels compared to the Persian labels, indicating a decline in translator performance relative to the original authors. This reduction in verbal-visual coherence suggests a less engaging experience for English-speaking foreign visitors compared to Iranian audiences. These results emphasize the necessity of addressing multimodality within museum contexts, as such focus can significantly enhance visitor experiences and deepen their understanding of museum exhibits.

Keywords: Information value, label, multimodality, museum translation, salience

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1. Introduction

Museums serve as vital institutions that collect, preserve, and showcase cultural, historical, and artistic artifacts to the public. They play an essential role in safeguarding cultural heritage and fostering national identity. As educational hubs, museums offer opportunities to explore the history and culture of various societies, allowing visitors to engage with the past through firsthand experiences. Additionally, museums enhance cultural and social awareness and serve as valuable resources for research and study. With their growing significance in modern society, museums are recognized not only as custodians of history but also as venues for cultural exchange and social interaction. In today's landscape, they have evolved beyond mere exhibition spaces to host events, workshops, and educational programs. These developments highlight the crucial role museums play in promoting cultural tourism and enhancing public awareness.

Museum exhibits alone cannot foster profound learning among visitors; instead, this educational process is significantly influenced by linguistic elements, particularly exhibit labels. Monti and Keene (2016) highlighted that labels serve as the primary means of informing visitors about the exhibits on display. The purposes of employing labels encompass attracting attention, conveying information, and promoting active engagement (Bitgood, 1996). According to Strachan (2017), labels consist of three fundamental components: content, structure, and presentation. This underscores the importance of effectively presenting the information contained within the labels. Consequently, it can be asserted that various elements within the museum environment work in concert to enhance visitor experience and facilitate more effective learning. This illustrates the complex nature of museums and the significance of linguistic, visual, auditory, and spatial structures. Together, these components create a cohesive meaning. Therefore, collaboration and interaction among all museum staff are essential. For instance, label writers should maintain direct communication with designers to ensure that the label content is well-crafted. Designers must also collaborate with museum architects to design exhibition spaces that optimize visitor experiences. Furthermore, translators should engage with label writers and designers to leverage each other's expertise and insights. This interdisciplinary collaboration not only enhances the quality of the information provided but also fosters a comprehensive and meaningful experience for both internal and external visitors. Such interactions enable every aspect of the museum – from artworks to labels to spatial design – to function harmoniously together, ultimately enriching the learning experience for visitors.

Multimodality refers to the use of various types of modes such as text, images, and sound, to convey meaning. In a museum setting, visitors encounter a blend of images, texts, and other visual elements that collectively enhance their understanding of the artworks. However, translators often overlook the multimodal nature of museum environments, assuming that visitors do not engage with their explanations and translations. This perspective can result in neglecting crucial factors in the translation of labels associated with museum works. By recognizing the importance of multimodality in label translation, it is possible to improve visitor comprehension and enrich their overall experience.

The present research focused on examining the interplay and coordination between verbal information and visual representations within the multimodal environment of the Omidvar Brothers Museum. To achieve this, all Persian and English labels associated with photographic exhibits in the museum were analyzed using Kress and Van Leeuwen's (2020) compositional framework. This approach allowed for a detailed exploration of how text and imagery work together to enhance visitor understanding and engagement. By scrutinizing the labels, the study aimed to uncover the extent to which these elements complement each other, thereby contributing to a richer museum

experience. The findings are expected to highlight the significance of effectively integrating verbal and visual components, ultimately informing better practices in museum communication strategies.

The *Omidvar Brothers Museum*, located in the historical cultural complex of Saadabad in Tehran, was established to honor Isa and Abdullah, two notable Iranian travelers. About 70 years ago, these brothers embarked on their journey with two motorcycles, traveling through 99 countries across five continents over a span of ten years. Their travels aimed to study primitive tribes and lifestyles beyond civilization while also promoting Iranian culture globally. This museum showcases artifacts from their journeys, including a shrunken human head from a primitive tribe, photographs documenting encounters with Amazonian, African, and Australian tribes, as well as hunting and musical instruments. Additionally, photos and videos captured by the brothers during their travels are displayed across three rooms in the museum. To finance their expeditions, Omidvar brothers sold their research articles and documentary films, successfully producing significant documentaries about primitive tribes that were broadcast in cinemas and on television. Originally a carriage house, the museum building underwent renovation in 2002 to become an anthropological museum. Its collection includes travel route maps, personal belongings, and documentary images chronicling the adventures of these two brothers, narrating their passion for travel and discovery of the world's unknowns.

2. Literature Review

Aronsson and Elgenius (2014) categorize museums into two main types: art museums, which focus on the display and preservation of artworks such as paintings, and cultural history museums, which aim to showcase the history, traditions, and cultural heritage of specific regions or communities through artifacts, documents, and interactive exhibits.

According to Ambrose and Paine (2006), museum works embody the development, achievements, and challenges of a nation. These artifacts have the power to forge a meaningful connection among the past, present, and future, particularly during times of political and cultural change. This perspective underscores the significance of museums as institutions that foster a deeper understanding of a society's history and culture while also aiding in the preservation of national identity. Furthermore, museums can play a crucial role in promoting cultural tourism and serve as bridges that connect generations. One of the primary methods for engaging museum visitors and enhancing their interpretation of the exhibits is through the use of (exhibit) labels. These labels link the themes of the exhibition with the exhibits on display, imbuing them with meaning. They can stimulate visitors' thoughts by sharing stories about the significance of places, individuals, and events (Ardešhiri, 2020).

2.1. Importance of Translation in Museum Context

According to Jiménez Hurtado, Seibel, Soler Gallego and Herrero Díaz (2012), the future of museum accessibility hinges on the collaboration and interaction between museums, translators, and interpreters. Museum representation involves two main intersections with translation. Firstly, it acts as a form of "cultural translation", conveying cultures through objects and texts in exhibitions. Secondly, it involves interlingual translation, catering to diverse language users in multilingual museums. These distinctions are akin to "museums as translations" and "translations in the museum" (Neather, 2018). Liao (2018) introduced a comprehensive typology of museum translation functions, including the informative aspect, which focuses on conveying content; the interactive function, aimed at engaging visitors and bridging institutional gaps; the political function, reflecting

institutional ideology; the social-inclusive function, promoting language equality; and the exhibitive function, which highlights translation as an object within museum contexts.

Yu and Hirzel's (2022) guidelines for Chinese translators in a museum context emphasize cultural sensitivity, cultural mediation, language mediation, and collaboration with professionals. Translators should use plain and straightforward language, avoiding complex features and metaphors. They need to bridge the cultural and knowledge gaps, making the information explicit and providing necessary explanations. The translation should be coherent and readable, reorganizing and simplifying the text as needed. Translators should possess subject knowledge and work closely with museum professionals to ensure the translations align with the exhibition's purpose. Consideration should be given to the overall context and function of the texts within the exhibition.

2.2. Translation Quality in Museums

Ghazi (2022) conducted a survey of 26 museums, historic sites, and gardens in the U.S. to analyze their translation practices. The findings revealed that 54% of respondents regularly translated wall text and family resources into languages other than English. Additionally, 46% translated brochures, 43% maps, and 38% educational resources. Less frequently translated materials included audio guides and directional signage. Notably, only two institutions had formal translation strategies. Translation practices varied widely based on institutional size and resources, with 73% of translations managed internally, often overseen by educators who hired professional translation services.

Jiang (2010) studied how *systemic* and *functional* concepts improve translation quality assessment for museum texts. The model had three phases: register description, function contrastive analysis, and quality description. Phase 1 analyzed generic structure differences, emphasizing atmosphere in the ST with a poem, while the TT focused on painting analysis. Phase 2 examined lexico-grammatical elements, and Phase 3 evaluated quality. Despite discrepancies, the TT aligned with its context's conventions effectively.

Nurpermadi, Hartono and Sutopo (2020) examined how captions at the *Pekalongan Batik Museum* were translated from Indonesian to English, focusing on translation methods and quality. They discovered that most translations were accurate, acceptable, and readable. Their analysis, based on Molina and Albir's translation techniques, revealed that literal translation was the most commonly used technique. Shivaie and Dastjerdi (2011) studied English translations of Persian museum object descriptions from seven museums, finding only 39.74% accuracy. Better translations are important for showcasing Iranian culture to tourists.

Rahmawati (2023) identified grammatical errors, misspellings, and mispunctuations in English translations of object labels at *Taman Pintar Museum*. Out of 109 sentences analyzed, 102 contained errors. Issues included subject-verb agreement, tense, word order, prepositions, articles, pronouns, and other categories like singularity-plurality, active-passive voice, gerund, to-infinitive, parallelism, and redundancy. Additionally, 10 misspellings and 11 mispunctuations were found, indicating serious problems in producing grammatically correct translations.

2.3. Multimodality and Translation in Museum Context

Neather (2024) believed that translations in museums play a crucial role in exhibitions that extends beyond mere linguistic content. Museum exhibitions create meaning through three-dimensional displays that combine objects, texts, photos, multimedia, and audio guides in interconnected ways (Neather, 2021). It is essential to carefully consider how the translated material will harmoniously blend with the various multimodal resources and elements found throughout the exhibition space.

Multimodality in museums involves the creation of meaning through various modes like language, visual elements (images, gestures), sound, and tactile representations like sculptures. This approach emphasizes the diverse ways visitors interact with exhibits beyond traditional viewing, highlighting embodied and performative experiences within museum spaces (Jiménez Hurtado et al., 2012). Sadri (2015) reported that translators often overlook the multimodality of museum environments, assuming that visitors do not pay attention to captions and their translations. As a result, they fail to consider crucial factors involved in translating the captions of paintings in museums. Consequently, the captions and their translations do not align with the multimodal elements present in these spaces. Pireddu (2022) too, emphasized that quality control of translations in museums involves more than just language transfer. It includes essential aspects such as localization, identifying genres, determining target audiences, recognizing subject fields, and clarifying purposes like engagement and information. Additionally, it involves specifying language registers, evaluating output formats, considering file layouts, and planning production technology, including machine translation. Effective quality control ensures that translations are accurate and culturally appropriate, enhancing the overall visitor experience in museums. This comprehensive approach is vital for creating meaningful connections between the translated content and the diverse resources present in the exhibition space.

Neather (2008) posited that museums function as intricate semiotic environments where various sign systems – such as verbal, visual, and spatial elements – interact to create meaning. These interactions occur on two levels: intra-semiotic, which involves relationships among objects, photographs, and texts, and inter-semiotic, which pertains to the connections between different verbal and visual components. Neather (2008) argues that by employing diverse translation strategies, including addition and deletion, the synergy between verbal and visual elements can be enhanced within the museum context. This approach not only facilitates a more cohesive understanding of exhibits but also enriches the overall visitor experience by ensuring that the communication between text and imagery is both effective and meaningful.

In multilingual exhibitions, translations link text and images, but conflicts can occur when different languages express different values or viewpoints. Labels can tell stories that involve the label's creator, the audience, and the exhibits. Liao (2015) focused on translations in a bilingual exhibition of Chinese photographs by John Thomson. She found that the Chinese texts often emphasized Thomson's views on the subjects in his photos. For example, one photograph showed a difference between English and Chinese labels: English-speaking visitors were prompted to notice a woman's hair adornment, while Chinese-speaking visitors were encouraged to consider Thomson's perspective as an outsider. This highlights how translations can change narratives and perspectives, showing the importance of different modes of communication in conveying meaning in museum exhibitions.

Through another study, Liao (2019) studied how translations relate to the three-dimensional space of museums. Using a geosemiotics approach, she looked at how signs in museums convey social meanings. She found that the arrangement of signs, along with spatial features and curatorial choices, shapes visitors' experiences. Translations, while selective, impact how visitors understand the exhibits. The study revealed differences in translations across museum sections, affecting views on Christianity and multi-faith heritage. Additionally, untranslated labels influenced visitor engagement, sometimes distracting attention from Christian artifacts.

Jiang and Zhu (2018) explored the representation of distance in traditional Chinese landscape painting within a contemporary museum setting. They examined the three axes of distance (level, deep, and high) and their role in conveying the artist's aspiration for spiritual freedom. The study analyzed a specific painting and its bilingual museum captions, drawing on linguistic theories and distance cues. It investigated the coherence between visual and verbal representation and explores how museum discourse can enhance viewers' appreciation of the artwork's aesthetic aspirations.

Methodology

This research focuses on two key aspects: a qualitative examination of the interaction between Persian labels and their English translations, particularly in relation to corresponding visual elements, and a comparative analysis assessing the degree of adherence to composition principles between the original Persian labels and its English translation.

3.1. Data Collection

To collect the data, the researcher visited the *Omidvar Brothers Museum* at Saadabad Palace in Tehran in August 2024. As a cultural and artistic center, this museum houses a diverse collection of artworks, including various images and objects. The theoretical framework for this research is Kress and van Leeuwen's *principles of composition*, which primarily focus on analyzing two-dimensional works such as paintings and photographs. However, as no paintings were present in this museum, the research data was limited to the available images. Given that this research has a translational aspect, only images with labels that included both Persian descriptions and their English translations, were included in the dataset. Consequently, a total of 54 images, along with their Persian labels and English translations, formed the core data for this study.

3.2. Data Analysis

Kress and van Leeuwen's (2020) have introduced "Grammar of Visual Design", which is grounded in the concept of social semiotics. They argue that just as traditional grammar aids in understanding sentences, visual grammar facilitates the comprehension of images. This framework uncovers the underlying patterns within images, enabling audiences to grasp their meanings more effectively.

Kress and Van Leeuwen's "Principles of Composition" are part of their grammar of visual design, which explains how visual elements are organized to convey meaning, much like grammar in language. These principles are 1. Information value, 2. Salience, and 3. Framing. The present study focuses on principles 1 and 2 which are described below:

1. Information Value: This principle highlights how the placement of elements within a composition influences meaning, as different areas of an image convey distinct types of significance. Different areas in an image hold different types of meaning:

A) Left or Right: Elements positioned on the left side of an image represent "given" or "familiar" information, while those on the right side signify "new" information that is yet "to be learned". The given element serves as a foundation that both the creator and the audience can understand, as it is familiar to them. Conversely, the new element provides key and fresh insights to the audience.

When describing an image, linguistic information should also begin with given and known items and transition to new ones. In languages with a right-to-left writing system, such as Persian, known information is placed on the right side, while new information appears on the left. Accordingly, the content presented on the right side of an image description should align with the elements on that side of the image, and similarly, the content on the left side of sentences should correspond with elements on the left side of the image. Persian speakers, who read from right to left, tend to view images starting from the right and moving to the left. In contrast, English speakers read from left to right and approach images in a similar manner, beginning from the left side and progressing to the right.

B) Top or Bottom: In an image composition, elements at the top are associated with "ideal", "abstract" concepts, while those at the bottom relate to "real" or "practical" information. This

distinction is also evident in the relationship between text and image; for instance, if text appears at the top and an image at the bottom, the text assumes a primary ideological role while the image serves a subordinate function (Azam Kasiri, 2022). According to Sadri (2015), elements located at the top of an image are deemed more significant than those at the bottom.

C) Center or Margins: Elements placed in the center are considered “the most important” or represent the “nucleus of the message”, while those positioned in the margins are viewed as “secondary” or “supporting details”. Even if the center is left empty, it acts as an invisible axis that influences the placement of other elements. Accordingly, relevant linguistic information should emphasize the aspects located at the center of the image more than any supporting element.

2. Salience: Visual saliency refers to the extent to which elements in an image capture attention. Elements can be highlighted through specific size, color, contrast, resolution, or positioning. These salient elements are typically the first to be noticed and are interpreted as key or important parts of the image. Since these elements attract the most attention, relevant linguistic descriptions should certainly reference them.

These principles help explain how the organization and visual choices within an image guide the viewer’s understanding, much like how sentences in language are structured to convey meaning.

4. Results

Items related to the information value and salience in both the Persian labels and English translations associated with the images in the Omidvar Brothers Museum were meticulously analyzed and evaluated. Several images from the museum are analyzed in this section.

1. Information Value

First, the degree of alignment between the information value of the Persian label and the corresponding image was assessed. Then, the same evaluation was conducted for the English translation. Examples illustrating each criterion of this model are provided below.

A) Left or Right

In Figure 1, the Persian content should begin its description from the right side of the image and extend to the left side. The Persian text initially references Omidvar brothers, but the right side of the image presents Dr. Magsaysay and not Omidvar brothers. As a result, the Persian text fails to establish a proper interaction with the corresponding image in terms of left or right information value. The Persian text should have been phrased as follows: “Dr. Magsaysay, the President of the Philippines at the time, meeting Omidvar brothers”.



Figure 1. The first example of information value: left of right

Conversely, to align with the image, the English text should start its description from the left side of the image and progress to the right side. In this instance, the English text correctly begins with a mention of Omidvar brothers, aligning with their presence on the left side of the picture and thereby facilitating an appropriate interaction of relevant information.

In Figure 2, Mr. Alberto is positioned between the two Omidvar brothers, but it can often be challenging for a usual viewer to distinguish which brother is Isa and which is Abdullah. The Persian description begins by mentioning the Omidvar brothers before introducing Mr. Alberto. Therefore, the Persian text aligns with the image in terms of left or right information value. Similarly, the English content also starts by referencing the Omidvar brothers before mentioning Mr. Alberto, which meets the relevant criteria according to their positions in the picture. However, if the names of each of the Omidvar brothers were mentioned separately, this alignment might have changed.

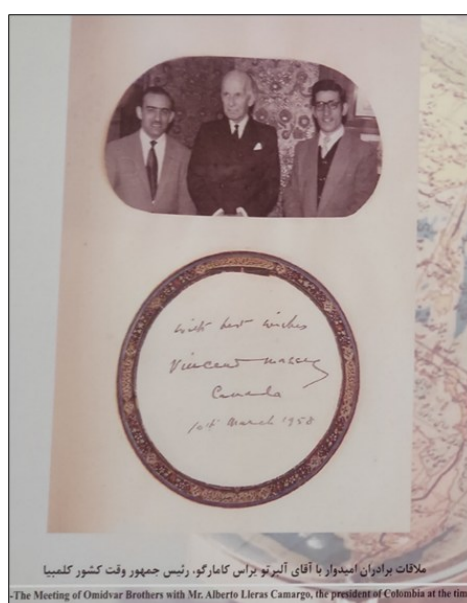


Figure 2. The second example of information value: left of right

B) Top or Bottom

In Figure 3, the Buddha statue is positioned higher than Omidvar brothers, who are located at the bottom of the image. According to the principle of top or bottom information value, the statue holds greater significance. Therefore, it would be ideal for both the Persian and English descriptions to address the Buddha statue and related information before referring to Omidvar brothers. However, as observed, the Persian label initially mentions Omidvar brothers, leading to a mismatch between the stated criterion and the image. Similarly, the English translation rendered the text without considering the position of visual components and therefore did not adhere to the intended principle.



Figure 3. The third example of information value: top or bottom

In Figure 4, Isa and the flag he holds are positioned higher than the mountain and the peak beneath his feet. Consequently, according to the principle of information value, these elements are considered more important. The Persian text has accurately adhered to this criterion by first discussing Isa and the flag before providing explanations about the peak below. Similarly, the English content has effectively followed this principle, resulting in both texts aligning well with the visual elements.



Figure 4. The fourth example of information value: top or bottom

C) Center or Margins

In Figure 5, the then President of Indonesia is positioned at the center of the image, while Omidvar brothers are located on the periphery. Clearly, the focus of the image is on the president. Correspondingly, the Persian text dedicates most of its content to describing the position, name, and relevant information about this figure. The English translation follows suit, resulting in both the Persian and translated texts establishing a proper interaction with the image and aligning with its information value regarding the center and margins.



Figure 5. The fifth example of information value: center or margin

In Figure 6, the central element is the car, while the peripheral elements are the two Omidvar brothers. Here optimal interaction between text and image could occur if the central element in image was emphasized in texts. However, the Persian text mentions Omidvar brothers and the issue they faced, neglecting to address the car itself and the related information. As a result, the Persian text fails to establish a correct relationship with the corresponding image in terms of the information value of the center or margins. The translated content follows a similar pattern, presenting the information from the Persian text without considering the visual elements and the information value. Consequently, the English content also violates this criterion and does not establish a proper interaction with the image.

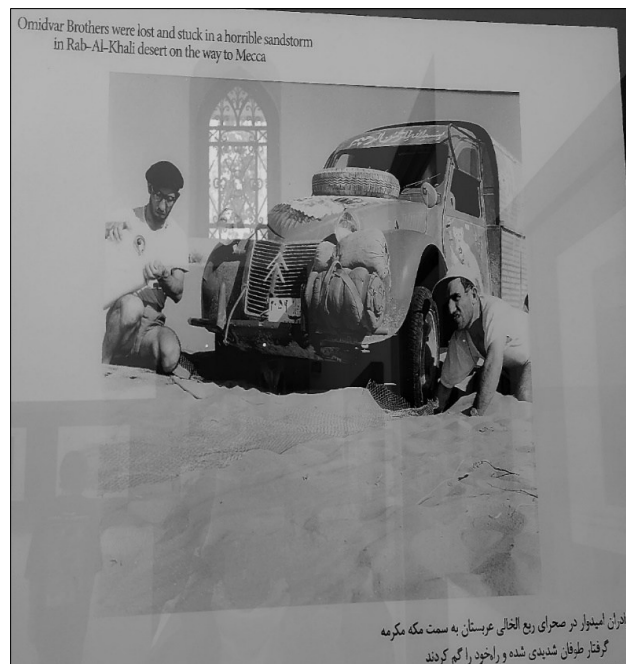


Figure 6. The sixth example of information value: center or margin

2. Saliency

Figure 7 presents a two-part photo, with the main section on the right and the secondary section on the left. Although the second part contains textual content, it remains a significant visual element and exhibits the feature of saliency. The Persian text does not provide an explanation for this portion of the image; however, due to its written structure, Iranian visitors to the museum can read the text without any confusion. The translated English text also fails to address the second part of the image probably because it lacks explanations in the Persian text. Unlike Iranian visitors, foreign visitors cannot read and understand the text in this salient section and therefore miss out on its content, which impairs their understanding and learning.

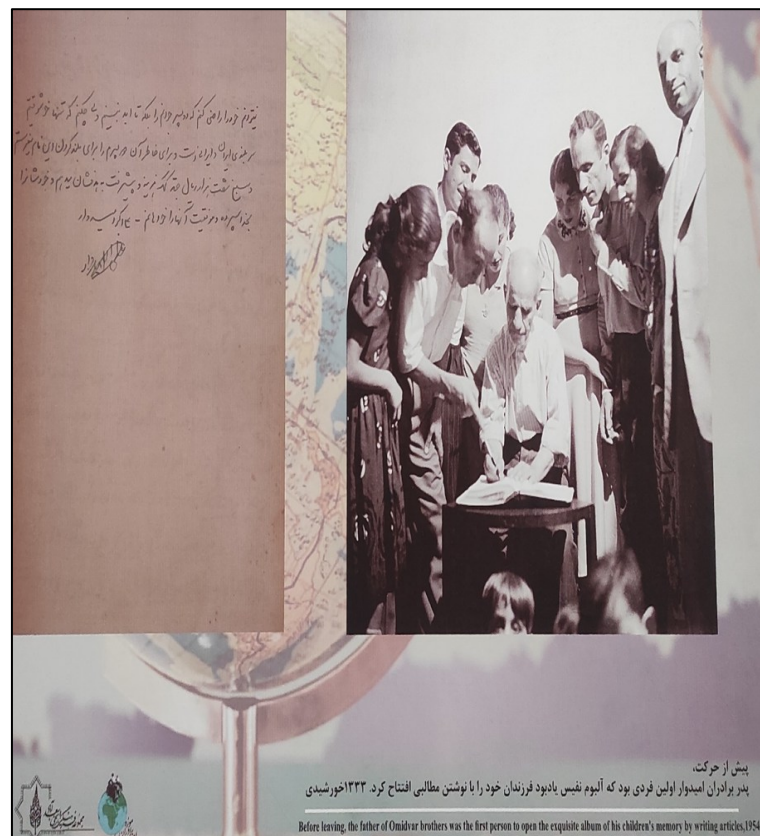


Figure 7. The first example of salience

In Figure 8, the most salient element is one of the Omidvar brothers, who is tall, making this feature a key aspect of the image. The Persian content mentions the short stature of the Pygmy people but fails to address Mr. Omidvar's height, which is the most significant element of the image. This omission results in the Persian content lacking a proper interaction with the visual elements in terms of salience. Including Mr. Omidvar's height would facilitate a clearer comparison for visitors. Similarly, the English content mirrors this shortcoming by presenting the translation in the same manner, thereby failing to establish an appropriate interaction with the image.

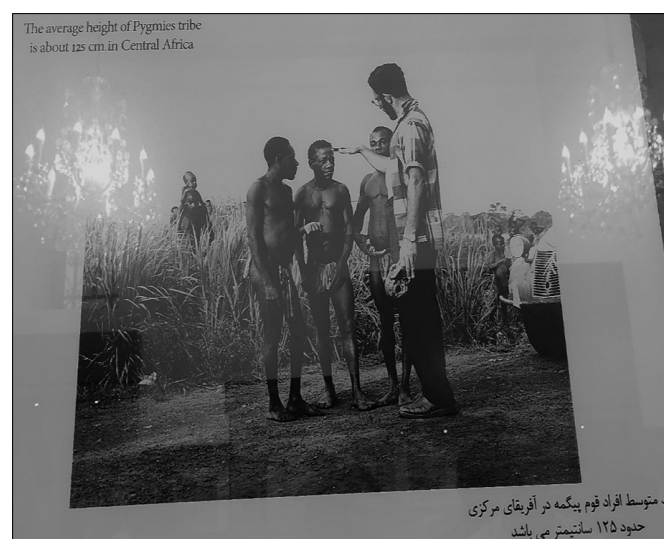


Figure 8. The second example of salience

The items related to the information value and salience of the Persian labels associated with the images in the *Omidvar Brothers Museum* were thoroughly investigated. Subsequently, the same evaluation was conducted for the English translations of these labels. The results indicated that among the 54 labels evaluated, each criterion was met to varying degrees in both the Persian labels and the English translations. The evaluation data is presented in Table 1.

Table 1. Frequency of the criteria met across 54 labels

Labels	Information Value: Left of Right		Information Value: Top or Bottom		Information Value: Center or Margins		Salience	
Persian	32	59.25%	44	81.48%	46	85.18%	44	81.48%
English	27	50%	45	83.33%	46	85.18%	44	81.48%

Based on the results presented in Table 1, it can be concluded that the criterion of information value regarding center and margins was prioritized more than other criteria in both Persian and English labels at the museum. Following this criterion, greater emphasis was placed on the criterion of top or bottom information value. The salience criterion ranks next, while the least attention was given to the criterion of left or right information value.

The results reflect separate analyses of the Persian and English content but do not indicate any changes in compliance or non-compliance with these criteria after translation. Therefore, a comparison of compliance and non-compliance with these criteria post-translation is provided in Table 2.

Table 2. Changes in Meeting the Criteria After Translation

Criterion	Changes in Meeting the Criterion After Translation
Information Value: Left of Right	-9.25%
Information Value: Top or Bottom	+1.85%
Information Value: Center or Margins	0%
Salience	0%

The results presented in Table 2 indicate that the Persian labels in this museum paid more attention to the left or right information value criterion compared to the English translations. Compliance with this criterion in the English translations is 9.25% lower than in the Persian labels. Conversely, translations have either consciously or unintentionally given 1.85% more attention to the criteria of top or bottom information value than the Persian labels. Additionally, the degree of compliance with the criteria for information value related to the center or margins, and salience has remained unchanged after the translation process, with both the Persian label and the English translation consistently meeting these criteria.

Overall, it can be concluded that compliance with the criteria related to Kress and van Leeuwen's composition principles model has decreased by 7.40% following the translation process.

5. Discussion and Conclusion

Recognizing the significant importance of multimodality in museums, as well as the need for label writers and translators to consider the complex nature of labels within the museum environment, this research investigated these matters. The study specifically aimed to evaluate the effective and accurate interaction between Persian labels and their English translations with visual elements in the images present in the *Omidvar Brothers Museum* located in Saadabad Cultural and Historical

Complex, Tehran. Kress and van Leeuwen's (2020) *Principles of Composition* was selected as the theoretical framework for this analysis. These principles address how visual elements are organized to convey meaning. The first principle, information value, pertains to the placement of elements within an image; in languages like Persian, known information is typically positioned on the right side, while new information is placed on the left. Additionally, elements at the top of an image are regarded as ideal and abstract information, whereas those at the bottom are considered real and practical information. The sub-principle of center or margins determines the main focus of the image and its secondary elements. The central element captures the viewer's attention, so linguistic information should be particularly emphasized to ensure clear communication and enhance understanding. The second principle, saliency, refers to elements that attract the most attention due to characteristics such as size, color, or contrast, making them key components of the image. These elements are usually noticed first and draw more attention; thus, linguistic descriptions should also prioritize them. Adhering to these principles, much like following grammatical rules in language, guides viewers' visual comprehension and aids in accurately interpreting images. This research examined the criteria of information value and saliency in both Persian labels and their English translations at the *Omidvar Brothers Museum*. A total of 54 labels were evaluated, revealing varying compliance percentages with these criteria. The results indicated that the criterion of information value regarding center or margins is met more frequently than the other criteria in both languages. Following this, attention is prioritized for top or bottom information value, with saliency ranking next; the least attention is given to left or right information value. Furthermore, an analysis of changes post-translation reveals that attention to left or right information value is greater in Persian labels compared to English translations, with a compliance rate decrease of 9.25% after translation. Conversely, translations exhibited 1.85% more attention to top or bottom information value. Overall, compliance with the criteria decreased by 7.40% after translation.

Although many instances adhered to composition principles, a few cases of non-compliance – particularly regarding information value – suggest a lack of awareness among label authors about effective interaction of text and visual elements. Additionally, it was noted that translators often focused solely on linguistic translation without considering interaction with visual components. In most cases, these principles were likely followed without sufficient knowledge of composition guidelines. According to Neather (2024), translators should exercise care and consider how textual content effectively integrates with multimodal elements in museum spaces to produce clearer meanings.

The significance of this research extends beyond a deeper understanding of how information is presented in museums; it also analyzes how these interactions influence visitors' comprehension of artistic and cultural works. Consequently, this study can contribute to improving translation processes and label writing within the multimodal environment of a museum.

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Exploring Eco-translation Through Bachmann-Medick's Model

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Abstract

The ecological turn in translation studies subverts anthropocentric perspectives and redefines translation as a multispecies, semiotic process that transcends human language. Eco-translation, a central concept within this turn, extends the field of translation to include non-human actors and ecological networks, allowing for a more inclusive description of meaning-making. Yet this turn has also brought academics a sense of disorientation and solastalgia as scholars have to grapple with the tension between preserving traditional disciplinary boundaries and embracing the expansive horizons of transdisciplinary approaches. The current article traces the ecological turn using Doris Bachmann-Medick's three-stage model of disciplinary turn: thematic expansion, metaphorical application, and methodological refinement. It maps the evolution of eco-translation from narrowly defined practices focused on ecological themes to a broader, inclusive framework that challenges the field's traditional foundations. The article also examines the emotional and intellectual consequences of this turn, particularly the solastalgic experience of scholars experiencing the loss of familiar disciplinary contours while adapting to new paradigms.

Keywords: Eco-translation, ecological turn, solastalgia, paradigm shift, transdisciplinary approach, translation studies

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Introduction

The Copernican Revolution that displaced the Earth from the center of the universe was considered a profound shift in human consciousness and a symbolic starting point to the critique of anthropocentrism – the idea of human supremacy over all existence (Çimen, 2023). By challenging the assumption of human centrality in the universe, Copernicus's heliocentric system laid out a broader intellectual and philosophical rethinking of human's position in the natural order (Çimen, 2023). However, while the decentering of the Earth was astronomically monumental – marking the gradual discrediting of geocentric cosmology and the rise of heliocentric cosmology – the image of the celestial *sphere* gave way to that of the globe (Ingold, 2000). As Ingold (2000) pointed out, “the movement from spherical to global imagery is also one in which ‘the world’, as we are taught it exists, is drawn ever further from matrix of our lived experience” (p. 211). This transition from perception of the Earth as a celestial sphere to that of a globe poses a sense of distance, situating humans as viewers separate from the Earth as the object being viewed.

In the movement towards the modern, a practical sensory engagement with the world underpinned by the spherical paradigm is supplanted by a regimen of detachment and control. As the images of the globe proliferate, often ironically to mobilise ecological awareness, the danger is that these images themselves distort our relationship to our physical and cultural environment by continually situating us at a distance, by abstracting and subtracting us from our local attachments and responsibilities. (Cronin, 2017, p. 125)

By contrast, an ecological turn is a deeper and more radical paradigm shift (Müller & Pusse, 2018). It would decenter not the Earth, but the human ego itself, challenging the long-standing and deeply held assumption that humans are separate from or superior to the natural world (Müller & Pusse, 2018). This ecological turn recenters the *eco* – the nexus of life interwoven within the Earth – as the focal point of ethical, philosophical, and practical concern. Where the Copernican revolution questioned humanity's centrality in the universe, the ecological turn questions humanity's assumed dominance over nature, summoning a humbler, more harmonious relationship within the Earth.

Indeed, the feasibility of such relationships within an ecological niche hinges on the concept of translation through which diverse living and non-living entities communicate, interact, and coexist. Every entity – whether a living organism, an ecosystem, or even non-living elements like water, soil, or air – operates in their own rhythms of existence (Fraunhofer, 2023). Trees communicate through mycorrhizal networks, animals through sounds, gestures, and scents. Even geological formations and atmospheric conditions speak through patterns and cycles that shape the environment. The ecological turn demands that we learn to translate these myriad voices, recognizing their intrinsic value and integrating their perspectives into a more holistic understanding of the world. “The importance of translation”, then, “lies in its understanding of a phenomenon that is at the heart of our current ecological predicament” (Cronin, 2025, p. 78).

In this way, an ecological translation, so-called eco-translation, becomes necessary for reciprocity and mutual understanding between humans and the more-than-human world (Cronin, 2017). Eco-translation pushes us out of the boundaries of anthropocentric communication and encourages us to embark on a greater, more expansive dialogue with the Earth (Cronin, 2017). On the one hand, “by embracing the principles of eco-translation and incorporating interdisciplinary approaches, translation studies can evolve into a more inclusive and ethically responsible field” (Arjmandi, 2024, p. 136). On the other hand, without eco-translation, the ecological turn is not yet accomplished, for it is through this approach that we are truly *decentering the ego* and *recentering the eco*, setting the stage for sustainable and equitable coexistence.

“Natural science have for long been placed in opposition to human science because the former have always been ascribed with objectivity and the latter with subjectivity” (Naderi & Tajvidi, 2023, p. 52). On the other hand, with geography as the only exception, the social and human sciences have gradually separated themselves from the natural science (Cronin, 2017). These separations stem from a long-standing emphasis on human exceptionalism – the idea that humans and human societies are fundamentally distinct from and emancipated from the constraints of nature.

Having said that, in response to the escalating environmental crises of the 21st century – climate change, biodiversity loss, and ecological degradation – the humanities are currently experiencing an ecological turn, where various disciplines are actively addressing such environmental issues (Benchechrone & Touaf, 2024). In parallel with this broader trend, translation studies is also experiencing its own ecological turn. The growing prominence of eco-translation is evident in the field’s leading academic forums. For instance, the 7th and 8th conferences of the International Association for Translation and Intercultural Studies (IATIS) have prominently featured eco-translation as a central theme, reflecting the discipline’s commitment to addressing ecological concerns (IATIS, n.d.). Thus, through this article, we reflect on how the ecological turn is unfolding within the field of translation studies and explore its emotional and intellectual consequences.

Methodology

The current study employs an explorative research design to investigate the ecological turn in translation studies through Bachmann-Medick’s (2009) three-stage model of disciplinary turns. The methodology combines the narrative review approach and conceptual analysis, with snowballing used to identify relevant scholarly works. By adopting this dual methodological perspective, the study aims to capture both the substantive theoretical developments and the discursive patterns that characterize this disciplinary shift. For this purpose, the literature review section is integrated into the discussion, ensuring a cohesive analysis that contextualizes findings within existing scholarly debates. The research, moreover, is fundamentally theoretical and conceptual in nature, focusing on how eco-translation has transformed from a niche concern into a significant paradigm challenging traditional anthropocentric approaches in translation studies.

To satisfy the broad range of relevant scholarship, the study engages a snowballing method at various times. The first phase of snowballing involved systematic searches on several major academic platforms (Google Scholar, ResearchGate, and Academia) employing search strings using combinations of “eco-translation”, “ecological translation”, and “translation ecology”, along with relevant discipline identifiers.

This first level search identified primary texts and key scholars who shaped the discourse, including Cronin (2017) and Hu (2020). Subsequent phases expanded the corpus through backward snowballing (examining references in key publications), forward snowballing (tracking citations of seminal works), and lateral expansion (following thematic connections through subject headings and related works). Backward snowballing proved particularly valuable for uncovering foundational texts published prior to 2017, which illuminated the early intersections of ecology and translation studies. These sources revealed how eco-translation initially emerged as a scholarly concept, tracing its theoretical roots and the gradual integration of ecological frameworks into translation theory. Meanwhile, forward snowballing helped identify contemporary developments, highlighting how earlier ideas were refined or contested in recent research. Lateral expansion further enriched the research by incorporating interdisciplinary perspectives and parallel discourses in adjacent fields such as biosemiotics and ecolinguistics, ensuring a more nuanced understanding of eco-translation’s evolution. This iterative process continued until theoretical saturation was achieved, ensuring a

thorough representation of the field's development while maintaining focus on the most influential contributions.

The study applies Bachmann-Medick's (2009) three-stage model for how "a turn becomes a turn" (Bachmann-Medick, 2016, p. 16), providing a useful framework for understanding the emergence and development of transformative shifts in academic disciplines. According to Bachmann-Medick, a turn is not merely a fleeting trend but a profound reorientation that unfolds through three distinct stages: "1. expansion of the object or thematic field; 2. metaphorization; 3. methodological refinement, provoking a conceptual leap and transdisciplinary application" (Bachmann-Medick, 2009, p. 4). These stages are essential for a turn to take root and gain momentum within a discipline. In the case of the ecological turn in translation studies, eco-translation has clearly progressed through all three stages, initiating a paradigm shift in the field.

In order to systematically analyze the literature, each stage of the model was transformed into specific analytical categories, which served as a framework for identifying the stages:

Thematic expansion: The first stage involves broadening the scope of the discipline to include new objects of study or thematic concerns. It is identified through works that explicitly incorporate ecological themes (e.g., climate discourse, indigenous ecological knowledge) into translation theory. In translation studies, such works have expanded the field beyond its traditional focus on literary translation to encompass environmental issues and their representation in language. This expansion is evident in the growing body of research on topics such as the translation of ecological literature, environmental policies, and Indigenous knowledge systems, as well as the role of translation in climate communication and environmental activism.

Metaphorical application: It is coded for texts taking up ecology in a strictly metaphoric sense, in which questions of actual ecological concerns are indifferently absent. They employ ecological metaphors (e.g., "translation ecosystem", "translation ecology") to explain translation phenomena.

Methodological refinement: It is marked by studies developing theoretical frameworks connecting translation to ecological theory. Here, the concept of ecology has reemerged in the form of new paradigm, that of *eco-translation*, which extends the scope of translation studies considerably, far beyond its traditional theoretical frameworks.

Results and Discussion

This section systematically examines the ecological turn in translation studies through Bachmann-Medick's three-stage framework – thematic expansion, metaphorical application, and methodological refinement – before analyzing its intellectual and emotional impact on scholars, particularly the emergence of solastalgia. Seen in this light, it highlights how such disciplinary transformation simultaneously provokes scholarly unease while fundamentally reshaping how translation is conceptualized.

Thematic Ecotranslation

Before Cronin (2017) expands on the notion of eco-translation in his book *Eco-Translation: Translation and Ecology in the Age of the Anthropocene*, translation has been utilized in various ways to address environmental issues, albeit with limited engagement. Such inclusion of ecology in academic discussions of translation can be traced back to 1988. At that time, Newmark (1988) drew attention to how ecological factors – such as diverse natural environments and regional landscapes – pose challenges for translators. Despite his primary focus on the challenges that ecological factors present to translation practices, this perspective much aligns with ecolinguistics perspective by acknowledging the significance of ecological considerations in the translation product (for more

information about ecolinguistics see Alexander & Stibbe, 2014; Penz & Fill, 2022; Steffensen & Fill, 2014; Stibbe, 2012; Stibbe, 2014, 2015, 2021). These initiatives can be categorized as *narrowly defined ecotranslation*, and as Shread (2023) argues, “here ecology is the object of study” (p. 117). In this context, by examining a translation of Ulrike Almut Sandig’s German Poem *so habe ich sagen gehört* Bradley (2021) understands *ecotranslation* “as a translation that recognizes and retains ecological themes from the source text” (p. 1). In a similar vein, Coisson and Badenes (2015) categorized ecotranslation into three scenarios: rereading and retranslating works where nature’s voice in the source text was silenced in translation; translating works that present an ecological awareness and have not yet been translated; and translating by manipulating works that originally lack an ecological awareness to create a new, ecologically inspired text.

There are numerous other studies in which ecology serves as the object of translation. For instance, in their recent paper *The Role of Paratexts in Raising Ecological Awareness: A Case Study of the Persian Translation of Animal Farm*, Arjmandi and Ehteshami (2025) have investigated how translations can reshape the perception of ecological messages through their paratextual elements. Their proposal suggests that while exerting changes on the text may present considerable challenges such as the ethical dilemmas faced by translators and the potential compromise of translation accuracy, it is often the paratexts that could offer a more secure avenue for guiding readers towards ecological awareness. As another example, Aksoy (2020), in her article *Insights into a New Paradigm in Translation: Eco-Translation and its Reflections*, examines the recreation of physical landscapes in literary texts and their translations, focusing on how nature is represented. Similarly, Sterk’s (2019) work, *An Ecotranslation Manifesto: On the Translation of Bionyms in Nativist and Nature Writing from Taiwan*, shifts the focus to plant and animal names, emphasizing their significance in translation research aimed at protecting vulnerable ecologies. Furthermore, Masiola and Tomei’s (2016) study, *Multilingual Phytonymy: Ecotranslation and Vernaculars*, closely investigates the naming conventions of the Caribbean’s botanical world, highlighting the intersection of indigenous and colonial legacies. Together, these works illustrate a growing recognition of ecological themes within translation studies, underscoring the importance of environmental considerations in literary translation.

Metaphoric Eco-translatology

The second stage uses the concept of ecology in a metaphorical way to point at and refer to the fact that many factors coexist in the complex system of translation – such as source and target texts, languages, cultures, translators, clients, and readers – interrelate with and depend on each other. As he framed in his book *Globalization and Translation*, Cronin (2003) initially presents the concept of *translation ecology* for the first time, discussing “the role of translation in giving minority language speakers control over what, when and how texts might be translated into or out of their languages” (Cronin, 2017, p. 2). An earlier metaphorical incorporation of ecological principles into this interdisciplinary field dates back to the germination of *Eco-translatology* in Hong Kong in 2001 (Hu, 2020). Considering ecology as a metaphor, the Darwinian terminology of adaptation, selection and survival of the fittest is served as an alternative version of polysystem theory by analyzing the environment of the translated text (Shread, 2023). Eco-translatology, then, allows for deep and detailed analysis of the complexity of translation by establishing an appropriate translational environment. This approach examines not only the source and target texts and their respective languages but also delves into the intricate linguistic, cultural, and social dimensions that influence translation outcomes. Additionally, it considers the roles and perspectives of the many different agents of translation: the author producing the source text, the client commissioning the translation, and the readers before whom the translation will be presented.

The exploration of metaphoric eco-translation in China is notably advanced, with other scholars such as Wang (2011) and Jiang (2015) contributing significantly to this field. Xu, for example, has tried to account for all the variables of translation environment by categorizing them into natural, social,

normative and interior environments (Farahzad & Ehteshami, 2018). However, even his application of natural environment remains figurative.

Numerous scholars outside of China, however, have also engaged in similar metaphorical explorations of translation ecology. For instance, Scott (2015) was the first to use the very term *eco-translation*. In so doing he highlighted the open-ended, foraging nature of the translator's task, the sense of reading as an act of inhabiting the source text, and the treatment of the target text as a material object in the real world of reading (Cronin, 2018). Tosi's (2013) work, *Translation as a Test of Language Vitality*, as another metaphorical appeal, frames translation practices within the European Union as a "linguistic ecosystem" (p. 13). Beebee et al. (2017) have also applied basic ecological concepts to examine the cultural environments surrounding literary translation. In a more recent contribution *The Ecology of Translation, or The Translator as World Author*, Alex Ciorogar (2021) argues that "Translatorship – understood, here, in terms of an ecosystem – connects the imaginary and fictional world of a text with the real worlds through which it voyages" (p. 317).

Having said that, these types of metaphorical appeal to the ecology are worth recalling in that they "form an interdisciplinary field of study that lies between science and humanities" (Shread, 2023, p. 118). These initiatives resonate with Cronin's (2020a) vision of "the need to orient knowledge to different ends" and the re-evaluation of "the infrastructures of knowledge", emphasizing a transformative approach to understanding translation within ecological contexts (p. 100). Even though they differ from what we now call eco-translation, metaphorical contributions to the field of translation studies are valuable ways for rethinking translation, paving the way for such an ecological turn.

Eco-translation

In the case of narrowly defined ecotranslation, as can be observed, dropping the hyphen is encouraged. Abandoning the hyphen – or, to *unhook* it – here, plays into the full-integration of translation traditions. "This traditional scholarly approach keeps us firmly in a world that gravitates around humans, even as it addresses the responsibilities of this species to nature and the representation of these relations" (Shread, 2023, p. 117). However, eco-translation, is wisely reintroduced and redefined with a hyphen. The utility of the hyphen, then, is an important *reminder*, in that it impedes full integration into translation traditions. Eco-translation, then, adapts a critical perspective on traditional scholarship, which often centers human experiences and narratives. The anthropocentric perspective, focusing on human beings and their experiences, then, automatically cements a worldview that emphasizes human interest and values over everything else. While such scholarship may engage with environmental issues and advocate for ethical stewardship, it risks perpetuating a hierarchical relationship where nature is seen primarily as a resource or backdrop for human activity. By framing our understanding of nature within human-centric paradigms, we may overlook the complex interdependencies that exist in ecological systems and the voices of non-human actors. This calls for a more inclusive approach that recognizes the agency of all living beings and fosters a deeper, more reciprocal relationship with the environment, ultimately challenging us to rethink our place within the broader tapestry of life. Eco-translation, then, as Cronin (2017) defined it, is "an attempt to think through some of the assumptions we make about translation and how they may need to be radically re-thought on a planet that, from a human standpoint, is entering the most critical phase of its existence" (p. 3).

Not confined to his theories, eco-translation is nonetheless significantly shaped by Cronin's influence, positioning his approach at the forefront of this emerging field. His approach derives from a comprehensive understanding of *political ecology* (Robbins, 2011), which encompasses the social, cultural, political, and economic factors that affect human relationships with each other, other organisms, and the physical environment (Cronin, 2017). By conceptualizing these relationships as

translational, Cronin aims to take into account “all forms of translation thinking and practice” (Cronin, 2017, p. 2), and to establish a planetary democracy that effectively addresses the ecological crisis (Cronin, 2020c). To this end, he proposes the concept of the *tradosphere*, which refers to the collective sum of all translation systems on Earth (Cronin, 2017, 2021). He elaborates that this encompasses “all the ways in which information circulates between living and non-living organisms and is translated into a language or a code that can be processed or understood by receiving entity” (Cronin, 2017, p. 71; 2020b, p. 89).

Such expanded definition and approach defines “translation not only in linguistic and anthropocentric terms but also in as a semiotic process that takes place in and between all (living) organisms – human and non-human alike” (Meylaerts & Marais, 2023, p. 3). This concept of eco-translation we have availed ourselves of above can be approached from *biosemiotics* (see Kull, 2023; Kull & Torop, 2011; Marais, 2019; Marais & Kull, 2016; Marais et al., 2024). Chronologically, biosemiotics predates eco-translation as a conceptual framework.

While eco-translation, including interspecies communication, seems to be firmly anchored in the 21st century, Brian Baer reminds us of the emergence of biosemiotics in Soviet translatology back in the early 20th century, as linked with the Russian formalists and the adaptation of Saussurean linguistics in literature. (Gonne et al., 2024, pp. 2-3)

Biosemiotics, much like eco-translation, adopts a transdisciplinary approach that seeks to transcend traditional disciplinary boundaries through collaboration across different scientific fields. Understanding living systems and their semiotic processes requires a holistic approach that integrates knowledge and methods from various disciplines, including biology, ecology, semiotics, and translation studies. “Development of biosemiotics has been a permanent search for improvement of conceptual apparatus that would best correspond to semiotic phenomena and processes in the living world” (Kull, 2023, p. 78). Marais (2019), as a pioneer figure in bridging biosemiotics and translation studies, explores cases of translation that do not include language at all. His works, along with those of other biosemioticians, theorize translation as a concept that encompasses all semiotic phenomena within the *tradosphere*.

By broadening the scope of translation to include non-human actors and ecological systems, eco-translation challenges the traditional foundations of the field, which have long been anchored in human language and communication. This shift, while innovative and necessary in the context of global environmental crises, inevitably introduces a sense of disorientation among scholars whose work is deeply rooted in anthropocentric frameworks. For many, the move away from human language as the primary site of meaning-making can feel destabilizing, as it disrupts established methodologies, theories, and disciplinary identities. Yet, this disorientation also opens up transformative possibilities, urging scholars to rethink the boundaries of translation and to engage with the interconnected, multispecies realities of the natural world.

Solastalgia in Translation Studies

As opposed to nostalgia – the melancholia or homesickness experienced by individuals when separated from their home – solastalgia, a term coined by Australian philosopher and environmentalist Albrecht (2006), is “the pain or sickness caused by the loss or lack of solace and the sense of isolation connected to the present state of one’s home and territory” (p. 45) — a form of homesickness that one experiences not when away from home, but while still physically present in a familiar environment that has undergone profound and often unsettling changes. It can arise in any context where place identity – the emotional and psychological connection individuals have to their environment – faces significant disruption due to pervasive changes in the existing order. These alterations, whether environmental, social, or cultural, can evoke a deep sense of loss,

disorientation, and distress, even as one remains in the same physical space. The rapid changes in each of cultural, social, technological, and environmental contexts could cause solastalgia.

The rapid and often radical shift occurring in cultural, social, technological, and environmental contexts today have made solastalgia an increasingly relevant concept. Seen in this light, environmental degradation, climate change, urbanization, and the erosion of cultural traditions can all cause solastalgia. In this sense, solastalgia is indicative of what Shread (2023) calls *ecological vertigo*. In her terms, such “vertigo begins precisely as disarticulation of body and environment, the expression of dizziness reflecting a distortion of proprioceptive functions, and the difficulty of being embodied in the world” (Shread, 2023, p. 115). What is more, in the realm of translation studies, scholars and translators are beginning to experience a sense of solastalgia within their own field. Due to innovative approaches such as eco-translation, technological advancements such as artificial intelligence, and shifting theoretical paradigms, including ecological turn, the discipline has undergone conspicuous changes in recent years. Although these changes have brought progress and new opportunities, they have also disrupted the traditional foundations and practices of the field, leaving some academics feeling a profound sense of loss and disconnection. In this context, solastalgia manifests as a form of intellectual and emotional homesickness – a longing for the familiar contours of translation studies as it once was, even as scholars remain actively engaged in the field.

This sense of solastalgia in translation studies emphasizes the common human experience of adjusting to change and loss in an increasingly dynamic world. It indicates the affective and psychological effect of ecological turn, not only on physical but also on intellectual and professional spaces. Since the field continues to evolve, the identification and reconciliation of this sense of solastalgia is necessary to foster resilience and adaptability among researchers so they can cope with the challenges of ecological turn while still having a sense of belongingness to their intellectual *home*.

The dual critique we face as scholars working on eco-translation – being advised “not to be lost in translation” and “not to lose translation” – together, encapsulates the solastalgic struggle of scholars who feel a deep attachment to the familiar contours of their discipline while simultaneously grappling with the necessity of change. The ecological turn in translation studies – driven by environmental crisis and transdisciplinary influences – have created a sense of disorientation and loss for some, even as they open up exciting new possibilities.

To be Lost in Translation

It serves, in turn, as a caution against over-theorizing or accepting overly complicated theories that would obscure the essence of translation and of translation studies. It betrays fear that theoretical evolutions in field would take it so far from its practical roots to have scholars and practitioners adrift in thought. Through this turn, what emerges as solastalgic is the experience of being *lost in translation* – misunderstood, disoriented, and adrift in the process of conceptualization. As Marais and Meylaerts (2024) rightly remark, “we left more empirical work in the background in a discipline which has been strongly characterized by empirical models” (p. 2). Strained between the empirical origins of translation studies and its unfolding theoretical and conceptual evolutions is at center of that sense of solastalgia. It becomes particularly pronounced in the third form of eco-translation. Although even in initial steps remained to have some degree of practical application and empirical grounding, the third stage is a clear turn from empiricism, embracing instead the expansive potential of conceptual and theoretical scholarly work. In her recent reflection *On Turns and Fashions in Translation Studies and Beyond*, Zwischenberger (2023), however, underscores the need for rigorous conceptual development in this evolving landscape. She argues that “in order for the concepts behind a turn to become analytical categories and go beyond the loose metaphors, considerable conceptual work is necessary” (Zwischenberger, 2023, p. 7).

To Lose Translation

This underscores apprehension at abandoning field practice precept and fundamentals in the name of innovation. The simple yet profound response to such critique is that “as researchers, our first loyalty is to research itself, not to a discipline” (Gonne et al., 2024, p. 9). By prioritizing research over discipline, scholars can embrace transdisciplinarity, respond to emerging global challenges, and contribute meaningfully to broader conversations, all while remaining true to the core ethos of inquiry and discovery that defines academia. Eco-translation, in this regard, aligns with other innovative and transdisciplinary approaches that translate cities and space (Cronin & Simon, 2014; Ehteshami, 2022; Lee, 2021; Simon, 2012, 2019), architecture (Akcan, 2012), museums (Sturge, 2007), bodies (Bennett, 2007), artwork (Bal & Morra, 2007; Baynham & Lee, 2019; Campbell & Vidal, 2024a, 2024b; Rizzo, 2017; Simon, 2023; Vidal Claramonte, 2025), and objects (Beattie et al., 2023; Bertacco & Vallorani, 2021; Ciribuco & O’Connor, 2022; Mazzara, 2019; Simon & Polezzi, 2022; Vidal Claramonte, 2025), collectively departing from privileging human language as the sole medium of meaning-making to explore diverse, often non-linguistic processes of meaning creation and translation.

What we risk and yet embrace to lose is indeed not translation itself, but rather Jakobson’s concept of *proper translation* and *the property of translation*. Blumczynski (2023) puts forward the argument that “calling one category in a taxonomy ‘proper’ automatically creates a conceptual hierarchy that renders all remaining categories somehow ‘less proper’” (p. 15). Going beyond linguistic translation, however, has raised a sense of solastalgia among many scholars and translators, prompting them to ask questions, such as the one posed by Chesterman (2020, p. 219): “If one can see anything as translation or the result of translation – parks, churches, government organizations, and so on – does the concept retain any meaningful specificity?” Yet even before Chesterman took the trouble to raise such a question, Venuti (2019), in his book *Contra Instrumentalism: A Translation Polemic*, along with many other scholars, had already addressed – or at least attempted to address – these concerns.

Translation is and always has been ubiquitous. Today it figures significantly in the practices housed in many cultural and social institutions—economic and political, legal and military, religious and scientific. The arts and human sciences depend on translation for their invention, accumulation, and dissemination of forms and ideas. Nonetheless, translation remains grossly misunderstood, ruthlessly exploited, and blindly stigmatized. Now is the time to abandon the simplistic, clichéd thinking that has limited our understanding of it for millennia. (p. ix)

As Blumczynski (2023) indicates, “abandoning this simplistic and clichéd thinking about translation would surely involve opposition to conceptualizing it as a predominantly ‘linguistic and cultural’ operation” (p. 19). To take that step requires challenging scholars to take more expansive and inclusive conceptions of translation – one that reflects the interconnected, multispecies realities of the world and challenges the anthropocentric assumptions that have long dominated the field. Translating in that manner has potential to confront the challenge of our globalized modern world while not conceding its rigor or relevance.

Conclusion

The ecological turn in translation studies is a fundamental and imperative paradigm shift, one that overhauls the anthropocentric basis of the discipline and recasts translation as a multispecies, semiotic activity. The ecological turn, as outlined in this article, has progressed through three key stages: the expansion of the thematic field, the metaphorical use of ecology, and the methodological refinement that has led to a conceptual leap and transdisciplinary application. Each phase has contributed to the development of the field and brought it away from its traditional boundaries. Having said that, such a shift, as groundbreaking and revolutionary as it is, has also been

accompanied by feelings of disorientation and solastalgia in scholars steeped in traditional, human-centered paradigms. The struggle between holding onto the foundational principles of the discipline and moving towards the general possibilities of eco-translation is part of a greater intellectual and emotional struggle in the discipline. Scholars, in doing so, are confronted with the double criticism of *not being lost in translation* and *not losing translation*, which encapsulates the solastalgic experience of coping with change while maintaining the attachment to the familiar contours of their scholarly home.

In spite of this sense of solastalgia, the ecological turn in translation studies presents stimulating new horizons for the discipline. By focusing on research rather than discipline and adopting transdisciplinarity, researchers can make significant contributions to wider debates regarding sustainability, environmental justice, and the inherent value of all living things. The tradosphere, in Cronin's suggestion, is the sum total of all the translation systems available on the globe, highlighting human and non-human agents' intertwining in meaning production and distribution. This wider sense of translation not only demolishes the simple and overworked thinking which has restrained the discipline for millennia but also persuades scholars towards a more integrative and inclusive practice.

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Repair Strategies in English-Persian Interpreting: A Comparative Study of Simultaneous and Consecutive Modes

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Abstract

This empirical investigation examines the repair strategies used by trainee interpreters in English-Persian simultaneous (SI) and consecutive interpreting (CI) modes. The research seeks to investigate two main questions: whether there are differences in the frequency of repairs between SI and CI, and whether there are variations in the sorts of repair strategies employed in both modes. The study involved nine trainees from Shahid Bahonar University of Kerman who were learning interpreting. The study employed a 4-minute speech from Voice of America English News, which discussed the influence of vitamins on preventing the advancement of AIDS in women. Occurrences of self-repairs were detected using Tang's (2020c) framework. The findings revealed a notable disparity in the frequency of repair strategies between CI and SI modes, with CI trainees utilizing a greater number of repairs. In addition, the trainees in the CI mode achieved superior scores in explication and synonym techniques. The results emphasize the unique patterns of repair strategies in both consecutive and simultaneous interpretation, reflecting the importance of focused training to improve interpreters' abilities in both modes. Interpreter training programs may consider including explicit instruction on repair procedures and placing emphasis on evaluating their use in performance assessments.

Keywords: Repair strategies, consecutive interpreting, simultaneous interpreting, trainee interpreters

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1. Introduction

Disfluencies refer to inconsistencies that disrupt the smoothness of a speaker's speech, without contributing any meaningful information to what the speaker is saying (Fox Tree, 1995; Gósy, 2007). The majority of research often classify disfluencies into two main categories. Repair disfluencies refer to instances where the smoothness of speech is interrupted, and the speaker then makes an effort to repair or replace what was previously spoken. Conversely, non-repair disfluencies are not corrected and consist of filled pauses (such as "uh" and "uhm"), silent pauses (sometimes referred to as "silent hesitations"), and elongations of vowels and consonants (Paice, 2022).

The notion of repair was first introduced by Schegloff, Jefferson, and Sacks (1997) in their examination of first language everyday communication. In their study, Bortfeld et al. (2001) discovered that, on average, 6% of words in spoken language exhibit disfluencies. Furthermore, Blacfkmer and Mitton (1991) found that radio talk show callers have a disfluency around every 4.6 seconds. These findings highlight the prevalence of disfluencies in spoken language.

According to Petite (2005), interpreters, similar to speakers, engage in the process of editing their product and making self-modifications, which are referred to as repairs. The occurrence of self-repairs in interpreting reveals that interpreters actively engage in monitoring their own output and make efforts to ensure accuracy and clarity in their interpretations. It demonstrates their recognition of possible mistakes or inaccurate understandings and their dedication to correcting them when they occur. To put it in Magnifico and Defrancq's (2019) terms, self-repairs serve as evidence of interpreters' conformity to norms. They emphasize that it is the interpreter, rather than the observer, who determines that the output does not meet a specific norm.

Wang (2007) investigates this active self-monitoring through a study on self-repairs in English to Chinese simultaneous interpreting, utilizing Levelt's (1983) classification of repairs as a framework. He asserted that the compensate technique of interpreting is not solely focused on correcting errors, but rather relies on the monitoring mechanism launched by interpreters. Similarly, Li (2011) examined the use of self-repairs by trainee interpreters during consecutive interpreting. Through the analysis of a set of thirty-one trainees, it was discovered that self-repair is strongly correlated with the self-monitoring mechanism. In addition, he categorized the different forms of self-correction using Kormos' (1999) classification of repairs in second language acquisition.

Repair in interpreting is defined by Tissi (2000, p. 114) as "an utterance rectifying what the interpreter has just said or certain errors because of slip of tongue". However, interpreters are usually advised to minimize repairs in order to improve the fluency of their delivery (Tang, 2020; Tissi, 2000). There has been an increasing scholarly focus on fluency as a measurable indicator of interpreting quality within the field of interpreting studies (Bartłomiejczyk & Gumul, 2024; Lin et al., 2018; Macías, 2006; Plevoets & Defrancq, 2016; Tissi, 2000). This focus on fluency as a key indicator of interpreting quality aligns with broader efforts to assess interpreting quality from multiple perspectives and dimensions, utilizing diverse standards and criteria (Pöchhacker, 2001). Interpreting quality assessment can be analyzed from several viewpoints and aspects, utilizing a variety of benchmarks and criteria (Pöchhacker, 2001). Interpreters, consumers (listeners, speakers), and commissioners of interpreting services can offer subjective evaluations (Gile, 1991). On the other hand, researchers may use objective measurements to assess the quality of the interpretive output as external observers (Viezzi, 1996, as cited in Pöchhacker, 2001).

The fact that self-repair can serve as both an apparent indicator of interpreting disfluency and an interpreting strategy (Bakti & Bóna, 2016; Zeng & Hong, 2012; Dailidénaitė, 2009; Kohn & Kalina, 1996; Petite, 2005) underscores the need for further investigation into this topic. However, the topic of self-repairs has received less attention in interpreting compared to monolingual speech (Magnifico

& Defrancq, 2019). Additionally, as correctly stated by Mirek (2022), self-repairs have received limited attention with regard to trainee interpreters. Furthermore, it remains unclear whether such strategies would exhibit distinct characteristics depending on the mode of interpretation. Moreover, there is a scarcity of research on repairs in the English and Persian language combination. The present experimental study intended to fill this gap by comparing the repairs used by trainee interpreters in English-Persian simultaneous and consecutive interpreting modes. To this end, the following research questions were posed:

1. Does the frequency of repair strategies used by trainee interpreters in English-Persian simultaneous interpreting differ significantly from those used in consecutive interpreting?
2. Do the types of repair strategies used by trainee interpreters in English-Persian simultaneous interpreting differ significantly from those used in consecutive interpreting?

2. Literature Review

Self-repair in Spontaneous Speech

In the domain of language production, whether in a first or second language, self-repair is a widespread occurrence. The process entails recognizing an issue in our speech plan or spoken output, pausing the speech flow, and making the necessary repairs (Gilabert, 2013). Linguistically, repairs are defined as efforts to resolve problems in speaking, hearing, or understanding (Mead, 2015). In conversational contexts, repairs can be initiated by the speaker or other participants, resulting in either 'self-repairs' or 'other-repairs' (Schegloff et al., 1977).

Second language acquisition scholars have shown interest in both self-initiated and other-initiated repairs since they demonstrate students' awareness of form and can be interpreted as efforts to improve accuracy (Kormos, 1999). According to Lyter and Ranta (1997), when learners receive corrective feedback and undertake repairs themselves, it helps them to automate the retrieval of their knowledge of the target language and change their assumptions about the language. Self-initiated repairs have comparable objectives but are generated spontaneously by learners without any external input (Gilabert, 2013).

Self-repairs, as Schegloff et al. (1977) highlighted, goes beyond simple error correction. They contend that occurrences of repair can take place even in the absence of any evident error, mistake, or problem. Petite (2005, p. 30) echoes the same idea and considers repairs as "matching the output against fitness for purpose rather than simply as the correction of errors". Blacfkmer and Mitton (1991) propose that self-repair may encompass modifications to prior content, repetition of prior content (with the exception of repetition for emphasis), or the application of an editing term. In other words, self-repair encompasses more than just error correction; it also pertains to the suitability or propriety of an expression.

According to Levelt (1983), repairs in speech are linked to the language monitoring mechanism used by speakers to identify possible difficulties in their utterances. To commence a repair, two crucial processes must occur. Initially, the speaker must become aware of any difficulty or disturbance in their speech, prompting them to abruptly halt their ongoing flow of speech. Furthermore, the speaker must produce a new utterance that addresses the detected problem and takes into account its possible influence on the listener.

Self-repair in Interpreting

According to Mead (2015), in monologues, repairs are self-initiated. Petite (2005) suggests that repairs in interpreting are similar to those found in monolingual speech. Kohn and Kalina (1996) were the first to identify self-repair as an interpreting strategy. They defined self-repair as an emergency strategy to be employed in situations where comprehension and production strategies have proven

ineffective. Repair strategies are categorized as replacement, completion, approximation, and relativation by Kalina (1998). The first two are referred to as 'overt repair'. Completion is used to restore an incomplete sentence by restarting a new sentence. On the contrary, approximation and relativation are 'covert repair' that assist interpreters in bringing their output closer to the input without producing visibly disfluent speech.

Dailidénaité (2009, p. 17) expands the classification of self-repairs by incorporating the categories of 'no repair' and 'delayed repair'. A 'no repair' circumstance arises when the interpreter chooses not to correct an error if the potential harm caused by the correction is greater than the advantage gained. However, the interpreter may still employ filled pauses like "uh" or "ah" and repeat certain words. The idea of 'no repair' is consistent with Levelt's (1983) concept of covert repairs seen in spontaneous speech, when there are no changes, additions, or removals of morphemes. However, the occurrence of filled pauses and repetitions in 'no repair' situations might have a negative impact on the fluency and coherence of speech delivery. In the field of interpreting, 'delayed repairs' refer to instances where interpreters offer a repair or correction at a certain distance from the original input. Technically speaking, delayed repairs have minimal impact on the smoothness of interpretation and might be seen as subtle, voluntary repairs.

In Petite's (2005) study, the process of interpretation was considered, and some modifications were made to Levelt's (1983) terminology of repairs. The objective was to uncover the reasons behind the use of self-repair procedures. Based on an examination of genuine data obtained from a collection of eight skilled interpreters who were recorded at four distinct international conferences, the author proposes that interpreters engage in repairs in order to enhance the suitability of their statements, rather than solely to rectify mistakes. In addition, Petite (2005, p. 44) categorizes repairs as either 'input-generated repairs', where the interpreter seeks to closely resemble the original input, or 'output-generated repairs', where the interpreter aims to maximize the impact of their output while minimizing the effort involved in producing and receiving it. She categorizes repairs into four main types: post-articulatory appropriateness repairs, post-articulatory error repairs, post-articulatory D repairs, and mid-articulatory repairs. Appropriateness repairs are further divided into AA (repairs to remove ambiguity), AL (repairs for more precise terms), and AC (repairs for more coherence with previous text or terminology). Error repairs are subdivided into EL (repairs of lexical errors), ES (repairs of syntactic errors), EF (repairs of phonological errors), and EG (repairs of grammatical errors).

Tang (2020) conducted multiple studies on self-repair in consecutive interpreting. The initial research (Tang, 2020a) investigates how trainees' interpreting from Chinese to English (and vice versa) impacts the frequency and types of repairs. The findings revealed that trainees exhibited different repair patterns depending on the direction of interpretation. Interpreting from Chinese to English generally resulted in more frequent repairs compared to the reverse. Moreover, the study identified various types of repairs, such as self-corrections and reformulations, and noted that these were more prevalent when interpreting into the non-native language. The findings suggest that training programs should emphasize direction-specific strategies to improve repair fluency and overall interpreting performance. In another study, Tang (2020b) constructed a parallel corpus comprising source speeches and interpreting outputs from invited interpreting trainees. She classified all identified repair cases based on four criteria: (a) linguistic information in the output, (b) paralinguistic features of the output, (c) trainees' notes, and (d) trainees' reports from retrospective interviews conducted post-interpreting session. The resulting taxonomy model categorizes interpreters' repair strategies into five major categories and nine subcategories. Moreover, Tang (2020c) examines the methods used to repair errors in Chinese-English consecutive interpreting, by comparing the approaches of experienced interpreters and trainee interpreters. The study reveals that competent interpreters make significantly fewer repairs, employing a greater number of adept synonym repairs as a means of mitigating errors. Conversely, trainees often rely on repetitions, restart repairs, and

correcting grammatical and lexical errors as a result of their limited ability in the English language. The disparities underscore the influence of expertise on fluency and the capacity to handle repairs efficiently, indicating that the advanced skills of professional interpreters result in more fluid and cohesive interpretations.

Magnifico and Defrancq (2019, p. 19) categorize the motivations for self-repairs into two main groups: (a) the desire to adhere to norms and (b) motivations unrelated to norm compliance. When the output is defective, repairs are clearly employed by interpreters to fix instances of errors, which are norm-breaching situations. In the latter case, numerous hypothetical events can occur. In a flawless result, where self-repairs are unnecessary in terms of meaning (such as paraphrasing), interpreters may provide corrections to “buy time” in order to digest the lengthy sentence in the input. Moreover, characteristics of the original speeches can impact the cognitive capabilities of the interpreter. For instance, “problem triggers” such as faster speech rates, greater lexical density, or less organized texts can increase cognitive load and result in more errors. These findings are supported by Gile (2015, 2009, 1999).

Classification of Self-repair

For the sake of the present research, instances of self-repairs were identified in every mode of interpreting based on Tang (2020c, p. 40):

1. Error Repairs (ER): The goal of error repairs is to ensure that the interpretation remains accurate, clear, and faithful to the original message and are further divided into:
 - Phonetic Error Repairs (ERPs): These involve correcting mistakes in pronunciation or phonetic articulation. For example, if an interpreter mispronounces a word, they would correct it immediately.
 - Grammatical Error Repairs (ERGs): These repairs address errors in grammar, such as incorrect verb tense, subject-verb agreement, or preposition use. For instance, changing “he go” to “he goes”.
 - Lexical Error Repairs (ERLs): These involve correcting mistakes in word choice or vocabulary. For example, if an interpreter uses the wrong word, they would replace it with the correct one.
 - Semantic Error Repairs (ERSs): These repairs correct errors in meaning. If an interpreter realizes they have misunderstood or misrepresented the original message, they would correct the meaning to align with the source.
2. Explicitation Repairs (XR): These involve making implicit information explicit.
3. Precision Repairs (PR): These aim to enhance the accuracy or completeness of the interpretation.
4. Synonym Repairs (SR): These involve substituting a word with a synonym to maintain fluency.
5. Restart Repairs (RR): These occur when the interpreter begins a sentence with one word but then continues it using a different word, after initially selecting another word.
6. Repetition (RP): This involves repeating words, phrases, or phonemes to gain time or ensure clarity.

3. Methodology

This experimental study employed a quantitative approach to identify and compare occurrences of self-repair in the output of trainee interpreters during consecutive and simultaneous interpreting

tasks. Self-repair, in this particular context, pertains to the interpreters' instinctive rectification of their own output without any external influence or prompting.

Participants

The study included nine interpreting trainees (7 females and 2 males), all of whom were native Persian speakers with English as their foreign language. The participants had an average age of 21.8 years ($SD=1.53$), ranging from 21 to 23. All the trainees were pursuing a Bachelor's degree in English Translation at Shahid Bahonar University of Kerman. The students received instruction in both consecutive and simultaneous interpretation throughout two successive semesters. This systematic training was conveyed through two distinct university courses, with each course specifically emphasizing the cultivation of CI and SI skills, respectively. The participants were chosen using convenience sampling and could withdraw from the study if they desired.

Source Material

The source material used for the CI and SI tasks consisted of a 4-minute speech including 376 words, obtained from Voice of America English News (VOA). The speech was about the effect of vitamins in decreasing the progress of AIDS in infected women. The selected audio clip did not present any notable language or vocabulary difficulties for the students. The duration, type, and difficulty level of the audio clip closely corresponded to those experienced by the students throughout their CI and SI training in the multimedia lab.

Procedure

The participants were required to perform two interpreting tasks: consecutive interpreting and simultaneous interpreting. Before assessing their consecutive interpreting proficiency, the participants initially engaged in a sequence of 16 sessions, with each class lasting 90 minutes. These classes were centered around instructing students in the techniques and skills of consecutive interpreting, as outlined in Gillies (2013). These skills included delivery, active listening and analysis, memory and recall, note-taking, reformulation, self-monitoring, and split attention. Upon completion of the course, the participants went through a CI evaluation. They listened to a speech that was presented with a typical American accent. The speech was divided into chunks to facilitate consecutive interpretation. The participants' regular interpreting classes were held in the same multimedia lab where the exam was administered. One researcher served as the course instructor, while the other aided her in conducting the examination. The trainees were seated in front of a computer, wearing headphones. The instructor delivered oral instructions for the interpreting examination. The participants were needed to take notes as they listened to the speech segment by segment during the examination. After each segment, the participants were alerted with a "ding" sound to start interpreting. The interpretation of each participant was independently recorded for subsequent analysis. Finally, the data on the participants' CI and SI performance was transcribed to detect occurrences of self-repairs made in each interpretation mode.

Data Analysis

While there is agreement on the notion of a repair, the classification of repairs in the realm of interpretation has been extremely varied. In order to effectively analyze the repair tactics employed by trainee interpreters in simultaneous and consecutive interpreting, it is crucial to use a taxonomy specifically designed for studying interpreted speech.

Four systematic classifications of self-repair in interpreting were pertinent to this inquiry. In 2005, Petite conducted the initial categorization of repair strategies in SI by a corpus-based approach. The proposed model was mostly influenced by Levelt's (1983, 1989) taxonomy which was designed for spontaneous speech. Therefore, some amendments were made to Levelt's model. Nevertheless, it has constraints in differentiating certain sorts of repairs and is deficient in certain repairs that are

specific to interpretation. For instance, the model does not encompass repairs made to rectify semantic errors that occur when the interpreter misinterprets the original meaning. These kinds of repair are common in interpreting and should not be ignored.

Furthermore, Shen and Liang (2020) developed a taxonomy based on consecutive interpreting. This taxonomy identifies five distinct repair forms that are well characterized and do not overlap. However, due to the limited number of sample and the specific choice of source speeches the model does not cover certain typical repairs in interpreting such as repairs for correcting semantic errors. As a result, their taxonomy may not be universally applicable.

Tang (2020b) proposed the third repair taxonomy, which was derived from a parallel corpus of source speech and interpreting output produced by interpreting trainees. Afterwards, she categorized all the identified repair cases from that corpus into (a) error repairs further subdivided into (phonetic error repairs, grammatical error repairs, lexical error repairs, and semantic error repairs) (b) explicitation repairs, (c) precision repairs including (accuracy-targeted precision repairs, and completeness-targeted precision repairs), (d) synonym repairs, and (e) restart repairs.

In another study, Tang (2020c) introduced two modifications to his prior classification, namely Tang (2020b). Initially, precision repairs were no longer categorized into accuracy-focused precision repairs and completeness-focused precision repairs. Additionally, the category of repetition was included as a category due to its similarity to repairs. Furthermore, it was argued that this taxonomy encompasses a more extensive array of repair techniques usually employed by interpreters and offers a broader perspective on the characteristics of repair strategies in interpreting (Tang, 2020c).

4. Results

The first question was in search of whether the frequency of repair strategies used by trainee interpreters in English-Persian simultaneous interpreting (SI) differs from those used in consecutive interpreting (CI).

An independent samples *t*-test was run to compare the frequency of repair strategies of trainee interpreters in English-Persian simultaneous interpreting and consecutive interpreting.

Table 1. Descriptive Statistics of Frequency of Repair Strategies of Both Groups

Group	N	Mean	SD	Std. Error Mean
CI	9	27.66	10.09	3.36
SI	9	10.33	4.52	1.5

As shown in Table 1, the consecutive interpreting trainee interpreters ($M= 27.66$, $SD=10.09$) used repair strategies more than their simultaneous interpreting counterparts. The following table reveals if the difference between the two groups was statistically significant.

Table 2. Independent Samples Test Comparing Frequency of Repair Strategies of Both Groups

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	4.18	.05	4.69	16	.00	17.33	3.68	9.51	25.15
Equal variances not assumed			4.69	11.09	.00	17.33	3.68	9.22	25.44

There was a significant difference in the frequency of repair strategies of consecutive interpreting trainee interpreters ($M = 27.66$, $SD = 10.09$) and the simultaneous interpreting trainee interpreters ($M = 10.33$, $SD = 4.52$; $t(16) = 4.69$, $p = .00$, two-tailed). The magnitude of the differences in the means (mean difference = 17.33, 95% CI [9.51, 25.15]) was large (eta squared = .57). In general, consecutive interpreting trainee interpreters used more repair strategies than simultaneous interpreting trainee interpreters.

The second question examined whether the types of repair strategies used by trainee interpreters in English-Persian simultaneous interpreting differ from those used in consecutive interpreting. A multivariate analysis of variance (MANOVA) was run to compare the two groups in terms of the types of repair strategies (i.e., semantic, lexical, phonetic, explicitation, synonym, restart, and repetition).

Table 3. Descriptive Statistics of Repair Strategy Types of Both Groups

Type	Group	Mean	SD	N
Semantic	CI	1.22	1.09	9
	SI	.55	.72	9
Lexical	CI	1.66	1.22	9
	SI	1.77	1.39	9
Phonetic	CI	.22	.44	9
	SI	.44	.52	9
Explicitation	CI	14.55	5.89	9
	SI	4.44	4.3	9
Precision	CI	.66	1.11	9
	SI	.11	.33	9
Synonym	CI	1.33	1.73	9
	SI	.00	.00	9
Restart	CI	4.44	4.77	9
	SI	1.22	1.2	9

Repetition	CI	3.44	2.4	9
	SI	1.88	1.61	9

Table 3 reveals that the consecutive interpreting trainee interpreters obtained higher scores in all types of repair strategies. Table 4 shows if the difference in the performance of the two groups was statistically significant.

Table 4. Multivariate Test of Repair Strategy Types of Both Groups

Effect	Value	F	Hypothesis df	Error df	Sig.
Pillai's Trace	.85	6.72	8	9	.00
Wilks' Lambda	.14	6.72	8	9	.00
Hotelling's Trace	5.97	6.72	8	9	.00
Roy's Largest Root	5.97	6.72	8	9	.00

The result of Wilk's Lambda $F(8,9) = 6.72$, $P = .00$ indicates a statistically significant difference among the scores of types of repair strategies (Table 4). The pairwise comparison results (Table 5) show the components whose difference was significant.

Table 5. Pairwise Comparisons of Repair Strategy Types of Both Groups

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
explicitation	CI	SI	10.11*	2.43	.00
synonym	CI	SI	1.33*	.57	.03

*. The mean difference is significant at the .05 level.

The pairwise comparisons table reveals that the difference between the mean scores of types of repair strategies was significant for both groups ($p < .05$). In other words, the consecutive interpreting trainee interpreters obtained higher scores in explicitation and synonym strategies.

5. Discussion and Conclusion

The investigation into the frequency of repair techniques used by trainee interpreters in English-Persian simultaneous interpreting (SI) and consecutive interpreting (CI) demonstrates that trainee interpreters employed a greater number of repair strategies in CI than in SI mode. These findings are consistent with previous research that indicates that CI, which frequently entails more intricate linguistic and contextual difficulties, requires a greater number of repairs (Liang et al., 2017; Liang et al., 2019; Lv & Liang, 2019). This disparity can be attributed to the fundamental differences in cognitive processing between the two modes. In CI, interpreters work in phases—first listening and taking notes, then reconstructing the message—which introduces a temporal delay that allows for heightened self-monitoring and error detection. Han et al. (2023) frame this as *momentary engagement* within Complex Dynamic Systems Theory (CDST), arguing that CI's segmented structure creates opportunities for interpreters to dynamically adjust their output, leading to more frequent but deliberate repairs. In contrast, SI's real-time demands force interpreters to prioritize fluency over accuracy, suppressing repairs to avoid disrupting the flow of speech (Tang, 2020c). Trainee interpreters in CI mode may face several opportunities for errors that necessitate repairs, which is

indicative of their continuous learning process and the inherent difficulties in mastering consecutive interpreting techniques (Tang, 2020c). The extended processing time in CI not only increases the likelihood of noticing errors but also encourages trainees to experiment with corrections, reinforcing learning through iterative refinement. Han et al. (2023) further suggest that this iterative process aligns with CDST's emphasis on adaptability, where interpreters engage in online problem-solving to navigate linguistic and cognitive challenges. On the other hand, the reason for fewer repairs in SI mode could be related to the immediate nature of the interpreting process. Interpreters need to maintain fluency and coherence, which may restrict their ability to use repair procedures (Tang, 2020c). Here, Han et al.'s (2023) concept of *momentary engagement* is limited by SI's rigid time constraints, leaving little room for corrective adjustments without compromising delivery speed. Furthermore, the significant disparities in the utilization of repair strategies in the two modes indicate that training programs should be customized to tackle the distinct problems and cognitive requirements linked to each interpreting mode. For CI, pedagogy could leverage Han et al.'s (2023) findings by explicitly teaching trainees to exploit the *engagement windows* in their note-taking and reconstruction phases for strategic repairs. Conversely, SI training might focus on preemptive strategies (e.g., anticipation and simplification) to minimize errors before they occur, reducing the need for repairs altogether. By prioritizing the improvement and fine-tuning of repair strategies, interpreting pedagogy can optimize the overall efficiency and fluency of trainee interpreters (Gile, 1997).

The results of the second research question indicate significant disparities in the types of repairs employed by trainee interpreters in the two modes. The study revealed that explicitation repair and synonym repair were more frequently employed in consecutive mode as opposed to simultaneous mode. The growing use of explicitation in CI can be attributed to the intrinsic features of this mode, which allows for more time to clarify and elaborate on concepts. This aligns with Gile's (1997) effort models of interpreting, which posit that consecutive interpreting provides a temporal buffer between comprehension and production, enabling interpreters to strategically incorporate explicitations for clarity, coherence, or audience adaptation. In CI, the segmented workflow—where interpreters first process a speech segment before reformulating it—reduces cognitive pressure, freeing up attentional resources for deliberate repairs such as elaborative expansions or disambiguations. Conversely, in simultaneous interpreting (SI), the real-time demands of parallel listening and speaking constrain interpreters' capacity for structural or semantic elaboration (Seeber, 2015). Furthermore, the use of synonym repairs indicates a wider range of vocabulary and the ability to discover alternative terms in order to achieve coherence and logical progression. The decreased use of explicitation and synonym repair in simultaneous interpretation may also arise from the need to maintain a steady rhythm and avoid any disruption to the flow of the interpreted information. In other words, the immediacy of SI prioritizes fluency over precision, often leading to simpler, faster repairs (e.g., substitutions or omissions) rather than the more time-intensive explicitation strategies favored in CI. Thus, the modal-specific disparity in repair types reflects fundamental differences in cognitive load and processing time, as theorized by Gile (1997, 2009).

The current study's findings contrast those of Tang (2020c), which identified repetition repairs and restart repairs as the most often employed repair procedures among interpreting trainees. While the current study utilized the repair taxonomy presented by Tang (2020c), the variations in the results may be attributed to many reasons. Participant heterogeneity, such as variations in skill level and educational backgrounds, can impact the choice of repair strategies employed. Additionally, the complexity of the interpreting tasks could lead to different errors and repair strategies. Various contextual considerations, including the topic, setting, and accents of the speakers, can influence the type of repair. Ultimately, the divergence in languages and cultures among the participants in the two studies may contribute to the situation, as diverse linguistic and cultural backgrounds entail distinct communication norms and expectations, including those related to self-repair. Logically, conducting various research on the English-Persian language pair could assist in determining

interpreters' preference for employing particular types of repairs during English-Persian interpreting. Additionally, the directionality of interpreting may also affect the types and frequency of repairs used by trainees.

While the sample size and the sampling technique used in the present study may limit the generalizability of the findings, the results nonetheless offer useful insights into the repair strategies used by interpreters. Notwithstanding these constraints, the discoveries are crucial and carry significant pedagogical implications. In order to apply these insights to practical training, it is crucial to concentrate on providing organized feedback and clear guidance on repair procedures. Offering structured feedback on the implementation of repair methods during practice sessions can help trainees understand the effectiveness and appropriateness of repairs in different scenarios. This involves incorporating explicit training on repair strategies into the curriculum, including discussions on their many forms, appropriate contexts, and impact on the quality of interpretation. Moreover, it is crucial to provide trainees with guidance on developing self-monitoring skills that enable them to recognize when repairs are needed and do them effectively. Finally, the assessment methods employed in interpreter training programs should prioritize the significance of repair strategies. Instructors can enhance the assessment process by incorporating performance exams that specifically evaluate the application of repair strategies in interpretation tasks. This approach provides a more thorough understanding of the trainees' capabilities. Furthermore, offering detailed feedback on trainees' competency in utilizing these strategies during evaluations assists in directing their future learning and progression, ensuring the development of the necessary abilities for successful interpreting.

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A Comparison of AI-Assisted, AI-Revised and Human-Scaffolded Translations in ESP Classes

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Abstract

AI-assisted translation has gained increasing attention in recent years, yet its effectiveness remains underexplored. The present study sought to shed light on the role of AI (ChatGPT) in mediating translation. To this end, 46 postgraduate ESP students majoring in three sub-disciplines of politics (across three classes) were selected through convenience sampling. No outliers were identified in these classes, and each was assigned to one experimental group (AI-assisted group, N = 16; AI-Human Revised group, N = 16; Human-only Scaffolded group, N = 14). A posttest-only control group design was adopted, and each group was mediated according to its respective intervention protocol. AI was instructed to follow a graduated mediation protocol developed for the purposes of this study. The final translations were evaluated both qualitatively and quantitatively. Findings revealed that the end product of the AI-assisted group, compared with the human-involved groups, exhibited major translation deficiencies ranging from the lexico-semantic level to syntax, the syntax-semantic interface, and rhetorical patterns. Additional procedural deficiencies were also observed and reported. Furthermore, participants' translations were assessed using a rubric, and quantitative analysis showed that both human-involved groups significantly outperformed the AI-only group.

Keywords: AI, ESP, feedback, GPT, mediation, prompt, translation

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1. Introduction

A surge in use of English as a lingua franca on one hand and its users' demand for a greater latitude in employing tools on the other, has opened favorable opportunity for AI-assisted language education around the world (Maurice Gayed et al., 2025). Besides, Hwang et al. (2020) maintain that AI-based language processing has achieved an unparalleled position in applied linguistics research. Similarly, Farokhipour et al. (2025) have underscored that AI-based models of analyzing linguistic data have attracted researchers due to the theoretical and practical spread of these models in recent years. Machine translation and AI-based translation have also been a focal point in this development. This development has been so critically fast that Zhang and Zhang (2019) expressly hold that machine translation would fundamentally shift the role of human translators and degrade its position to an only post-edition agents at most. Consistent with these transitions of theories and transformations of roles, a huge bulk of research is carried out on different dimensions of this phenomena such as comparing machine and human translation (e.g. Lu et al., 2023; Abdelhalim et al., 2025), machine translation methods (e.g. Jiao et al., 2024; Karmaker & Feng, 2023) and more recently neural machine translation (e.g. Lee, 2023) and prompt engineering of translation machines or neural networks (e.g. Peng et al., 2023).

One of the most applied AI-based translation machines that is largely discussed in education discipline is chatGPT which due to its capability in emulating human cognitive capability (Godwin-Jones, 2022) and its enormous capacity in text processing and text production (Siu, 2023) is largely employed in education research (Su et al., 2023; Jacob et al., 2024; Werdiningsih et al., 2024). This tool has been potent and cogent enough to be used widely for language education in particular (Al-Rousan et al., 2025) due to its peculiar capacity in processing human interaction and appropriate feedback provision (Surameery & Shakor, 2023), its rootedness in large human linguistic data and models (Deng & Lin, 2023) and its immense competence in text paraphrasing and interpretation (Kalla & Smith, 2023). For the same reasons, it is also widely used in translation research and practice as a machine mediator by giving prompts for text interpretation (Gu, 2023), translation quality assessment tool (Kocmi & Federmann, 2023) and inspiring human translators (Jiao et al., 2023). Though there exist considerable conflicting views regarding accuracy of chatGPT translation (e.g. Hendy et al., 2023; Farokhipour et al., 2025) the studies submitting proof on the reliability and worth of this version of AI translation win through the literature. Despite this promising capacity, the use of chatGPT in language teaching is an unexplored area especially in low AI-resourced languages such as Persian. An embryonic area of language research which can find benefit in chatGPT is ESP texts' interpretation and translation as both a text-decoding tool and a feedback provider. Thus the current research is an innovative attempt to explore the effect of AI-assisted and AI-revised language interpretation compared with human assisted language interpretation on final Persian translated text among ESP post-graduate students of politics enrolled in an ESP course.

2. Literature Review

The way literature on artificial intelligence is related to the current research can be discussed from three different backgrounds; the studies inspecting the role of AI in education and language learning in particular, the researches delving into the role of AI in translation and last but not least, the studies recollecting the insights and experiences associated with AI and feedback provision in language class. These dimensions are looked back on briefly below.

AI and Language Education

Deeply rooted in large language models and previously established human patterns and frameworks, generative artificial intelligence tools are equipped with enough resources to promote language learning in various ways including enriching and refining teaching and learning experiences, provision of instant individualized prompts and feedbacks, facilitation of comprehension and text decoding and interpretation (Evmenova et al., 2024). The same findings were already arrived at by Borup (2023). Guan et al. (2025) also replicated these findings and concluded that AI's capability and facility in promoting language education has brought it to the focal point of research in the discipline mostly due to creation of dynamic and interactive learning environment. Being fine-tuned to learning conditions and individual language learners' needs is one more advantage of AI arrived at by Fathi et al (2024). Besides, from a psychological perspective, review of literature indicated that inclusion of AI technology in language class result in higher language learning and speaking willingness, lower levels of anxiety and higher levels of engagement and enjoyment (Chen, 2024; Guan et al., 2024). Doshi and Hauser (2023), too, proved the effect of AI in promoting language learners' creativity. Furthermore, a number of current studies have arrived at promising findings for inclusion of AI in curriculum development and syllabus design for personalized content and material which in turn foster learning and achievement (e.g. Lozano & Fontao, 2023). And last but not least, a scant review of literature reveals the propitious outlooks for inclusion of AI in special language education (Marino et al., 2023; Koraishi, 2023). Despite these favorable findings, however, some infelicitous findings are also associated with using AI in education in general and language education in particular including the increased possibility of cheating (Trust et al., 2023), inclusion of errors in provided feedbacks and responses to language learners (Borji, 2023), reduced thinking, especially critical thinking habits (Rezende Junior & López-Simó, 2024) and teachers' negative attitude toward AI in elimination of human from language learning (Rahimi et al., 2025) as well as seize of job opportunities (Hopcan et al., 2024).

AI and Translation/Interpretation

A scant review of literature in the domain of AI and text interpretation and translation reveals that AI-based machine translation has resulted in a new discipline in translation theory and practice which is at odds with traditional human-translation from a variety of perspectives (Yang, 2022; Moneus & Sahari, 2024). Despite that, a significant number of studies hold a contrary view and assert that machine translation, compared with human translation, is half-grown and largely immature (e.g. Li et al., 2020; Farokhipour et al., 2025). Despite these conflicting views, recently published studies have submitted positive and confirming evidences on efficacy of AI in teaching and learning translation and text interpretation (Al-Rousan et al., 2025). While Larroyed (2023) and Chow et al., (2024) stand firm behind the reliability, precision and value of AI-based machine translation as comparable with human translation, Siu (2023) sheds light on the faithful transmission of intended meaning from one language to another by AI-based translation. Consistently, Peng et al. (2023) concluded that, even in the case of largely distant source-target languages, AI is proved as a proficient translator. Even, Wang et al. (2024) arrived at a surprising end result that AI translation outperforms human translation in the sub-discipline of commercial discourse translation. Similarly, Karabayeva and Kalizhanova (2024) found that AI translators can convey literary stylistic devices such as metaphors, similes, imagery and tone from one language to another accurately and proficiently. Khoshafah (2023), too, submitted further evidence on the capacity of AI for accurate transfer of genre from one language to another. However, one more strand of studies on AI translation implicitly evinces at least partial inadequacy of AI translation and suggests some modifications for its improvement in areas such as prompts, resources, patterns, procedures, and decoding methods. (e.g. Gu, 2023). Yet, a group of more critical studies have raised concern regarding the accuracy of AI translation, at least in certain types of texts (e.g., Hendy et al., 2023; Deng & Lin, 2023).

AI and Feedback Provision

AI-generated feedback is reported facilitative for language learning since it amends mistakes based on given prompts (Rezai et al. 2024), amending essays and promoting discourse elements (Tate et al., 2023) and reducing cognitive and emotional loads of language learners (Zhou et al., 2023). Yet, Xu et al. (2025) hold that, despite the experimentally and theoretically established weight of feedback in language education, this role in AI-based translation education is an unexplored area. Concerning this subject, Su et al. (2023) and Banihashem et al. (2024) have postulated that AI-based technology is potent and cogent enough to provide tuned, detailed and effective feedback on language learner's performance. Though almost all this studies have explored effect of feedback on learning in areas other than translation, Ekin (2023) posits that AI-based feedback can also be employed in translation education too. Besides, Herbold et al. (2023) had already proved that AI can be used in language translation education successfully. Notwithstanding, exploring the effect of AI-generated feedback on translation is still in its infancy.

Therefore, the current research is an attempt to blend insights from the above-explored areas of research and adopt a proper research design to investigate the effect of AI-generated feedback and AI-generated/human-revised feedback on translation quality of ESP learners compared with human-independent dynamic feedback in Iranian context.

3. Methodology

Context and Design

Literature review showed that only a scant number of studies have investigated the effect of AI on translation in real educational setting. Therefore, the present research was carried out to highlight a new dimension of this contribution in an unexplored area of ESP texts interpretation and translation in Iranian context. Considering Shan (2022) which underscores the dialectical pluralism and richness of results in mixed-methods research, mixed-methods design was selected aimed at comparing AI-assisted, AI-revised and human-scaffolded translations on translation quality of ESP learners. First, a qualitative comparison of the translations carried out with the selected approaches was conducted. Then, adopting a quantitative quasi-experimental approach and using a quantitative estimation rubric, the effect of using the selected approaches on translation quality was estimated.

Sampling

To fulfill the goals of the research, two different sources of data were targeted. The primary source of data that used in early phase of research for qualitative comparison was the final Persian translated scripts of ESP language learners. However, for the quasi-experimental phase of the study 46 postgraduate students in three different disciplines of political sciences were selected through convenience sampling. These students were enrolled in an ESP course in which a similar content (English for students of politics I & II by Hormoz Davarpanah) was taught. These learners were then randomly assigned to AI-assisted group (N=16) receiving only instant AI feedback, AI-Human Revised group (N=16), receiving AI-modified feedback and human-only scaffolded group (N=14) receiving normative dynamic intervention using a tuned mediation inventory. The homogeneity of the participants was already reckoned. No significant outlier was identified.

Instruments

Consistent with the objectives of the research, three major instruments were employed in this study that are described below:

A. AI-Guided Mediation Protocol

Though AI automatically provides graduated instant prompts for language learners and translators, to avoid direct translation and keeping adherence to the pedagogical worth and values of dynamic intervention, a mediation protocol was devised by the researcher and given to ChatGPT4 to be used as mediatory protocol. This protocol is depicted in Table 1.

Table 1. AI-Guided Mediation Protocol Moves

Error Category	Mediation Move
Ambiguity	Clarification request
Tone mismatch	Reformulation prompt
Meaning failure	Semantic/morphologic awareness
Syntactic inconsistency	Grammatical reflection
Structural inadequacy	Contrastive analysis
Repeating error	Noticing
Unprecise translation	Precision recast
Functional mismatch	Contextual clues
Rhetorical patterns	Genre awareness

B. Globalized Mediation Inventory

AI-Mediated groups received AI feedbacks on their performance, the human-mediated group, however, was scaffolded through a globalized mediation inventory adopted from Farokhipour (2019) that is proved more tuned with Iranian language learning context, compared with standardized mediation inventories which entailed 12 moves arranged from implicit to explicated as depicted in Table 2.

Table 2. Globalized mediation inventory used for scaffolding translation

Mediation
Ask for modification
Refusing answer
Recalling instruction
Pinpointing erroneous segment
Narrow down error site
Pinpointing the type of error
Providing metalinguistic clues
Providing similar examples
Providing binary options
Providing correct form
Teaching the rule
Reviewing learning

C. Translation Quality Estimation Rubric

In order to quantify the performance of the participants on translation task, and building on translation quality assessment models, a weighted rubric was developed that entailed seven criteria in which the total score is calculated on a 20-point scale. This rubric is shown in Table 3.

Table 3. Translation Quality Assessment Rubric

Criterion	Weight	Score (1–4)	Subtotal
Accuracy of Meaning	25%		
Terminology Use	20%		
Grammar & Syntax	15%		
Style & Tone	10%		
Cohesion & Coherence	10%		
Rhetorical Patterns	10%		
Discourse Metafiction	10%		

Final Score Calculation: (Sum of Weighted Scores) $\times$ 7 = Score out of 20

Procedure

In order to compare the effects of different mediation types on the translation quality of ESP learners, three groups were created and a posttest-only control group design was used, in which the three groups of students were given their appropriate feedback. A similar translation task containing 317 words was selected from the aforesaid coursebook, and the participants in each group were asked to translate the text from English into Persian. The first group only received AI mediation, while the second group received AI mediation scaffolded by the human agent. However, the third group received a normative graduated mediation by a human agent only. To make ChatGPT follow our developed instruction (AI-Guided Mediation Protocol Moves) and avoid direct correct translations, a custom GPT template was used and uploaded wherein AI persistently followed our mediation protocol. To avoid full-text translation by AI, participants were given the text sentence by sentence rather than the whole text. Each group's performance was evaluated independently and rated both qualitatively and quantitatively. The results of the qualitative juxtaposition of participants' translations were presented. Furthermore, in order to weigh the differences between the performances of the groups from a quantitative viewpoint, the translations were measured against a rubric and their mean scores were compared by one-way analysis of variance in SPSS (Version 23).

4. Results

Qualitative Findings

As it was designated above, the primary goal of the current study was qualitative juxtaposition of translation quality in the final product of AI-assisted, AI-revised and human-scaffolded translation groups. Elaborating on AI-only feedback deficiencies, the results of this phase of the research are put adjacent in Table 4 with the following examples.

Profound Semantic Understanding: The word "Code" in most translations of the AI-only assisted group was translated as "دستورالعمل" or "رمز", while its accurate translation is "مجموعه قوانین".

Global Consistency: The term "state" in most translations of AI-only assisted group was translated differently across the text as "حکومت", "دولت", or "نظام", while its overall meaning across the whole text was "دولت".

Syntactic Ambiguity: "WH" question makers which were used as connectors were translated as interrogative questions which resulted in Persian syntactic ambiguity (for instance, "what" was wrongly translated as "چه چیزی" instead of "چی که").

Syntactic shift resulting in ambiguity. For instance in the sentence “law passed by the legislators representing the will of the electorate” is ambiguously translated as “قانونی توسط قانونگذاران تصویب شد تا ”. “نشانگر اراده حوزه انتخابیه باشد

Other ambiguous sentences such as misinterpreting physical setting with political context, failure in determining agent, and over-expansion of structure leading to over-translation were observed that resulted in syntactic ambiguity.

Syntax-Semantic Interface: Misuse of a verb type realizing a specific meta-function residing in syntax-semantic interface. For instance, “He was realized as an ethical thinker” is translated as “او به عنوان یک ”متفکر اخلاقی فهم شده بود” while the verb “realize” here is not classified as verb groups entailing the meaning of “understanding” to fulfill a mental process. Rather, “realize” is classified in a verb group denoting the meaning of “being” and fulfills a relational process that in Persian equals “به شمار آمدن”.

Observing Tone: The verb ‘dismissed’ in “He dismissed all these propositions” is translated as either “رد کرد” or “نادیده گرفت” while the more enhanced tone is “فاقد اعتبار خواند”.

Register Match: Sometimes AI suggestions were too simplistic or too journalistic and distant from political science register. For instance the phrase “built on legitimate political authority” is translated as “قدرت سیاسی مشروع” while more academic register is “مشروعیت اقتدار سیاسی”. Another example is in the phrase “Euphrates civilization is both site and agent of civil regulation”, where the word “site” is translated as “مکان” while the more accurate equivalent is “بستر”.

Aligned Word Knowledge: Some technical words are sometimes mistaken by AI. For instance, the word “utility” which in political sciences denotes “فایده گرایی” is wrongly interpreted as “کارایی”.

Accountable Translation: Use of arbitrary translations for one fixed term was evident without any specific rationale. For instance the word “governance” was arbitrarily translated as “حکومت” and “حکومت داری” while haphazardly capturing the more accurate equivalent, i.e. “حکمرانی” as well.

Table 4. Results of Qualitative Analysis of Translations

Error Type	AI-Assisted	AI-Revised	Human-Scaffolded
Profound semantic understanding	✗	✓	✓
Global consistency	✗	✓	✓
Syntactic ambiguity	✗	✓	✓
Syntax-semantic interface	✗	✓	✓
Observing tone	✗	✓	✓
Register match	✗	✓	✓
Aligned word knowledge	✗	✓	✓
Accountable translation	✗	✓	✓

In addition to the differences revealed above, it was also observed that AI-only translation feedback varies from AI-revised and human-only feedback in a number of dimensions including personalization and individual differences (while AI only stimulates monotonously for all learners, human mediated feedbacks are more personalized and tuned to learners needs), emotional sensitivity (while AI is only responsive to concrete aspects of mediation, human mediation shows due consideration for human emotions through tuning tone and demonstrating empathy), error/mistake diagnosis (while AI feedback is systematic, human feedback is consistent with responsiveness moves of individuals and shows considerations to ZPD of language learners and therefore is able to diagnose not only the

nuances but also tell apart mistake from error and provide more consistent mediation), and more engagement with human mediator.

Quantitative Findings

In addition to the differences revealed above, it was also observed that AI-only translation feedback varies from AI-revised and human-only feedback in a number of dimensions, including personalization and individual differences (while AI only stimulates monotonously for all learners, human-mediated feedback is more personalized and tuned to learners' needs), emotional sensitivity (while AI is only responsive to concrete aspects of mediation, human mediation shows due consideration for human emotions through tuning tone and demonstrating empathy), error/mistake diagnosis (while AI feedback is systematic, human feedback is consistent with responsiveness moves of individuals and shows consideration of the ZPD of language learners and therefore is able to diagnose not only the nuances but also tell apart mistakes from errors and provide more consistent mediation), and greater engagement with the human mediator.

Table 5. ANOVA Results for Estimation of Differences in Translation Performance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	295.932	2	147.966	64.635	.000
Within Groups	98.438	43	2.289		
Total	394.370	45			

Table 5 presents the results of the analysis of variance (ANOVA) conducted to examine differences in the mean scores of the three groups. The analysis revealed a significance value of 0.000 (i.e., $p < 0.001$), which is below the 0.05 threshold, indicating a statistically significant difference in mean scores among the groups participating in the translation task. To identify the specific group differences, a post hoc multiple comparison test was subsequently performed (Table 6).

Table 6. Tukey-HSD Post-Hoc Test for Multiple Comparison

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
AI-Only	AI-Human	-4.937*	.535	.000	-6.24	-3.64
	Human-Only	-5.687*	.554	.000	-7.03	-4.34
AI-Human	AI-Only	4.938*	.535	.000	3.64	6.24
	Human-Only	-.750	.554	.374	-2.09	.59
Human-Only	AI-Only	5.688*	.554	.000	4.34	7.03
	AI-Human	.750	.554	.374	-.59	2.09

As it is indicated by table 6, there is a statistically significant difference in scores between the AI-only group and AI-Human group ($p = 0.000$), as well as between AI-only group and Human-only group ($p = 0.00$). However it was revealed that the difference between AI-Human group and human-only group is not significant ($p = 0.374$). In sum, there was a statistically significant difference between groups as determined by one-way ANOVA ($F(2, 43) = 64.635, p = 0.000$). A Tukey post-hoc test revealed that wherever human feedback is involved, the performance of the participants in translation task is promoted significantly compared with AI-only group.

5. Discussion

Kohnke et al. (2023) argue that large training datasets, the capacity to respond immediately to users' prompts in a conversational manner, and the ability to fine-tune feedback to learners' needs have given AI a distinct role in assisting language learning. Furthermore, many studies on the adequacy of advanced models of machine translation have shown that translations based on large language models such as ChatGPT perform well in rendering both the meaning and form of different languages (see Calvo-Ferrer, 2023; Jiao et al., 2023; and Skobo & Petricevic, 2023, among others). In addition, a substantial body of research (e.g., Yang et al., 2023; Kasneci et al., 2023; and Devlin et al., 2018) strongly supports the role of large language models such as ChatGPT in enhancing productive language skills such as speaking and writing. However, the findings of the current research revealed that this effect is difficult to generalize to translation. These results are consistent with Li (2024), who raised serious concerns regarding the ethical and technical issues of machine translation, such as the potential for cheating and the challenges of prompt engineering. The current findings also support Liu et al. (2024), who highlighted AI's failure to capture the nuances of language learners' performance.

Moreover, compared with other global languages, Persian is considered a low-resource language, and given the fact that AI translation models are highly dependent on such resources, AI-based English-to-Persian translation is vulnerable to a number of quality deficiencies, such as syntactic and semantic asymmetry. The findings in this respect are in line with Siu (2023), who concluded that AI translations into low-resource languages result in severe syntactic asymmetry. Inconsistent and non-accountable translations were predominantly observed in the performance of the AI-only supported group. This outcome can possibly be associated with the type of feedback provided by AI. Su et al. (2023) observed that vague AI feedback directly leads to inconsistent cognitive performance among AI users, which in turn results in non-accountable translations that undermine the global coherence of the target text.

The significant outperformance of human-involved groups over the AI-only group is also consistent with the systematic review conducted by Ali Mohsen et al. (2023), which revealed that without in-depth human revision, AI translations suffer from a variety of technical problems. With respect to rhetorical patterns, the findings of the current study also support Farokhipour et al. (2025), who concluded that machine translation, particularly ChatGPT, fails to convey many discourse-level elements of language, including ideational metafunctions, at least in certain texts.

In sum, the findings of the current research revealed that AI-only feedback is not conducive to highly adequate translation and faces numerous difficulties at all levels of language, from lexico-semantic elements to syntax, the syntax-semantic interface, and discourse-level rhetorical patterns. Although some studies have shown that incorporating language-specific add-on lexicons can mitigate many of these deficiencies (e.g., Liu & Zhu, 2023), it appears that final human revision of the translation remains the most reliable option.

6. Conclusion

This study pursued two primary objectives. First, it aimed to identify the differences between AI-Human modes of feedback on translation quality from a qualitative perspective. To this end, the final products of the translators were thoroughly evaluated, and points of difference were derived at various levels of language, from the word level to the discourse level. It was revealed that both groups receiving human-mediated translations outperformed the AI-only feedback group due to more profound semantic understanding, global consistency, syntactic clarity, the ability to convey

functions at the syntax–semantic interface, observance of tone, register matching, aligned word knowledge, and accountable translation.

The second purpose of the research was to investigate the differences between AI–Human modes of feedback on translation quality from a quantitative perspective. To this end, a posttest control group design was adopted, and a rating rubric was utilized to assess students’ translations on a 20-point scale. A one-way analysis of variance was carried out to compare the means. A statistically significant difference was reported in the mean scores between the AI-only group and the AI–Human group ($p = 0.000$), as well as between the AI-only group and the Human-only group ($p = 0.000$). However, it was revealed that the difference between the AI–Human group and the Human-only group was not significant ($p = 0.374$). In sum, there was a statistically significant difference between groups as determined by one-way ANOVA ($F(2, 43) = 64.635, p = 0.000$). Furthermore, a Tukey post hoc test revealed that whenever human feedback was involved, the performance of participants in the translation task improved significantly compared with the AI-only group.

These findings have considerable pedagogical implications for EFL practitioners and stakeholders. The primary implication is for language teachers, who could consider integrating AI into the interpretation and translation of ESP texts. In addition, AI proved flexible enough to provide advanced prompts to support ESP learners, which in turn sheds more light on the viability of AI in dynamic assessment, mediating cognition, and fostering the internalization of learning. It was also shown that AI assistance in translation can reduce mediation time, as prompts are given instantly, which implies that AI mediation can inform alternative language instruction and assessment methods. Additionally, these findings revealed that AI cannot serve as an adequate mediator for translation on its own. The fact that translation accuracy still depends heavily on human cognition, emotion, and behavior provides a basis for modifying AI translation systems by designing specific prompt-tags to address these gaps.

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Application and Extension of House's Revised TQA Model to Religious–Political Texts

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Abstract

This study evaluates the translation quality of two open letters by Iran's Supreme Leader, addressed to Western youth, using House's TQA model (2015). The research identifies both the strengths and limitations of the model in assessing texts of this nature. Through a detailed qualitative, comparative, and descriptive analysis, the study highlighted House's model as a tool for analyzing field, tenor, and mode but also noted significant gaps, including the lack of differentiation between local and global cultural filters, the absence of non-dimensional mismatches, and the failure to provide practical solutions for identified issues. The findings suggested expanding House's model to incorporate a broader classification of cultural filters and address non-dimensional mismatches. This study underscored the need to adapt quality assessment approaches to specific text types and linguistic functions. The insights offered not only contributed to theoretical advancements but also provided practical guidelines for improving translation quality assessment endeavors in any type of discourse.

Keywords: Juliane House, translation quality assessment, Imam Khamenei, religious-political texts

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1. Introduction

House's model has originated from Halliday's (1978) Systemic Functional Grammar (SFG), pragmatic theory, discourse analysis, stylistics, and the theory of register, along with the notion rooted in the Prague School of Language and Linguistics (House, 2015). Halliday (1994) proposed a systemic functional linguistics model based on three meta-functions: ideational, interpersonal, and textual. Systemic functional linguistics was based on Firth's theory of system structure. In systemic functional linguistics, the meaning-making principle refers to grammar, while the interrelation of form and meaning is an important part of this scope (Firth, 1968).

According to House (2015), Translation Quality Assessment (TQA) plays a crucial evaluative role in determining the merit, significance, and overall quality of a translation work. It serves as a valuable tool for improving translation standards and assessing the acceptability of the translated product. Fundamentally, TQA involves forming an informed judgment regarding the quality, nature, and value of a translation in comparison to its original text (2015). In her updated 2015 model, House presented a detailed, non-quantitative, and descriptive-explanatory perspective on TQA. She employed the functional text features explored by Halliday, Crystal, and Davey, as previously discussed by Bensoussan and Rosenhouse (1969).

Melis and Albir (2001) highlighted the fact that much of the existing research on translation quality assessment has predominantly focused on evaluating translations of literary and sacred texts. They also underscored that TQA extends beyond this focus by incorporating two additional dimensions: the evaluation of professional translators' work and the assessment of trainee translators, each with distinct criteria and characteristics. House's (2015) model is functional and encompasses various types of discourse, including linguistic, pragmatic, and discourse analysis, and incorporates textual and register analysis of both source and target texts.

This model involves textual and register analysis in the source and target texts; the register consists of field, tenor, and mode. As House states, field is related to the topic and the content of the text. Tenor points to the essence of the participants, the addresser and the addressee, and the connection between them in aspects of social power and social distance, also in the level of emotional charge. Tenor is related to social attitude, which refers to formal, consultative, and informal elements. At last, mode captures both the channel, namely spoken or written, and the level of participation between the writer and the reader (Halliday, 1978, as cited in House 2015).

Moreover, House (2015) concluded that there are two kinds of translations, namely overt and covert translations. The re-contextualization of a text linguistic-textual operation from one language to another language is the result of translation. Translation is playing a crucial role in making a cultural and communicative link for people who want to communicate with each other with different languages and cultures (Bassnett & Lefevere, 1992). Furthermore, translation is considered as a linguistic process where a professional specialist attempts to balance the relationship between languages and cultures (Gonzalez Davies, 2004).

An overt translation is not intended to address its target audience but remains closely tied to the source language and culture. It primarily serves the source audience while also having broader, universal relevance beyond the source language community, while, on the other hand, a covert translation is viewed as an original text within the target culture, unmarked as a translation and potentially treated as if it were independently created. It is not specifically tied to the source language or culture and does not target a source-culture-specific audience (House, 2015).

As House (2015) states, when a covert translation is developed and the translation conforms to the target culture, the translator uses a cultural filter. Cultural filter, according to House, represents socio-cultural differences between the source and target linguistic societies. Cultural filter, according

to House in her revised model (2015), is about dimensional and non-dimensional mismatches. When the target text is compared with the source text, the mismatches and errors are found and categorized based on register and genre. These errors refer to dimensional mismatches and are known as covertly erroneous errors. But House did not point out the types of non-dimensional mismatches in the revised model, and the non-dimensional sets were identified in the present research.

Harrison (2007) suggested that religious language serves as a specialized form of communication frequently employed by religious authorities to articulate their beliefs and perspectives. Each type of text and its corresponding translation cater to a distinct audience. In the case of Islamic religious texts and their translations, the intended audience predominantly includes Muslims, Islamic communities, and individuals interested in exploring or studying Islamic religious teachings. When connecting this to the letter written by Imam Khamenei to European youth, it becomes evident that such letters are addressed not only to Muslim youth but also to young Europeans who seek to understand Islamic principles directly, beyond stereotypes. This demonstrates how religious discourse can be adapted to address a broader range of audience and how translating such texts should be considered pivotal for fostering intercultural understanding around the globe.

Iran's Supreme Leader's letter to European and North American youth is the Islamic Revolution's new strategy in international cultural diplomacy. Imam Khamenei, the Leader, has addressed American and European youth, but it is not limited to this group and it can be considered relevant to all Muslim youth as well. The main matter of these messages is about confronting the Islamophobia phenomenon and advocating and revealing Islamic values in the new international situation. Fighting against and resisting in the face of the western Islamophobia can be a religious imperative for each Muslim youth. Moreover, Imam Khamenei wanted others to judge Islam and Muslims without bias and Islamophobia and encouraged both Muslims and non-Muslims to learn about Islam from its main sources, especially the Holy Qur'an.

One of the characteristics of an attractive message to be noticed by social and virtual media is its being short, eloquent, and convincing. The message of the Supreme Leader of the Islamic Revolution of Iran to the North American and European youth has such requirements and was followed by many political characters and international authorities in media and academic circles as well. In addition, accurate translation helps the conveying of the meaning of the message and does not mislead the reader. The research, therefore, was aimed at the TQA based on House's model (2015), focusing on cultural filters and translation mismatches.

All this having been said, the present study was thus an attempt at answering the following questions:

1. In the English translations of Imam Khamenei's letters, what types of cultural filters can be identified, and how are they manifested?
2. Does House's model overlook any principles or mismatches in the analysis of these translations? If so, what additional factors or elements could be integrated into the model?

2. Literature Review

Different translation quality assessment models were developed by scholars according to the norms that were established by translation theories of the dominant linguists. Many scholars developed different TQA models based on translation theories. For instance, Reiss (1968) was a pioneer in translation quality assessment, proposing a functional theory based on the text type and the communicative purpose. Drawing on Bühler's framework, she categorized texts as content-oriented, form-oriented, conative, and subsidiary. Although her theory influenced later models, it faced

criticism for the lack of practical methods to identify and assess textual functions. Van den Broeck (1985) introduced a pragmatic model focusing on textual functions and translation shifts. Integrating source and target cultural norms, his model emphasized equivalence but struggled with issues of textual uniqueness. Amman (1990) advanced this by proposing a functionalist framework that evaluated coherence and addressed audience needs through a model reader concept, making functionality central to translation.

D'Hulst (1997) explored specialist texts, emphasizing the alignment of text acts and structures, such as how directive acts correlate with hierarchical structures. Her work bridged functionality with structural connectivity, particularly in professional contexts. Larose (1998) focused on textual and extra-textual features, analyzing translations at microstructural, macrostructural, and superstructural levels. By considering the translation process, his approach addressed professional constraints, though it lacked the systematicity required for practical implementation.

Al-Qinai (2000) proposed a comprehensive, eclectic model incorporating textual typology, formal correspondence, coherence, cohesion, and pragmatic equivalence. However, his parameters were criticized for overlapping categories and insufficient clarity on text-context relationships, limiting their application in practical scenarios. Williams (2004), on the other hand, introduced an argumentation-based model, employing Toulmin's framework to evaluate coherence in translated texts. Although innovative, his approach remained predominantly theoretical, with challenges in practical grading and application, which is a vital requirement for such fields as translation quality assessment. Reiss (2000) revisited her earlier concepts, framing translation as intentional, interlingual communication. She refined text functions—informative, expressive, and operative—while addressing diverse contexts, making her framework adaptable across various text types.

Setiajidi (2003) compared two socio-semiotic models, contrasting House's use of register variables (field, tenor, and mode) with Bell's application of three meta-functions (ideational, interpersonal, and textual). This comparison highlighted differing methodologies in reconstructing meaning. On the other hand, Nord (2005) emphasized the importance of functionality and loyalty in translation, presenting a functionality + loyalty model to balance the objectives of the source and target texts. Her framework addressed cultural and situational factors, equipping translators to handle typical challenges through competencies like text analysis and quality assessment. Bell (1991) grounded his model in systemic-functional linguistics, analyzing translations through ideational, interpersonal, and textual layers of meaning. His approach integrated linguistic structure with the translation process to reconstruct meaning effectively.

The last study worth mentioning is the research by Khanjan (2023), highlighting key theoretical frameworks and practical implications for evaluating translation equivalence and textual coherence. Despite the systematic nature of her model, House's approach has faced significant criticisms from scholars such as Newmark, Reiss, Bazzi, and Munday. Critics argue that her analytical tools are overly complex, making them impractical for real-world applications. Others highlight the lack of objectivity in translation evaluation, the model's limitations in assessing literary texts, and ambiguities surrounding cultural filtering and its impact on translation quality. Furthermore, some researchers contend that House's framework does not sufficiently address the socio-cultural and ideological dimensions that influence translation decisions. In her book *Translation Quality Assessment: Past and Present* (2015), House acknowledges certain shortcomings of her model but maintains that it is fundamentally text-based and cannot accommodate all social, cultural, and political variables involved in translation. However, modern translation studies, particularly those emphasizing the ideological turn, suggest that these factors are increasingly relevant and must be incorporated into evaluation methodologies. Ultimately, House's model remains one of the most structured and comprehensive frameworks for assessing translation quality. Nevertheless, due to its prescriptive nature and its focus on textual analysis, scholars argue that it requires significant revisions to

integrate social, cultural, and ideological considerations more effectively. Refining this model to address contemporary challenges would make it more adaptable to diverse translation contexts and enhance its overall applicability in the field.

Finally, based on the collective wisdom and the multi-layered experience of translation studies in the field of TQA, House (2015) proposed a holistic model of TQA in order to gap as many bridges as possible, emphasizing register analysis (field, tenor, and mode) and distinguishing between overt translation, which preserve the source norms and cultural features, and covert translation, functioning as an adaptor of the SL culture to target-specific cultural norms. This dual classification provided a framework for addressing errors and mismatches in translation quality, which was therefore identified as the most appropriate model for the analysis and assessment of the English translations of Imam Khamenei in this study.

3. Methodology

Corpus

The corpus of this study consisted of two open letters addressed to the youth in Western countries, written by the Supreme Leader of Iran in 2015. These letters focused on the cause of then terrorism and invited the youth to explore the truth about Islam and the ongoing global challenges. The original Persian texts of both letters were sourced from the official website of www.khamenei.ir, recognized as the reliable platform for the publication of these letters. The first letter was published in January 2015, and the second one in November 2015.

For analysis, the study also utilized English translations of the letters. The translation of the first letter and two translations of the second letter were all retrieved from www.khamenei.ir, ensuring their credibility as official sources. The translators' names were not specified on the website. The presence of two translations for the second letter allowed for a comparative analysis. This could be attributed to differences in the translation style, with one version prioritizing precision in conveying the original meaning and the other one focusing on clarity and accessibility for international audiences. Additionally, the reason for the insertion of some updates or revisions can be the enhancement of the cultural and contextual alignment of the message.

Data Collection Procedure

The two letters titled '*To the Youth in Europe and North America*', written by Iran's supreme leader, were selected due to their short lengths in order to study the whole text of each discourse meticulously and to identify any possible errors in the translations based on House's model (2015). As the first step, the genre of each of the two letters was determined as a religious-political text. In the second step, the second letter, with two translations, were analyzed. In the next step, the register analysis (field, tenor, and mode) was performed, and the functions of the letters, which consist of the ideational, interpersonal, and textual meta-functions, were explained clearly. Then, two kinds of 'mismatches' (dimensional and non-dimensional mismatches) and 'errors' (covertly erroneous errors and overtly erroneous errors) were identified. Finally, the statements of the quality of each of the two texts in the scope of the social role relationship parameter were distinguished and stated.

The objective of the present assessment was to identify mismatches (dimensional and non-dimensional) across the three meta-functions—ideational, interpersonal, and textual—and the discursive elements (namely, field, tenor, and mode). Furthermore, the study was aimed at an exploration of the extent and nature of cultural filters applied in the selected translations and at evaluating the prevalence of overt versus covert translation types. The research also strived to highlight potential gaps in House's model, suggesting expansions such as the incorporation of

distinctions between kinds of cultural filtering, as well as addressing non-dimensional mismatches. Ultimately, the findings were aimed to contribute to the theory and practice of translation studies by offering a comprehensive analysis of religious-political texts and by shedding light on underexplored elements in the area of translation quality assessment.

4. Results

The errors identified in the two selected translations were identified at both the lexical (word) and sentential (sentence) levels. Errors in translating individual words often have significant implications, as they can alter the overall meaning of the sentences in which they occur. This study emphasized the importance of such details and their potential to impact the intended message of the source text. Utilizing House's TQA model (2015), the research confirmed that overt translation is generally deemed suitable for religious-political texts, due to the high degree of importance belonging to the sensitive position of accuracy on the side of the holy text, namely the ST.

However, the analysis also revealed that the translations of the letters incorporated both overt and covert translation strategies. While House's model provides a comprehensive framework to assess cultural filters and dimensional mismatches, it was discovered in the present research that it lacks sufficient clarity regarding non-dimensional mismatches. This study addressed this limitation by examining non-dimensional mismatches alongside the established categories, thereby expanding the scope of cultural filters and translational mismatches in alignment with the source text. The researchers categorized these errors and mismatches into dimensional mismatches, non-dimensional mismatches, and cultural filters. Dimensional mismatches are contextualized within the three meta-functions—namely, ideational, interpersonal, and textual—of the text, exploring their implications on the accuracy of message transfer.

Non-dimensional mismatches, such as typographical errors and minute lexical shifts, were also highlighted as elements that, while seemingly minor, can influence the overall message and quality of the translations. The cultural filters observed in this study were analyzed as covertly erroneous errors, reflecting how deviations from the source text impacted the intended communicative purpose. The classification of these issues is presented visually through diagrams, which serve to illustrate the relationships and overlaps between different categories of mismatches and filters. The findings underscore the necessity of extending House's model to include non-dimensional mismatches and offer a deeper analysis of covert errors, demonstrating how these elements influence both the translation process and its outcomes.

Field analysis: The central focus of both the selected letters revolved around presenting an accurate understanding of Islam and addressing misconceptions shaped by media or extremist interpretations. Themes such as truth-seeking, justice, critical thinking, and individual engagement with original Islamic sources were prominent in the data. While the first letter emphasized the need for young people to independently seek the truth and explore Islam without prejudice, the second letter built on this by delving into the distinction between genuine Islam and its misinterpretation by extremist groups.

Tenor Analysis: In both letters, the relationship between the writer and the audience is characterized by respect, sincerity, and an engaging directness. Imam Khamenei addresses the young European audience as equals, appealing to their intellect, curiosity, and moral sensibilities. Within House's (2015) framework, the tone can be described as compassionate and oriented toward dialogue and reflection rather than imposition, thereby positioning the audience as active participants in the pursuit of understanding.

Mode analysis: The letters are written texts intended for widespread public dissemination through media publication and personal reading. Their style is semiformal and profound, structured to be accessible and thought-provoking for a younger audience. The written format supports a reflective interaction, allowing readers to engage with the content at their own pace.

Genre analysis: Both letters are best categorized as open and persuasive correspondence, enriched with elements of educational and spiritual discourse. They aim to encourage intellectual and spiritual exploration, promoting clarity and paving the way for the fostering of a deeper understanding of Islam. The genre reflects an intention to counter stereotypes, while engaging in a broader cultural and moral dialogue, in order that the global audience can be addressed maximally, Allah permitting.

Challenges in Translating Imam Khamenei's Letters

The translations of Imam Khamenei's letters, addressing Western youth, represent an attempt to convey complex and culturally rich Islamic-Persian prose to an English-speaking audience. While the overarching themes of both the letters were effectively conveyed, closer analysis revealed several mismatches, which did merit attention. These mismatches, ranging from lexical and syntactic inconsistencies to cultural omissions, highlighted the intricacies of translating discourses that carry profound rhetorical and ideological significance.

One notable issue lay in the omission of culturally significant terms, such as *صلى الله عليه و آله*. This phrase, used to show respect toward the Prophet of Islam, holds a central place in Persian Islamic texts and its absence in the translations diminishes the emotional and cultural depth of the original letters. Such omissions may have resulted from the application of a cultural filter, where the translators prioritized localizing content for the target audience, yet inadvertently reducing the reverence intrinsic to the source text. Similarly, additions of terms like 'quantitatively' and 'really', while intended to enhance clarity, occasionally impose a degree of redundancy or alter the tone, thereby shifting the author's stance, thereby, affecting the original interpersonal meta-function in the TTs.

The existence of syntactic mismatches was still another recurring challenge. Errors in tense usage, such as translating future verbs into present, disrupted the logical flow of the discourse. Additionally, inconsistent conjunction choices, such as substituting commas for 'and', impacted sentence cohesion and readability. Structural discrepancies, such as changes in pluralization or pronoun usage, further affected the accuracy of the translations, occasionally leading to subtle shifts in meaning.

Textual modifications also played a significant role in reshaping the impact of the original letters. For instance, the addition of pronouns like 'his' in certain translations heightened the emotional resonance of the text, yet diverged from the neutral tone of the source material. Similarly, shifts in theme and rheme positioning, altered the logical progression of arguments, potentially reducing the rhetorical effectiveness of the translations. Despite these challenges, the translations preserved the core messages of the letters: a call for truth-seeking, a critique of Western policies regarding Islam and the Muslim community, and an invitation to constructive engagement with Islam. However, the identified mismatches underscored the importance of balancing cultural fidelity with linguistic precision. Retaining culturally significant terms, ensuring grammatical accuracy and avoiding unnecessary elaborations, were indeed essential steps toward achieving translations able to honor the richness of the original texts.

In conclusion, while the translations of Imam Khamenei's letters achieved clarity and accessibility, greater sensitivity to linguistic and cultural nuances is still required, in order to capture their depth and impact. Translators must prioritize faithfulness to tone, structure, and cultural context to ensure that such pivotal messages resonate authentically across languages and societies. This analysis serves

as a testament to the challenges and rewards inherent in bridging cultural and linguistic gaps through translation.

The analysis of the selected translations, based on House's model (2015) is presented below.

Analysis of the First Letter

Example 1: TT: "Gain information about Islam through the Qur'an and the life of its great Prophet", and ST: "با اسلام از طریق قرآن و زندگی پیامبر بزرگ آن (صلی الله علیه و آله) آشنا شوید". The literal translation is "Become acquainted with Islam through the Qur'an and the life of its great Prophet (peace be upon him and his family)". Here, a lexical mismatch under *the field-ideational meta-function* is observed because the equivalence "صلی الله علیه و آله و سلم" has not been translated; this can be referred to as a cultural filter, which has led to a covert translation.

This also extends to the *tenor-interpersonal meta-function*. We state the clause "صلی الله علیه و آله و سلم" with the great Prophet. That is a kind of collocation. With this term, we show our respect to the prophets. Therefore, omitting this word causes this word to change from positive to a negative degree.

Example 2: The sentence "Have you studied the teachings of the Prophet of Islam and his humane, ethical doctrines?" is a translation of: "آیا تعالیم پیامبر اسلام (صلی الله علیه و آله و سلم) و آموزه های دینی و اخلاقی او را مطالعه کرده اید؟". The literal translation reads: "Have you studied the teachings of the Prophet of Islam (peace be upon him and his family) and his religious and moral doctrines?" A syntactic mismatch under the *field-ideational meta-function* is observed. In the TT, 'and', as a conjunction, instead of a comma, is more appropriate for translation, because this sentence is interconnected.

Again, lexical mismatches under the *tenor-interpersonal meta-function* occur. As stated previously, regarding a covert translation, as a subset of cultural filters, the phrase "صلی الله علیه و آله و سلم" has not been translated, which considerably reduces the positive interpersonal stance of the author towards the main character of the discourse involved in the letter.

Moreover, textual mismatches under the *mode-textual meta-function* are observable. The conjunction 'and', within the sentence, has not been retained in the TT; therefore, the conjunction type of cohesion in the sentence must be returned to keep the mode intact.

Analysis of the Second Letter

Example 1: The Persian sentence "منظره کودکی که در برابر دیدگان عزیزانش جان می دهد، مادری که شادی خانواده اش به عزا مبدل می شود، شوهری که پیکر بی جان همسرش را شتابان به سوی می برد، و یا تماشاگری که نمی داند تا لحظاتی دیگر آخرین پرده نمایش زندگی را خواهد دید، مناظری نیست که عواطف و احساسات انسانی را برنینگیزد", was translated differently in the two English translations. The first TT reads: "The sight of a child losing his life in the presence of his loved ones, a mother whose joy for her family turns into mourning, a husband who is rushing the lifeless body of his spouse to someplace and the spectator who does not know whether he will be seeing the final scene of life – these are scenes that rouse the emotions and feelings of any human being." The second TT reads: "The scene of a child dying before the eyes of his beloved ones, a mother whose family's happiness turns into mourning, a husband carrying the lifeless body of his wife to somewhere hastily, or a spectator who is not aware that he is going to see the last sequence of his life in moments, are not scenes which would not stir human sentiments and feelings". The literal translation, however, is: "The sight of a child dying before the eyes of their loved ones, a mother whose family's joy turns into mourning, a husband hastily carrying the lifeless body of his wife, or a spectator unaware that in moments they will witness the final act of life's play – these are not scenes that cannot fail to stir human emotions and feelings".

Lexical mismatches under the *field-ideational meta-function* are observed. The phrase 'in moments' has been added to the TT. Thus, it has affected the ideational meta-function of the ST. In the first ST (the 1st letter), the word "مناظری" agrees in the SL, with a singular verb, while its translation contains the agreement of the subject with a plural verb, which is quite neutral for the grammar of TL is different regarding this aspect. In the second TT, before "dying", the verb "is" or "is going to" must occur, due to the correctness of the present tense.

Here, textual mismatches are also observed. In the second TT, the pronoun "his" has been added to the TT, which, from the viewpoint of the ideational metafunction, cannot affect the meaning and message considerably, while it can be called a minor textual mismatch, since without the addition of the already added word, nothing is felt to be missing in terms of the communication of the field of the text in this point of the discourse.

We have textual mismatches under the *tenor-interpersonal meta-function* as well. In the second TT, the pronoun 'his' has been added to the TT, which, from the viewpoint of the interpersonal metafunction, can affect the emotional stance of the author towards a stronger one; however, since this is by no means a necessary change, it can be called a mismatch away from the ST. This also increases the stimulation of feelings of the readers. Sufficient elaboration was introduced in the previous section.

Non-dimensional mismatches are observed too. In the ST "مناظری نیست" is verbalized with a negative form, while the target text is framed in a positive tone in the first TT, which can be considered among the 'modulation strategies', where the polarity of the tone is modified, affecting the interpersonal stance.

Example 2: As an other example, source text is "نخست اینکه دنیای اسلام در ابعادی بمراتب وسیع تر، در حجمی انبوه تر، و به مدت بسیار طولانی تر قربانی وحشت افکن و خشونت بوده است" with interlinear translation of "Firstly, the world of Islam has, on far broader dimensions, in much larger volumes, and for a significantly longer duration, been a victim of terror and violence." Two different translations of it are: "First, the Islamic world has been the victim of terror and brutality to a larger extent territorially, to greater amount quantitatively and for a longer period in terms of time" and "First of all, the Muslim world has been victim to terrorism and violence more extensively, on a much larger scale, and for a much longer period of time".

A closer examination of these examples under the *field-ideational meta-function* reveals lexical mismatches. In the first translation, the word 'quantitatively' has been added to the TT text, in the second translation, "دنیای اسلام" has been translated as 'the Muslim world' while the common word is 'the Islamic world'. Thus, a lexical mismatch is observed, slightly affecting the ideational meta-function.

Lexical mismatches are also observed under the *tenor-interpersonal meta-function*. Adding the word 'quantitatively' in the TT has increased the social attitude of the author, in that it has intensified the negative tone of the author regarding the content in the section of the text under analysis.

Then, there are non-dimensional mismatches as well. Adding the word 'quantitatively' is a redundant structure, affecting the non-dimensional aspect of the TT as compared with the ST. It can, without any translation losses, be removed from the TT.

Example 3: Source text is "آیا می توان باور کرد که افراد با یکی دو سفر به مناطق جنگی، ناگهان آن قدر افراطی شوند که "هموطنان خود را گلوله باران کنند؟" with the literal translation of "Can it be believed that individuals, with just one or two trips to war zones, suddenly become so radicalized that they open fire on their own compatriots?" Two different translations of it are: "Can we really believe that people with only one or two trips to war zones, suddenly become so extreme that they can riddle the bodies of their compatriots with bullets?" and "Can one believe that these people suddenly turn so extremist as to shoot and kill their own countrymen only after one or two trips to war zones?"

Lexical Mismatches under the *field-ideational meta-function*. The words “really” and “only” in the first TT have been added to the TT discourse; additionally, ‘extreme’ is not ideationally equal to “أفراطى”; its equivalent is ‘extremist’, instead. According to Longman Dictionary, the word ‘extremist’ means ‘someone who has extreme political opinions and aims and who is willing to perform unusual or illegal things to achieve them [i.e. the goals]’. Thus, there is gap between the TT and the ST in this position as far as concerns the field.

Lexical mismatches under the *tenor-ideational meta-function*. The words added to the translation have increased the negative stance of the author as regards the content of the message, which is called a lexical mismatch, requiring critical attention, for, according to Newmark in *A Textbook of Translation* (1988), discourses produced by important authorities are considered expressive text-types, requiring the highest degree of faithfulness.

Lexical mismatches under the *mode-textual meta-function*. In the second TT, the word “أفراطى” is translated as ‘these people’, and this has strengthened the cohesion, while, at the same time, distancing away from the ST.

Syntactic mismatches under the *mode-textual meta-function*. In the second TT, the position of theme and rheme has been changed. The part under discussion has been underlined in the table. Syntactic mismatches regarding theme and rheme can shift the newsworthiness of one textual fragment away from the ST original position to another one, affecting the accuracy of the message with regard to the mode and the textual metafunction.

Non-Dimensional Mismatches: The first TT has been introduced with ‘we’, the procedure of which can be called modulation in terms of Vinay and Darbelnet (1995). The significance of this translation procedure lies in the fact that the shifting of the linguistic camera to the more intimate second-person plural can affect the reader emotionally; although this is called a mismatch in terms of House’s model (2015), it is at the same time an endeavor towards an emotionally deeper connection with the reader. In terms of the textual metafunction, however, the newsworthiness is shifted away from the content to the subject, which is not acceptable when not urgently necessitated by the situation of the translation.

5. Discussion and Conclusion

In this section, the research questions and their answers are presented. The source language letters were compared to their English translations, and the errors and mismatches with the dimensions of the field, tenor, and mode, were analyzed. This study aimed to answer the questions raised:

To answer the first question of the research, the investigation of cultural filters in this study yielded one case of cultural filtering. This was observed in the first letter, which can be classified under the ‘local’ type as in contrast to the global type. The reason why the first type of filtering was found in the translations—the TT of the first letter—while the second type was absent, can be explained in this way: The latter can be found in a covert type of translation only. For example, in the translation of a segment of the first letter, where the ST contains ‘صلى الله عليه وآله وسلم’ (= May Allah send salutations and peace upon him and his Household), the TT lacks this, which is a case of local filtering, for a religiocultural phrase which shows Muslims’ respect and devotion toward the Holy Prophet of Islam and his Family, Ahlul-Bait, Divine peace upon them, has been filtered out, although it is rare in the TT, which makes it deserve a local rather than a global label.

To answer the second question, in House’s model (2015), a vital classification is missing in that no distinction has been introduced between those mismatches or shifts that lead to global cultural filtering vs local ones. In other words, sometimes there is only one or there are only a few cultural filters in a TT, which are simply ignored by House, and the TT will be described as overt translation.

However, this is important because even one case of cultural filtering can affect the quality of translation if it is severely misplaced.

Besides, even one case of this can lead to an important change in the transference of the message or some aspect of the message of the SL text. The following classification was presented in 2019 by Hedayati and Yazdani.



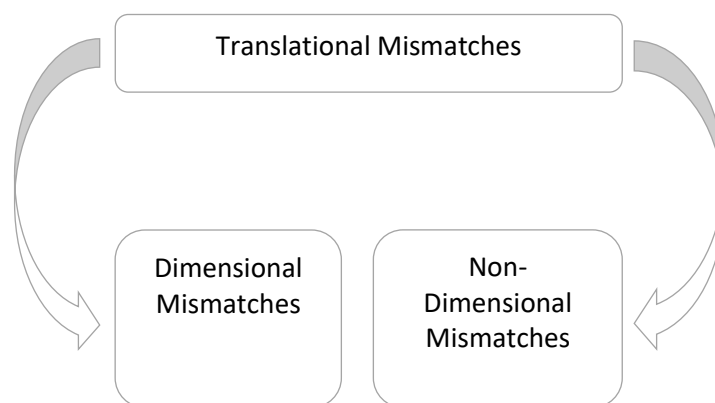
House's foundational model, revised multiple times between 1998 and 2015 to address translation quality assessment, has been instrumental in identifying dimensional mismatches, including linguistic and functional discrepancies between source and target texts. However, the 2015 revision reveals a significant limitation: the exclusion of non-dimensional mismatches, a category that warrants further theorization and integration. While House briefly alludes to such issues in her discussions of translation quality, her framework does not explicitly account for them in issuing either the statement of function or the statement of quality.

Non-dimensional mismatches refer to subtler yet meaningful errors such as typographical slips, punctuation inconsistencies, minor grammatical inaccuracies, and delicate lexical shifts. Although these may appear trivial, they can erode the precision and credibility of a translation, ultimately diminishing its overall quality. Incorporating non-dimensional mismatches into the model would expand its analytical capacity, enabling a more comprehensive assessment that captures nuances often overlooked in conventional evaluations.

The systematic recognition of these mismatches also highlights the importance of attention to detail in translation practice. Developing a structured approach for detecting and categorizing such discrepancies could refine evaluative processes while offering translators practical guidance for achieving higher levels of accuracy and professionalism.

In conclusion, extending House's model to include non-dimensional mismatches would not only address an existing theoretical gap but also enhance its applicability for both academic research and professional practice. Future studies might focus on methodologies for systematically identifying these mismatches, thereby providing actionable insights for translation quality assessment.

Diagram 2-Extension of Houses Model: Mismatches Dichotomy Incorporated into the Statement of Quality (Hedayati & Yazdani, 2019)



House's most recent revised model (2015) has not left any room for the inclusion of non-dimensional mismatches in her model when she issued the statement of function for the TT and the statement of quality for the translation in her conclusion of her translation quality assessment.

However, the researchers discovered that those minor mismatches can sometimes affect the reader's understanding of the TL language message. For example, when the researchers were busy assessing and analyzing the translations of the two SL texts, they faced some instances of non-dimensional mismatches which could not be dispensed with when releasing the statement of function and the statement of quality. As an instance, the researchers were able to refer to the second translation of one of the sentences of the second letter, where 'calm' has been typed as 'clam', which could have affected the dimensional aspect of the TT; however, since this is simply a typo and has occurred where the context clearly illustrates the meaning, the mismatch can be labeled as non-dimensional; hence, the idea of the essentiality of the inclusion of the non-dimensional type of mismatching in the statement of function as well as the statement of quality.

As for the absence of the local-global distinction when it comes to the discussion of cultural filtering in translation, the researchers discovered that House's approach to addressing cultural filters in her TQA model (2015) has not swept through all the real-life aspects of translation as concerns translation quality. In other words, in some text types, such as the expressive text-type (Newmark, 1988), the local shifts of culture are sometimes as important as the global ones, since they can affect the style as well as the sub-tones of the author, who is the central focus of translation assessment when we deal with expressive texts, such as international religio-political open letters. Another unexpected finding of the study was that different text types could have been addressed separately by House's model (2015). As we observed in the present study, the type of text can affect the approach to translation quality assessment, which we discussed further above.

A notable attempt at directing criticism at House's TQA model (2015) is Khanjan's work (2015). Although Khanjan's criticism has some important points, his criticism does not sufficiently highlight the positive aspects of House's model. In other words, no work of criticism or translation quality assessment was found by the researchers to have addressed important open letters as meticulously as House's does.

As regards, House's samples of translation quality assessment, the researcher, after conducting the present TQA work, discovered that House's approach to 'means analysis' and 'mismatches analysis' can be further improved if palpable examples replace long lists of numbers, which can be confusing and distract the reader's attention. Therefore, it could be recommended that the manner in which TQA is conducted can be modified and improved as discussed above.

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A Study of Accessibility in Translation of Navigation Signs in Tehran Metro

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Abstract

This study examines the accessibility of translated navigational signs in Tehran Metro as a key site of public translation. Using field observations supported by the User-Centered Translation (UCT) framework, it assesses the clarity, consistency, and usability of bilingual signage and other multimedia features across multiple metro stations and lines. The analysis identifies recurring inconsistencies in transliteration, translation choices, and the alignment between station names at stations and on the official metro map. These variations demonstrate the lack of a standardized approach to multilingual communication within the network and highlight the impact of such discrepancies on user navigation. The study contributes empirical data to ongoing discussions of translation in public spaces by showing how multilingual signage practices can either facilitate or hinder effective wayfinding in transit environments.

Keywords: Accessibility, station name, user-centered translation, Tehran metro

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1. Introduction

The cultural turn in translation studies during the 1980s and 1990s changed the focus of translation from linguistic to cultural studies. One of the main consequences of the shift is the change of focus from source to target text, the target audience, and the target audience needs. As a result, the main tasks of the translator in the process changed to provide a mental model of the audience's needs. As Reiss and Vermeer (2014, p. 91) noted in their Skopos theory, "A *skopos* cannot be set unless the target audience can be assessed". If the target audience is not known, it is impossible to decide whether or not a particular function makes sense for them. This means that the translators should be aware of the audience's needs through assessments that they conduct beforehand. Recognizing the audience's needs and appealing to them has been given great attention in translation studies. One of the significant contributions to functional approaches in translation studies is relevant to Katharina Reiss. She made a distinction between text types based on equivalence. This means "when translating an appeal-dominant text, the translator should make sure that the appellative effect of the source text works in the same way for the target-culture audience, even though this may mean changing content or form or both" (Nord, 2024, p. 169). Since the 1980s, the functional approach to translation studies has been one primary trend, focusing on the purpose of the translation and arguing that the translator needs to adapt the text according to the needs of future readers (Suojanen et al., 2014). This highlights the significance of the study in social settings and maintaining the audience's needs in order to achieve more accessibility.

With the shift of focus from linguistic aspects to readers, readers gain significance in the process of translation. In other words, translators set the scene for readers to understand the content of the text, and based on that, readers decide the action that they want to take. This process changes the role of translators from just a mediator between languages to individuals who actively participate in real-time decisions and activities. The concept of accessibility enables translators to use translation to engage with users with different profiles and needs (Maaß & Hansen-Schirra, 2022).

"Accessibility is the extent to which products, systems, services, environments, and facilities can be used by people from a population with the widest range of characteristics and capabilities, to achieve a specified goal in a specified context of use" (International Organization for Standardization (ISO), 2018). However, translational research about accessibility in public places has largely gone unnoticed. Accessibility in translation has expanded to include considerations of diverse user needs, including linguistic, cognitive, and physical abilities. However, it should be noted that most of the attention has been toward cognitive accessibility.

The present research examined the accessibility of navigational signs and digital screens in Tehran Metro. The navigational signs and digital screens have been analyzed by user-centered translation (UCT) framework, which is both practical and theoretical. This approach is important because it emphasizes the central role of the user, or reader, in the translation process (Suojanen et al., 2014, p. 1). UCT allows gathering as much information about our users as possible, and design and revise the translation based on this information (Suojanen et al., 2014). The present research was conducted in furtherance of multiple aims. To identify and analyze inconsistencies in the translation of navigational signs and digital screens, to assess the extent to which current translation practices in Tehran Metro address social inclusivity and meet the needs of a multicultural and multilingual urban population, and to propose recommendations for improving navigation.

Tehran is one of the largest cities in the world, with a population of nearly 9.4 million. The larger Tehran metropolitan area has a population estimated at 14 million, which makes it the largest city in Western Asia and one of the three largest cities in the Middle East after Cairo and Istanbul (World Population Review, 2024). Consequently, the daily commute of citizens has become one of the most

major functions within urban areas. In Tehran, the metro system facilitates approximately 2.5 million daily ridership. As a result, improvements can attract more users to use public transportation (Nassereddine & Eskandari, 2017). Translation, in this process, transforms public information from a barrier into a bridge, enabling all users to participate fully in city life.

2. Literature Review

To date, several studies have attempted to examine the translation of station names. Liangqiu and Shang (2019) explore the names of Beijing subway stations, aiming to retranslate subway station names with classification, to provide a reference for the English translation of subway station names. Their research, grounded in Skopos theory, revealed that translators should pay attention to the conciseness and understandability of the target text, as well as its consistency with the ground transportation system.

Luo and Li (2023) conducted a research on the translation of metro station names in Guangzhou and Foshan. They focused on the symbolic functions of names from the perspective of translation and linguistic theories, revealing that there is over-transliteration of metro station names in Guangzhou and Foshan. Common nouns and position words are transliterated into Pinyin instead of being freely translated into English. This over-transliteration practice fails to consider the symbolic functions. They recommended adopting free translation for common nouns and position words, and using a consistent format across Guangzhou and Foshan metro station names to improve translation. Their initial purpose of adopting transliteration for Metro station names was to establish Chinese dominance, and to better publicize the Chinese language and culture; however, the over-use of transliteration ended in the audience misunderstanding and failure to retain the symbolic function.

Both studies underscore the need for high-quality translation in subway environments. They similarly conclude that translation in this context is not merely the transfer of words from one language to another, but a practice with the potential to enact social and communicative functions (Harvey 2003, p. 46). This aligns with Simeoni's (1998) notion of the translator's "submissive" habitus, which holds that the formation of a translation field is possible only under specific conditions. He further argues that:

As long as this assumption holds, it will be difficult to envisage actual products of translation as anything more than the results of diversely distributed social habituses or, specific habituses governed by the rules pertaining to the field in which the translation takes place. (Simeoni, 1998, p. 19)

This suggests that translators should be aware of the socio-cultural contexts in which their habitus is formed and should act as active agents of change to enhance their visibility and professional prestige (Wolf, 2007, p. 115). Chesterman (2008) similarly argues for making translation research more responsive to societal needs, proposing the concept of translation practice as the set of translation events shaped by specific temporal, institutional, and cultural conditions. Together, these perspectives highlight the translator's role as more than a linguistic mediator, emphasizing the importance of understanding the social dynamics that shape translation and the agentive potential of translators within those dynamics.

Fraszczyk, Weerawat, and Kirawanich (2020) examined metro station naming practices in seven megacities selected according to several criteria, including representation of both established and emerging megacities, capital cities with metro systems, developed and developing contexts, as well as different continents and languages. Their study compared five general parameters of each metro system (number of lines, average stations per line, total unique station names, total stations, and number of interchange stations) alongside five parameters specific to station names (average length

in characters and words, the use of English or transliteration, name categories, and unique naming conventions). The analysis indicated that street-based naming is the most common strategy.

They argue that the language used in metro station names is crucial, especially in cities with high tourist traffic, where many passengers may be unfamiliar with the local language. Providing English station names on maps and signage can greatly improve the travel experience. Alternatively, they suggest that dual naming systems, such as combining full names with letter–number codes, offer an intuitive approach worth considering.

These findings underscore the importance of translation in urban transportation systems, particularly in multicultural and tourist-oriented environments. The relationship between translation and tourism has gained increasing attention only recently, despite its significance in shaping how visitors navigate and experience a city. As Sulaiman and Wilson (2019) note, the role of language in tourism—especially in promoting and facilitating it—has been comparatively understudied, indicating a need for further research in this area.

Iran's rich cultural and historical heritage offers considerable potential for tourism, yet this potential has been underutilized. Strategic advertising and social media outreach can help reshape international perceptions and attract more visitors. As Tütüncü (2024) notes, higher perceived risk in a host country reduces the number of international tourists; therefore, improving a country's image can contribute to increased tourism and, in the long term, support economic and policy development. Within this process, transportation plays a significant role, and in Iran, the metro system is one of the most important modes of public transit.

Today, metro systems are recognized as efficient and environmentally sustainable transportation options, particularly in densely populated cities. Among their key advantages are reduced greenhouse gas emissions and improved urban air quality. This is especially relevant in Tehran, where air pollution is a persistent challenge. Khoshakhlagh et al. (2023) report that approximately 84% of air pollution in Tehran originates from mobile sources. They argue that expanding and modernizing public transportation—including metro, bus, and taxi fleets—is among the most effective solutions. Similarly, studies indicate that metro construction and operation can significantly reduce CO₂ emissions compared to reliance on private vehicles (Andrade, 2024). Within this context, translators can act as social agents of change, contributing to environmental communication by facilitating the exchange of knowledge across linguistic and cultural boundaries. By ensuring that scientific information, policy initiatives, and community guidance are accessible to diverse audiences, translators help overcome language barriers that might otherwise limit public awareness and engagement—particularly in multilingual and multicultural urban environments.

3. Methodology

This study employed field research informed by the User-Centered Translation (UCT) model. Fieldwork involved direct observation and documentation at Tehran metro stations over an eight-month period, during which station names and multimodal features were recorded and supplemented with photographs of relevant signs and symbols. The collected station names were then compared with their equivalents on the official metro map available at the Tehran Metro website (www.metro.tehran.ir) to identify discrepancies between the two. Accessibility of multimodal features were also examined to assess their alignment with the translated names and overall navigational clarity. Figure 1 presents the official Tehran Metro map, which served as the primary reference for the comparative analysis in this study.

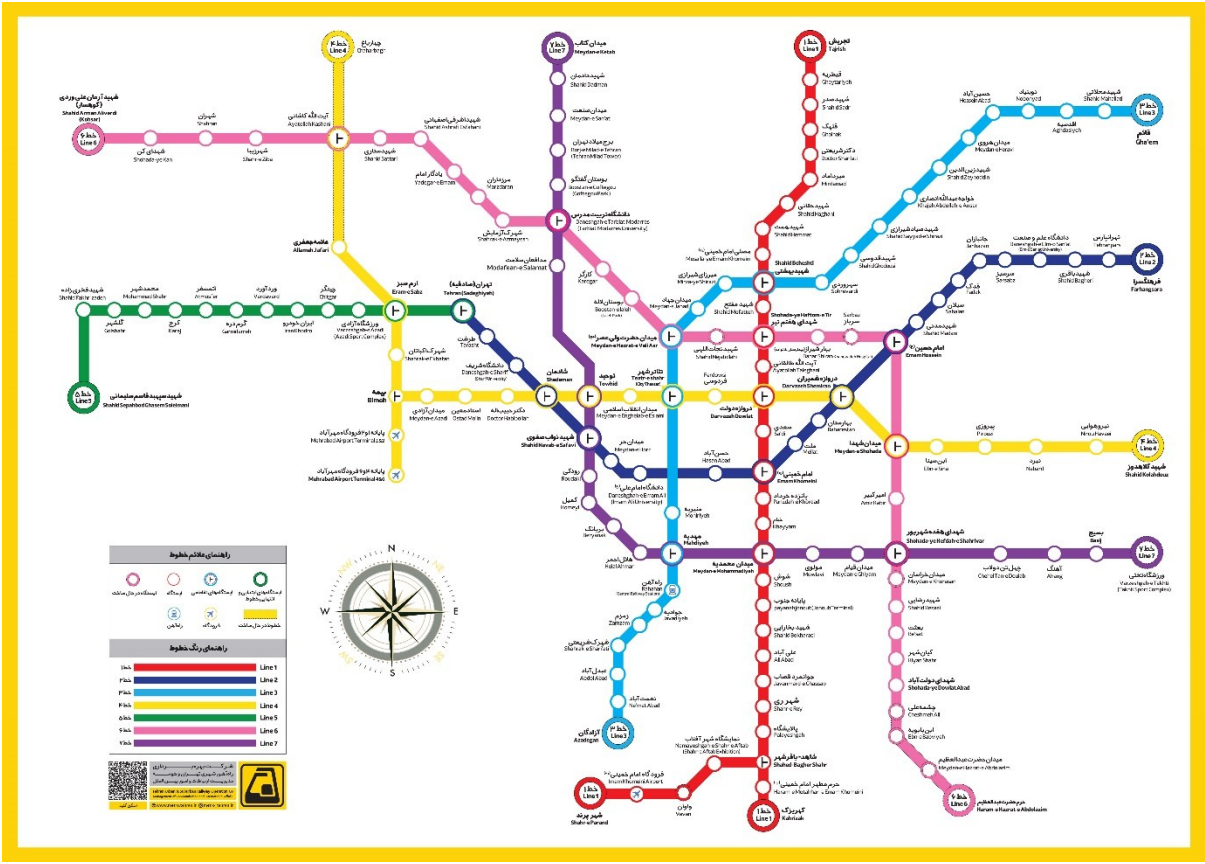


Figure 1. Official map of Tehran metro

The analytical framework was based on the UCT model, a functionalist, reader-oriented approach that emphasizes usability and user experience. In UCT, translation is treated as an iterative process in which information about users is continuously gathered and integrated into translation decisions (Suojanen et al., 2014). Usability is understood as the ease with which users can accomplish their intended goals, while user experience refers to the emotional and cognitive responses elicited during use. The model therefore prioritizes translation solutions that clearly address user needs and minimize interpretive effort. Figure 2 illustrates the iterative structure of the UCT process.

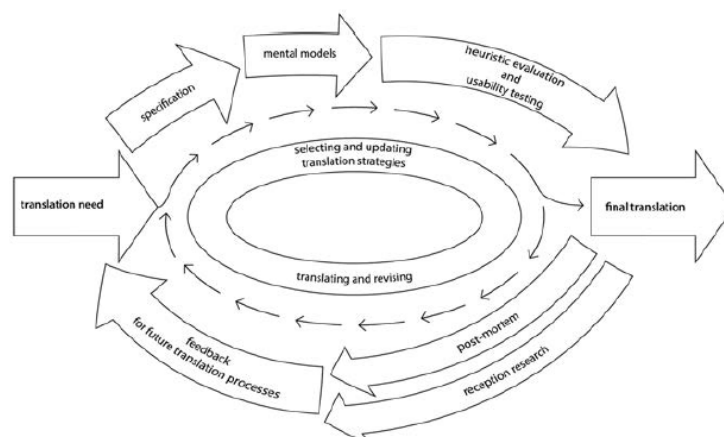


Figure 2. User-centered translation process © Anni Otava

Data interpretation drew on UCT's iterative methodology, in which translation analysis, evaluation, and revision occur cyclically rather than linearly. The original usability heuristics proposed by Suojanen et al. (2014) (see Table 1) were used in this study.

Table 1. Usability heuristics for user-centered translation (Suojanen et al., 2014, p. 90)

1	Match between translation and specification	Why is the translation needed and does it fulfill the requirements defined in the specification?
2	Match between translation and users	Who are the users of the translation and how do their characteristics affect translation solutions? Are there possibilities for supporting different kinds of users? Do the textual choices reflect the information needs of the users?
3	Match between translation and real world	Is the translation aligned with its cultural context? Is cultural adaptation required?
4	Match between translation and genre	Does the translation match the conventions of the genre in question? Are the visual, auditory and other multimodal elements appropriate for the new context?
5	Consistency	Is the translation consistent in terms of style, terminology, phraseology and register?
6	Legibility and readability	Do the visual elements of the translation correspond to the reader's physiological capabilities and relevant cultural guidelines? Is the user guided through the translation by using appropriate signposting for the genre in question? Are the user's efforts of interpretation sufficiently minimized?
7	Cognitive load and efficiency	Is the translation well crafted enough to be easy to memorize and learnable – that is, clear and comprehensible? Do the users need guidance for using the translation and, if so, in which format?
8	Satisfaction	Does the translation produce a pleasurable and/or rewarding user experience?
9	Match between source and target texts	Has all relevant source material been translated? Is there unwanted linguistic or structural interference?
10	Error prevention	Have the potential risks of misunderstanding been minimized?

4. Results and Discussion

After extracting station names and comparing them with the official Tehran Metro map, the data were classified into four groups to highlight key variations in translation practices. Group A comprises stations with consistently transliterated names across both signage and maps, Group B includes stations with inconsistent transliteration, Group C features stations with both transliteration and English translation, and Group D contains stations presented exclusively in English translation.

Figures 3 and 4 illustrate examples from Group A, where uniform transliteration (“Meydan-e Ketab” and “Meydan-e San’at”) is consistently applied at stations and on the map. This consistency reduces confusion for non-Persian speakers and enhances navigability.



Figure 3. Directional sign at Meydan-e San'at



Figure 4. Directional sign at Meydan-e Ketab

A close examination of Group B shows noticeable inconsistencies between the names used on station signage and those presented on the official map. One example is the treatment of two stations on Line 1 that share the same referent. While one is labeled *Emam Khomeini*, the other appears as *Haram-e Motahar-e Emam Khomeini*. Another inconsistency appears in the interchange station *Meydan-e Mohammadiyeh*, which is rendered differently across metro lines: on Line 7 it appears as *Meydan-e Mohammadieh*, whereas on Line 1 it is spelled *Meydan-e Mohammadiyeh*. Similar variation is seen in *Kolahdouz* (کلاهدوز), which appears in two transliterated forms—the difference being *douz* versus *dooz*. This discrepancy likely stems from interchangeable transliteration conventions in which *ou* and *oo* represent the same Persian vowel sound. The same type of variation affects *Nirou Havaei* (نیروی هوایی) and *Pirouzi* (پیروزی). Further inconsistencies involve the use of apostrophes, as in *Ostad Moe'in* (استاد معین). The use of the apostrophe in *Ostad Moe'in* suggests an attempt to indicate correct pronunciation, yet this convention is not consistently observed in other similar cases. These irregularities indicate that while some naming choices aim for phonetic clarity, the lack of uniform application prevents the establishment of a stable system. Additional examples from Group B are presented in Table 2.

Such inconsistencies can undermine the effectiveness of the metro system by increasing cognitive load for both local and international users. When multiple spellings or transliteration strategies coexist, passengers must spend additional time interpreting station names, which may lead to confusion, slower navigation, or misidentification of destinations. For tourists and non-Persian speakers, the lack of standardization can create significant barriers to independent travel and may discourage use of the public transit system. Ultimately, inconsistent naming reduces overall usability and weakens the communicative function of public signage, which relies on clarity, predictability, and ease of recognition.

Table 2. Examples of naming inconsistencies between station signage and official metro maps in Group B

Station Names in Persian	Station Names in English at Stations	Station Names in English on Map
حرم مطهر امام خمینی	Haram-e-Motahar-e Imam Khomeini	Haram-e-Motahar-e Emam Khomeini
سعدی	Sa'adi	Sa'di
دکتر شریعتی	Doctor Shariati	Doctor Shari'ati
قیطریه	Gheytarieh	Gheydariyeh
نعمت آباد	Nemat Abad	Ne'mat Abad
شهرک شریعتی	Shahrak-e Shariati	Shahrak-e Shari'ati
مهدیه	Mahdieh	Mahdiyeh
میدان حضرت ولی عصر	Meydan-e Hazrat-e Vali-e Asr	Meydan-e Hazrat-e Vali Asr
میرزای شیرازی	Mirzaye Shirazi	Mirza-ye Shirazi
میدان محمدیه	Mohammadieh	Mohammadiyeh

شهید زین الدین	Shahid Zeyn-o-ddin	Shahid Zeynoddin
قائم	Ghaem	Gha'em
کلاهدوز	Kolahdooz	Kolahdouz
نیروی هوایی	Niroo havaei	Nirou havaei
استاد معین	Ostad Moein	Ostad Moe'in
مولوی	Molavi	Mowlavi
شادمان	Shade'man	Shademan
پیروزی	Piroozi	Pirouzi
دکتر حبیب الله	Doctor Habib-o-llah	Doctor Habibollah
حسن آباد	Hassan Abad	Hasan Abad
دانشگاه علم و صنعت	Daneshgah-e Elm-o Sanat	Daneshgah-e Elm-o San'at

Group C consists of stations where transliterated names appear on station signage, while translated English equivalents are used on the official metro map. This pattern is particularly common at locations that attract high numbers of visitors, such as cultural landmarks, universities, major parks, and transportation hubs. For example, *Bahar Shiraz* is displayed in transliterated form at the station (Figure 5), while on the map it is given as *Khanevadeh Hospital*. A similar pattern occurs with *Daneshgah-e Emam Ali* (Figure 6), which appears as *Imam Ali University* on the map.



Figure 5. Directional sign at Bahar Shiraz station



Figure 6. Directional sign at Daneshgah-e Emam Ali station

This mixed denomination suggests an attempt to improve clarity and accessibility for international and non-Persian-speaking users by providing recognizable English descriptors for well-known destinations. However, because the practice is applied selectively rather than systematically, it can create uneven expectations for navigation across the network. Further examples of Group C naming patterns are presented in Table 3.

Table 3. Examples of naming inconsistencies between station signage and official metro maps in Group C

Station Names in Persian	Station Names in English at Stations	Station Names in English on Map
ورزشگاه آزادی	Varzeshgah-e Azadi	Azadi Sport Complex
دانشگاه شریف	Daneshgah-e Sharif	Sharif University
دانشگاه تربیت مدرس	Daneshgah-e Tarbiat Modarres	Tarbiat Modarres University
بهار شیراز (بیمارستان خانواده)	Bahar Shiraz (Khanevadeh Hospital)	Khanevadeh Hospital

دانشگاه علم و صنعت	Daneshgah-e Elm-o San'at	Elm-o San'at University
دانشگاه امام علی	Daneshgah-e Emam Ali	Imam Ali University
تئاتر شهر	Teatr-e shahr	City Theater
راه آهن	Rahahan	Central Railway Station
نمایشگاه شهر آفتاب	Namayeshgah-e Shahr-e Aftab	Shahr-e Aftab Exhibition
پایانه جنوب	Payaneh Jonoub	Jonoub Terminal
برج میلاد تهران	Borj-e Milad-e Tehran	Tehran Milad Tower
بوستان گفتگو	Boostan-e Goftegou	Goftegou Park
بوستان لاله	Boostan-e laleh	Laleh Park

Group D stations present names exclusively in English translation, with no accompanying Persian script or transliteration. This group demonstrates markedly higher consistency, reflecting a deliberate institutional approach aimed at facilitating international accessibility. Examples include airport terminals, major railway stations, and prominent tourist sites. While this approach improves navigability for non-Persian speakers, it simultaneously diminishes linguistic diversity and highlights hierarchical distinctions within the urban environment, privileging international travelers over local users. From a semiotic perspective, this practice contributes to the formation of the city's linguistic landscape, aligning with global trends toward standardized, internationally legible signage (Landry & Bourhis, 1997). Examples of Group D naming patterns are presented in Table 4 and two instances can be found in Figures 7 and 8.



Figure 7. Directional signs at Mehrabad Airport Terminal



Figure 8. Directional signs at Imam Khomeini Airport

Table 4. Examples of naming inconsistencies between station signage and official metro maps in Group D

Station Names in Persian	Station Names in English at Stations and on Map
پایانه ۱ و ۲ فرودگاه مهرآباد	Mehrabad Airport Terminal 1 & 2
پایانه ۴ و ۶ فرودگاه مهرآباد	Mehrabad Airport Terminal 4 & 6
فرودگاه امام خمینی	Imam Khomeini Airport

Overall, the results highlight a spectrum of translation practices in Tehran Metro. While Group A and Group D exemplify consistent approaches—either through unified transliteration or English-only

translation—Groups B and C reveal variability and partial implementation of accessibility standards. Transliteration inconsistencies, typographical variations, and uneven application of bilingual signage create barriers for non-Persian speakers and indicate a need for standardized, user-centered translation strategies. The findings suggest that integrating transliteration, translation, and multimodal accessibility systematically across all stations could significantly improve navigability and the overall commuter experience.

Multimodal Features in Metro Stations

Beyond station names, multimodal accessibility features were also examined. Standardized visual elements, including pictograms (Figure 9), color-coded lines (Figure 10), high-contrast signage, tactile pathways, and braille, were widely observed. Color-coded lines assist with navigation, although naming for these lines is not consistently translated, which may complicate transfers at interchange stations.



Figure 9. Pictograms in metro



Figure 10. Color-coded lines in metro

Digital screens further support accessibility: real-time train transfer displays (Figure 11) indicate train location, upcoming stops, and delays in both Persian and English. In-car screens (Figure 12) display station names in Persian and scrolling English transliterations or translations, serving both informational and crowd management functions. These multimodal features enhance usability, reduce cognitive load, and accommodate diverse passenger needs, reflecting partial implementation of user-centered translation principles.

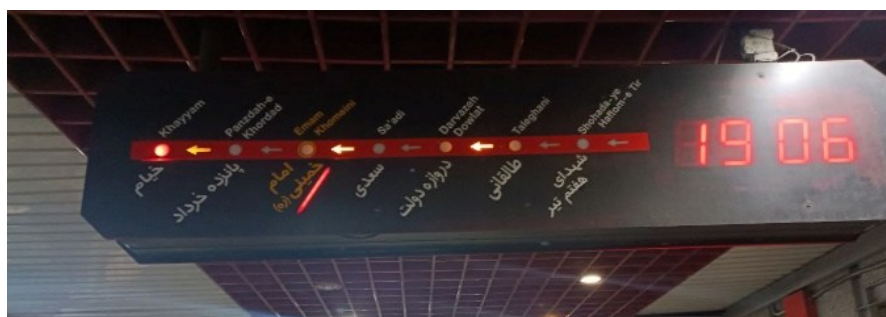


Figure 11. Real-time train transfer digital screen



Figure 12. Digital screen inside the car

While these features demonstrate meaningful steps toward improving accessibility, several challenges remain. The absence of translated line names means that users must rely primarily on color cues, which can complicate navigation at busy interchange stations, particularly for visitors unfamiliar with the system. The uneven distribution of tactile pathways and braille signage likewise suggests that accessibility accommodations are not yet standardized across all stations, leading to variable user experiences. Real-time transfer screens and in-car bilingual displays help reduce cognitive load, especially in crowded conditions where visual access to external signage is restricted; however, their effectiveness depends on consistent placement and maintenance. More broadly, the variation in how English is incorporated into signage reveals differing assumptions about who the 'intended user' is. In some contexts—particularly airports and major transport hubs—English appears as the primary communicative mode, signaling prioritization of international travelers. However, this may also contribute to the erasure of Persian in areas associated with global mobility. Addressing these inconsistencies would require the development of unified, user-centered translation guidelines that balance accessibility with cultural presence.

5. Conclusion

The analysis of naming and signage practices in Tehran Metro reveals that translation is not merely a technical or lexical task, but a socio-functional process. The inconsistencies observed—particularly between transliterated station signs and translated map labels—demonstrate the absence of a unified, user-centered translation. When station names shift between transliteration and translation without clear rationale, the system requires passengers to infer meaning, placing a cognitive burden on international users and occasionally even on local commuters. At the same time, the presence of translation reflects a deliberate attempt to open the metro network to non-Persian users and to present Tehran as a connected and globally oriented city. The challenge, therefore, lies in maintaining accessibility while ensuring that linguistic choices remain consistent, intuitive, and context-appropriate.

A cohesive approach to metro translation should integrate linguistic accuracy with practical functionality. Standardizing naming conventions, aligning signage with maps, and incorporating supplementary tools such as digital supports or community-informed language choices would improve clarity and reduce navigation barriers. Crucially, translation should not erase the cultural specificity embedded in Persian place names, but rather translate in ways that communicate their historical, social, and spatial significance. A coordinated, multilingual signage system—developed collaboratively by translators, linguists, designers, transit authorities, and users—has the potential to enhance mobility, support intercultural communication, and reinforce Tehran's identity as a city that is both rooted in its heritage and engaged with the global world.

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