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# The Effect of National Identity and Cognitive Abilities on Translators' Fixation Counts: An Eye-tracking Experiment[1]

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## Abstract

The current paper investigates the potential effect of national identity and cognitive abilities on translators' mental effort. To this end, an eye-tracking study was conducted to explore how individuals' mental effort varied based on their national identity and cognitive abilities when instructed to translate according to IRIB standards. To do this, eight participants were recruited to carry out ten tasks, requiring the translation of ideologically-loaded texts. The experiment was performed in the Cognitive Laboratory of the University of Tehran in Iran. The mental effort of the participants was assessed by measuring their fixations counts, a commonly used eye-tracking metric derived from their performance while translating. Upon completion, the participants were given two questionnaires, measuring their national identity and cognitive abilities. The results indicated that the participants' national identity and cognitive abilities affect their fixation counts which represent their mental effort. In other words, a positive correlation was observed between the scores of national identity and cognitive abilities, where higher scores contributed to increased mental effort. This denotes that the translators' mental effort decreased when asked to translate against their national identity.

**Keywords:** cognitive ability, eye-tracking, fixation count, mental effort, national identity

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## 1. Introduction

In recent decades, Translation Studies has focused on ideological issues as a central research agenda (Tymoczko, 2007, p. 43). Tymoczko (2003, pp. 182-201) asserts that a translation's ideology extends beyond the translated text to include the translator's voice, stance, and relevance to the target audience. These aspects are shaped by the translator's enunciation place, which encompasses ideological as well as geographical and temporal positioning. The role of a translator involves considering cultural nuances and ideological underpinnings that influence the meaning of a text. Translators' personal values and beliefs significantly impact the message delivered to readers. Besides, in Tymoczko's perspective, a translator's ideology can be referred to as ideological positioning.

As fundamental components of social cognition, ideologies also serve cognitive functions. At the intersection of the individual and social domains, ideologies and the attitudes and knowledge they promote influence the cognitive processes of group members (Van Dijk, 1995, p. 19). Accordingly, Van Dijk (1998) declares that cognitive activities are correlated with behavior and brain which can be measured, observed and, recorded. This assumption stems from cognitive psychology and also neuroscience, and is also in relation with neurolinguistics and psycholinguistics (Jakobsen, 2017, p. 22).

It is worth noting that "measuring a concept as elusive as ideology is a challenging enterprise. Its multifaceted and speculative nature is extremely difficult to operationalize in a limited set of quantifiable variables" (Rojo, 2015, p. 741). However, despite the growing knowledge of ideological facets, up to now, there has been almost very few empirical researches to measure the impact of ideology on translator's translation process. New advances in experimental tools and techniques have made the way open for researching the impact ideology has on specific fields and tasks though (Rojo, 2015, p. 741).

While numerous studies have delved into the relationship between ideology and translation (see Mousavi Razavi & Allahdaneh, 2018; Mousavi Razavi & Mashaei, 2021; Mousavi Razavi & Rad, 2019), few have empirically measured its impact on the translation process. To bridge this gap, this study aims to investigate how a translator's national identity and cognitive ability influence their mental effort when translating ideologically-loaded texts. To achieve this goal, the study measured translators' mental effort using eye-tracking technology, a method widely used in translation process research but underutilized in the Iranian context, by analyzing the fixation counts on ideologically-loaded text segments.

## 2. National Identity as Ideological Representation

According to Venuti, translation functions as a political and cultural process wherein the translator constructs or critiques identities marked by cultural ideologies for foreign societies, potentially bolstering or contravening linguistic norms and institutional boundaries in the target-language culture (Venuti,1999, p. 19). In this way, Van Dijk proposes that "ideologies reflect the basic criteria that constitute the social identity and define the interests of a group" (1998, p. 25). Thus combining cognitive and social approach to ideology leads to the assumption that basic social values are selectively chosen to create biases in ideologies and are organized using group self-schemata in which categories like identity, task, objective, standards, status, and resources hold paramount importance (Van Dijk, 1995, p. 32).

Wodak et al. (1999, pp. 3-4) assume that "national identities, as special forms of social identities, are produced and reproduced, as well as transformed and dismantled, discursively". The authors also believe that national identity is the set of shared emotional dispositions, conceptions, perceptual schemata, and behavioral conventions that bind individuals within a particular nation. It is constructed through socialization processes, such as education, politics, media, sports, and everyday

practices. Bourdieu's concept of habitus can be seen as related to this conception of national identity.

The construction and organization of group ideologies within a social mind reflects the structure of the society in which they are found. The identity category of a group ideology serves to classify and categorize members, defining who belongs and who does not, and what actions are required for membership (Van Dijk, 1995, p. 19). Therefore, national identity could be pondered as the representation of ideology.

## 3. Cognitive Translation Studies

Laver and Mason (2018, pp. 17-18) define Cognitive Translation Studies (CTS) as a field of research that investigates the impact of knowledge and mental faculties on the process of translating and interpreting. The focus of these researches is on translating tasks, such as certain features in opposition with monolingual processing, and the possible aptitudes and skills the translators may have had.

According to Risku (2014), experts in Cognitive Translation Studies are still in the process of devising and testing new study approaches, which have the potential to adapt to the substantial changes required in study methodologies to effectively examine contextual, embodied, and extended cognition (p. 336). She continues that throughout the years, the primary methodological approaches utilized in cognitive science studies within Cognitive Translation Studies have primarily been modeled after methods initially created in the behavioral sciences, with psychology being the most notable influence (p. 334). In such studies the terms mental effort, cognitive load, and cognitive effort, which are used interchangeably, relate to the amount an individual's mental resources are assigned to do a task. In TS researches, mental effort refers to the amount of mental resources individuals allocate to accomplish translation tasks (Vieira, 2016, p. 9).

According to Rojo (2015, pp. 723-724), translation scholars have been actively exploring how translators comprehend entire texts as they engage in the translation process. To gain insights into this aspect, researchers have delved into psycholinguistic studies, employing tools like eye-tracking technology. By analyzing translators' eye movements, researchers can uncover valuable information about their cognitive efforts and thought processes. For example, the eye-tracker system records translators' eye and pupil movements during translation tasks, allowing access to their mental processes and cognitive exertion. This recorded data provides indicators such as gaze time, saccades, fixations, fixation counts (the number of fixations), average fixation duration, pupil dilation, and total task length (Hvelplund, 2011).

In research conducted in 2014, Rojo and Ramos explored the effect of translators' ideological positioning on their translation process, in terms of the time spent to find an adequate translation for ideologically-loaded expressions. Their findings indicated that words or expressions conflicting with translators' ideology would hinder their decision-making, resulting in longer search times for adequate translations.

There have been researches in the Iranian context that addressed identity or national identity such as the studies by Ahmadi and Parham (2022), Parham (2019), Kassai (2019), and Farahzad and Ehteshami (2011), which all have focused on the verbal and non-verbal features of identity as manifested in text and paratext. However, it seems that no study in Iran has examined national identity of translators with a cognitive approach. The Iranian studies that have adopted a cognitive approach include Ganji (2024), Parham and Marzani (2022), Arabbeigi (2021), and Marzani (2020) which have employed fMRI or Electroencephalography to conduct their studies and again, an examination of

translators' national identity with eye-tracker technology appears to be lacking in Iranian scholarship.

## 3. Method

### 3.1. Aim and Hypothesis

The study aims to investigate how translators' national identity and cognitive abilities influence their mental effort when instructed to translate ideologically-loaded texts according to Islamic Republic of Iran Broadcasting (IRIB) standards. It adopted the methodology outlined in the research by Rojo and Ramos (2014) while customizing the design and variables to fit the purpose of the present research.

In their study, Rojo and Ramos (2014) concluded that translators' ideology plays a critical role in determining the speed and accuracy in their translation process. Words that contradict translators' ideological beliefs may slow down the translation process and cause delays, while words that align with their ideology could facilitate and hasten the translation process. In light of these findings, the following hypothesis was formulated and tested: translators' mental effort, in terms of fixation counts, would be lower in translators with high national identity score and high cognitive abilities score when instructed to translate ideologically-loaded texts according to IRIB standards.

### 3.2. Participants

Eight native Persian-speaking participants were recruited for this study using a convenient sampling method. The number of participants was determined based on practical considerations. All participants were either undergraduate or graduate students studying English translation at Allameh Tabataba'i University. There were one female PhD candidate, three female BA graduates, and four male MA students. The age range of the participants was between 23 and 46 years.

Initially they were asked to join the research. Upon obtaining their consent, they were asked about their state of vision, to see if it is normal or corrected. This is because poor vision during an eye-tracking examination can lead to inaccurate results and cause difficulty in analysis.

### 3.3. Instruments

Three types of instruments were employed in this study: eye-tracker, translation tasks, and two questionnaires, which are elaborated on below.

#### Eye-tracker

The eye-tracker system was a screen-based Tobi TX300 operating at the frequency of 300Hz, with an accuracy of 4% and precision of 3%. As displayed in Figures 1 and 2, the system was amounted at the bottom of the computer's monitor, identifiable by four purple indicator lights. The output of the device was available in both MS Excel and MP4 video format.

Figure 1. Eye-tracker System

Figure 2. Eye-tracker System

#### Translation Tasks

Ten translation tasks were designed for the study. Each task included two segments of English texts taken from Fox News Media website. The texts contained ideological words and expressions which were marked according to the

subcategories of national identity questionnaire, namely cultural, lingual, social, political, territorial, and religious. An example is provided in Figure 3 where the ideological words are marked based on the cultural component of the national identity questionnaire.

1. **Introduction:** A giant flag of IR Iran on the pitch prior to the FIFA World Cup Qatar 2022 group B match between Wales and IR Iran was shown at Ahmad Bin Ali Stadium on November 25, 2022 in Doha, Qatar.

   **Part 2:** The U.S. soccer federation briefly displayed (1) Iran's national flag on social media without (2) the emblem of (3) the Islamic Republic, saying the (4) move (5) supports (6) protesters in Iran.

Figure 3. Sample Task – Researcher Version

In each task, the first segment served as the background and provided context (called 'introduction' – see Figure 4), and the second segment was to be translated into Persian by the participants (called 'translation' – see Figure 5). The total word count of the second segments across 10 tasks amounted to 355 words. To turn texts into tasks, the Tobii Pro Lab 181.1. Software was employed and ideological words and expressions were coded, but not known to the participants, to be later identified from the data obtained from the eye-tracker and analyzed in the next step. All these were done under the supervision of two neuroscience specialists of the laboratory.

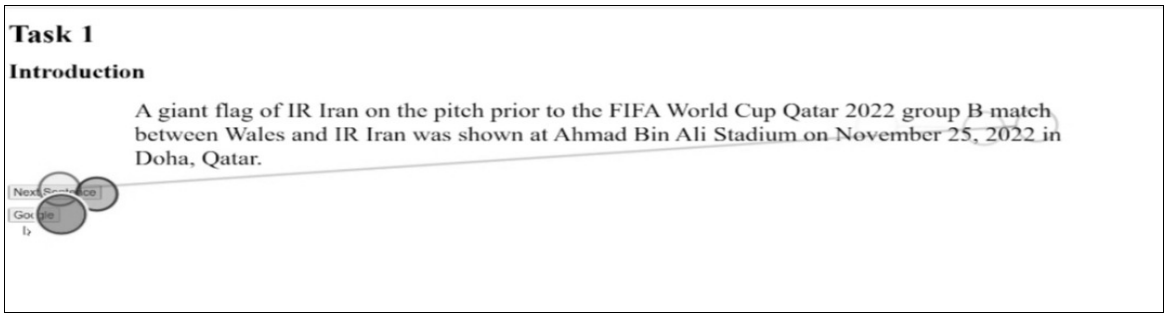



Figure 4. Sample Task, Introduction Part – Participant Version

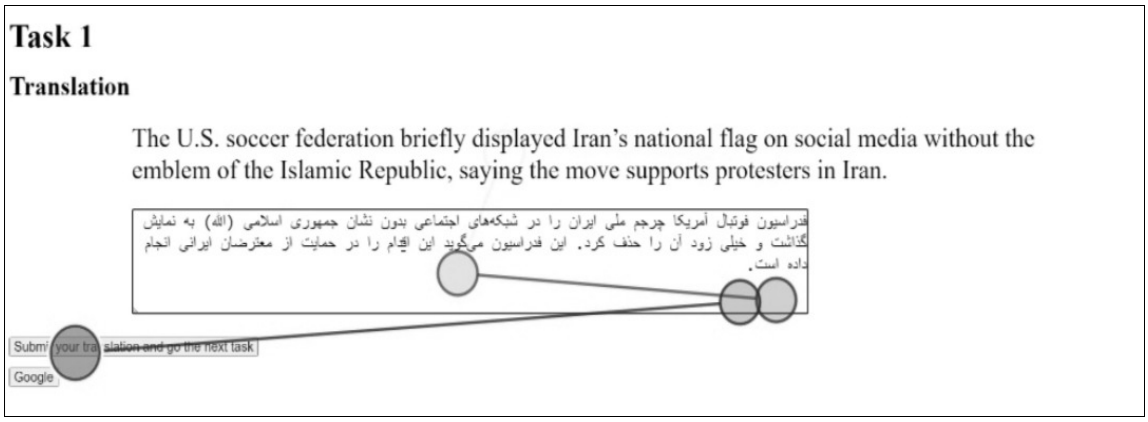



Figure 5. Sample Task, Translation Part – Participant Version

## The Questionnaires

Two questionnaires were employed in the present study, sourced from disciplines distinct from translation studies. First, the National Identity Questionnaire designed by Rastegar and Rabani (2013) was drawn from sociology. This questionnaire has 25 questions across 6 components, including cultural (items 1-8), lingual (items 9-12), social (items 13-16), political (items 17-19), territorial (items 20-22) and religious (items 23-25), and it measures national identity using the Likert scale, wherein the participants allocate scores to each of the 25 questionnaire items.

Secondly, the Cognitive Abilities Questionnaire designed by Nejati (2013) was taken from cognitive psychology. This questionnaire consists of 30 questions across 7 components, including memory (items 1-6), inhibitory control and selective attention (items 7-12), decision-making (items 13-17), planning (items 18-20), sustained attention (items 21-23), social cognition (items 24-26) and cognitive flexibility (items 27-30). Cognitive ability is quantified by the score the participants obtained in the cognitive ability questionnaire (Najati, 2013).

These two questionnaires were administered to participants following the completion of translation tasks in the laboratory, subsequent to a ten-minute rest period.

### 3.4. The Pilot Study

The pilot study was conducted with only one participant. The tasks were initially 18, with a total of 730 words to be translated. The pilot was performed in the laboratory setting and under the supervision of two neuroscience specialists. The conditions and results of the pilot revealed that the experiment needed modifications. First, the experiment was very lengthy and the participant had to spend about two hours to go through all 18 tasks. Second, the keyboard did not exhibit the Persian alphabet labels appropriately. Therefore, the number of tasks was reduced to 10 and the keyboard was replaced to ensure accuracy and avoid undesired fatigue.

### 3.5. Data Collection

The existing research was conducted at the Cognitive Laboratory of the University of Tehran, Faculty of Psychology and Education, located in Tehran, Iran. The participants arrived at the laboratory on time. The eye-tracker laboratory was a quiet room furnished with standard lighting and equipped with two systems; an eye-tracker system, and a computer running the program.

24 hours before the experiment, the participants were informed not to wear any eye or eyebrow makeup at the time of the experiment since it may negatively affect the accuracy of the data. Moreover, long eyelashes may interfere with eye-tracking operation.

On the day of the experiment, when the participants arrived, they were given a tour of the eye-tracker laboratory where they could see two computers in place:

one computer equipped with the eye-tracker and for the participants' exclusive use, and the other for the researchers to run the eye-tracker software.

Next, the participants were given 5 instructions about the tasks. They were asked to do the translation tasks in a way that was consistent with the standards of the IRIB and respected the national beliefs system. They were also provided access to internet and were informed that no time limitation applied and they could have as much time as they need. Moreover, they were allowed to inform the researchers of any technical problems they encountered. Finally, they were warned not to have their mobile phones, smart watches, or other electronic devices with them in the eye-tracker laboratory.

After the instructions to the participants, the laboratory specialists adjusted the setting and calibrated the systems. They asked the participants to move their eyes to the left and right without moving their head; also, to open and close their eyes and track a moving circle on the screen. These actions were performed to make sure the eye-tracker recognized participants' eyes and their movements. Figure 6 shows a participant in the laboratory setting.

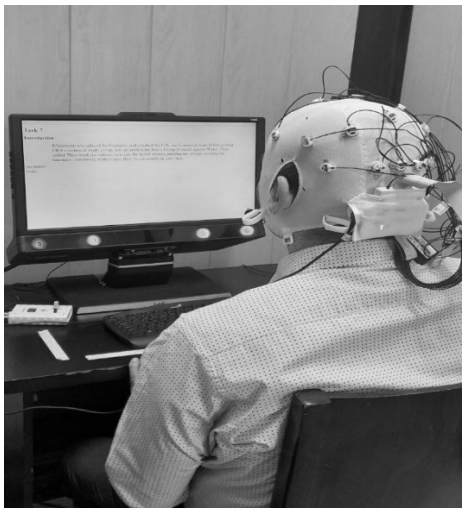


Figure 6. A Participant in the Laboratory

Upon the completion of the translation tasks, the eye-tracker system stopped automatically. Next, the participants were awarded a fifteen-minute break and were asked to complete the questionnaire concerning their ideological positioning. They had no prior knowledge about the objectives of the study and were only asked to translate in the laboratory and then fill out the questionnaire. They were also assured that their responses would be kept confidential, allowing them to freely express their thoughts and views without fear of potential consequences.

## 4. Results and Discussion

As was discussed in previous sections, the ideological positioning of the participants was measured using the National Identity Questionnaire. The questionnaire employed a five-point Likert scale and the participants' responses to the questionnaire items were scored according to Table 1. One example statement from the questionnaire is "I take pride in myself for embracing Iranian culture".

Table 1. National Identity Questionnaire Scoring

| Strongly agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Table 2 illustrates the participants' national identity scores across six components. Each row corresponds to one participant, while each column denotes the score for each component in the questionnaire, namely cultural, lingual, social, political, territorial and religious components. For example, Participant 1 scored 17 in the Cultural component, 5 in the Lingual component, 17 in the Social component, 10 in the Political component, 6 in the Territorial component, and 11 in the Religious component, totaling 66. These scores indicate how each participant positions himself/herself in various issues related national identity components.

Subsequently, for each component in the questionnaire and also for the total score, the median was calculated for all participants. The median of the total scores

for all participants was 71, and the national identity score of the participants ranged from 46 to 82 (see Table 2).

Table 2. Participants' National Identity Scores

| Row Labels | Cultural | Lingual | Social | Political | Territorial | Religious | Total |
|---|---|---|---|---|---|---|---|
| Participant 1 | 17 | 5 | 17 | 10 | 6 | 11 | 66 |
| Participant 2 | 22 | 7 | 18 | 13 | 12 | 10 | 82 |
| Participant 3 | 18 | 4 | 13 | 15 | 14 | 15 | 79 |
| Participant 4 | 19 | 6 | 10 | 8 | 7 | 6 | 56 |
| Participant 5 | 19 | 7 | 13 | 14 | 11 | 12 | 76 |
| Participant 6 | 15 | 7 | 15 | 9 | 7 | 8 | 61 |
| Participant 7 | 13 | 6 | 12 | 7 | 4 | 4 | 46 |
| Participant 8 | 19 | 4 | 19 | 13 | 13 | 12 | 80 |
| **Median** | 18.5 | 6 | 14 | 11.5 | 9 | 10.5 | **71** |

The total score of each participant was compared with the obtained median. Scores exceeding 71 were classified as indicating a low level of national identity, while scores below 71 were categorized as representing a high level of national identity (see Table 3).

Table 3. Participants' National Identity Scores and National Identity Levels

| Participant | National Identity Score | National Identity Level |
|---|---|---|
| Participant 1 | 66 | High |
| Participant 2 | 82 | Low |
| Participant 3 | 79 | Low |
| Participant 4 | 56 | High |
| Participant 5 | 76 | Low |
| Participant 6 | 61 | High |
| Participant 7 | 46 | High |
| Participant 8 | 80 | Low |

In other words, if a participant's score was less than the median, their national identity was considered high, indicating alignment with the country's national beliefs. On the other hand, when a participant's national identity score was more than the median and described as low, it denoted views that were contrary to the country's national beliefs. For instance, participant 8 scored 80 in the National Identity Questionnaire, which was more than the median (71) and showed that this participant's ideology was not in line with the country's national beliefs, whereas participant 7 scored 46, reflecting alignment.

Translators' mental effort when translating ideologically-loaded texts is also influenced by their cognitive abilities. Therefore, to measure participants' cognitive abilities, the Cognitive Abilities Questionnaire was administered, and each participant's cognitive abilities was calculated across seven components, namely memory, inhibitory control and selective attention, decision-making, planning, sustained attention, social cognition, and cognitive flexibility. The questionnaire employed a five-point Likert scale and the participants' responses to the questionnaire items were scored according to Table 4. One example statement from the questionnaire is "I don't make long-term plan for my future activities".

Table 4. Cognitive Abilities Questionnaire Scoring

| Almost Always | Often | Sometimes | Seldom | Almost Never |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |

Table 5 summarizes the participants' cognitive abilities scores across seven cognitive domains. Each row represents a participant, and each column corresponds to a specific cognitive skill. For example, Participant 1 scored 10 in memory, 13 in selective attention, 11 in decision making, and so on, totaling 78. Subsequently, for each component in the questionnaire and also for the total score, the median was calculated for all participants. The median of the total scores for all participants was 72.42, and the cognitive abilities score of the participants ranged from 58 to 90 (see Table 5).

Table 5. Participants' Cognitive Abilities Scores

| Participant | Memory | Selective Attention | Decision Making | Planning | Sustained Attention | Social Cognition | Cognitive Flexibility | Total |
|---|---|---|---|---|---|---|---|---|
| Participant 1 | 10 | 13 | 11 | 6 | 13 | 14 | 11 | **78** |
| Participant 2 | 10 | 11 | 7 | 6 | 7 | 10 | 7 | **58** |
| Participant 3 | 10 | 16 | 7 | 3 | 4 | 13 | 9 | **62** |
| Participant 4 | 12 | 18 | 6 | 8 | 8 | 14 | 9 | **75** |
| Participant 5 | 11 | 17 | 11 | 3 | 9 | 12 | 11 | **74** |
| Participant 6 | 14 | 18 | 18 | 7 | 11 | 13 | 9 | **90** |
| Participant 7 | 6 | 13 | 11 | 6 | 6 | 12 | 10 | **64** |
| Participant 8 | 10 | 14 | 16 | 9 | 9 | 12 | 8 | **78** |
| **Median** | 10.4 | 15.2 | 10.9 | 5.7 | 8.4 | 12.4 | 9.4 | **72.42** |

The total score of each participant was compared with the obtained median. Scores exceeding 72.42 were classified as indicating a low level of cognitive abilities, while scores below 72.42 were categorized as representing a high level of cognitive abilities (see Table 6).

Table 6. The Participants' Cognitive Abilities Score and Cognitive Abilities Level

| Participant | Cognitive Abilities Score | Cognitive Abilities Level |
|---|---|---|
| Participant 1 | 78 | Low |
| Participant 2 | 90 | Low |
| Participant 3 | 58 | High |
| Participant 4 | 74 | Low |
| Participant 5 | 64 | High |
| Participant 6 | 62 | High |
| Participant 7 | 75 | Low |
| Participant 8 | 78 | Low |

For instance, Participant 5 obtained the cognitive abilities score of 64, which falls below the median (72.42). Consequently, this participant is categorized as having high cognitive abilities. In contrast, Participant 8 exhibits a low level of cognitive abilities.

In the third stage of analysis, an examination of the participants' fixation counts was necessary. Table 7 provides fixation counts for participants 1 to 8 along with the corresponding average values. It includes fixation counts on English texts, fixation counts on the whole screen, as well as fixation counts on ideologically-loaded words and expressions. Additionally, the table indicates the percentage of fixation counts on ideologically-loaded words compared to fixation counts on English texts and the entire screen for each participant. This data gives insights into how participants interact with and focus on ideologically-loaded content compared to the overall text and screen, highlighting the attention given to such words and expressions during translating.

Table 7. Fixation Counts on English Texts, Entire Screen, and Ideological Words and Expressions

| Types of Fixation Count | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | Average |
|---|---|---|---|---|---|---|---|---|---|
| Fixation count on English texts | 1334 | 1878 | 2668 | 2096 | 5151 | 3447 | 4226 | 1505 | 2788 |
| Fixation count on entire screen | 2642 | 4135 | 7956 | 6782 | 10030 | 8058 | 7294 | 3726 | 6328 |
| Fixation count on ideological words | 374 | 541 | 869 | 515 | 1415 | 864 | 1355 | 404 | 792 |
| Ideological words FC* /English texts FC | 28.04 % | 28.81 % | 32.57 % | 24.57 % | 27.47 % | 25.07 % | 32.06 % | 26.84 % | 28.18% |
| Ideological words FC /entire screen FC | 14.16 % | 13.08 % | 10.92 % | 7.59% | 14.11 % | 10.72 % | 18.58 % | 10.84 % | 12.50% |

*FC = Fixation Count

An illustrative example of fixation is showcased in Figure 7, which displays the gaze plot of Participant 7. The purple dots on the screen pinpoint the exact locations where the participant's eyes were focused during the first minute of completing Task 4 in the experiment.

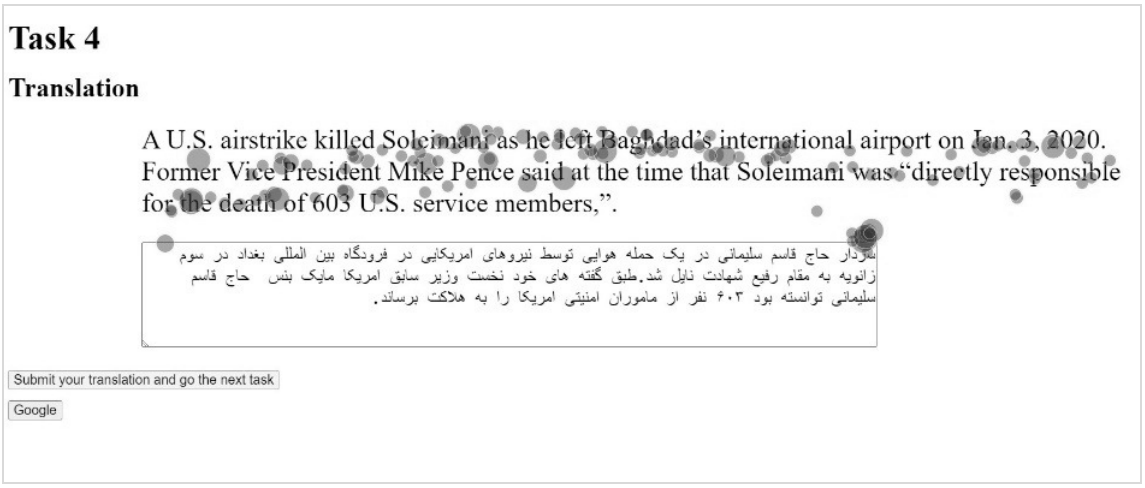



Figure 7. Gaze Point Plot of a Participant

Subsequently, an ANOVA (Analysis of Variance) statistical test was performed to measure the impact of national identity and cognitive abilities variables on fixation counts on English texts, on the entire screen, and on ideological words and expressions. The results of the test are presented in Table 8 below.

Table 8. Effect of National Identity Score and Cognitive Abilities Score on Fixation Counts

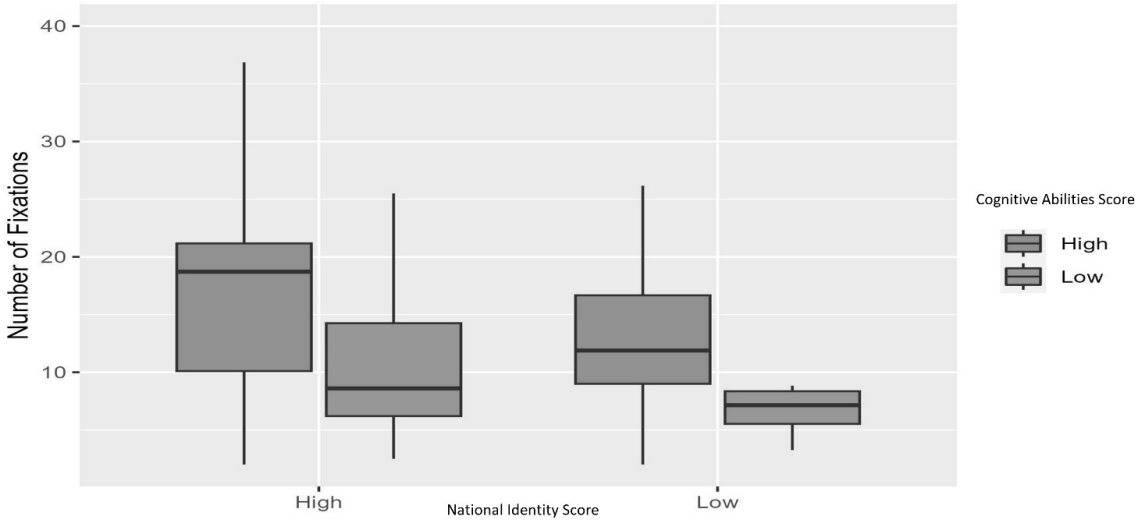
| | Df | Sum of Squares | Mean Square | F value | Pr(>F) |
|---|---|---|---|---|---|
| Cognitive Abilities | 1 | 719.1 | 719.06 | 11.4214 | 0.001098 ** |
| National Identity | 1 | 367.07 | 367.07 | 5.8305 | 0.017896 * |
| Residuals | 85 | 5351.4 | 62.96 | | |

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The ANOVA results show that both cognitive abilities score and national identity score significantly influence the fixation counts during the translation process. A higher degree of significance (p) indicates a stronger relationship between the variables. In this case, cognitive abilities score has a stronger effect on the fixation counts (p =0.001098) than national identity score (p =0.017896). The

positive sum of squares (Sum Sq) and mean squares (Mean Sq) values for both cognitive abilities score and national identity score indicate that an increase in these factors is associated with an increase in the fixation counts, suggesting a positive correlation between cognitive abilities score and national identity score, and the fixation counts. The ANOVA analysis is illustrated in Figure 8 below.

Figure 8. Effect of National Identity Score and Cognitive Abilities Score on Fixation Counts




It was hypothesized that the participants' mental effort, in terms of fixation counts, would be lower in participants with high national identity and cognitive abilities score when instructed to translate ideologically-loaded texts with IRIB standards. However, the data obtained from the experiment did not support the formulated hypothesis, thus revealing that participants' national identity and cognitive abilities are positively related to the mental effort, as measured by the fixation counts, experienced during the translation of ideologically-loaded texts that had to be translated with IRIB standards as illustrated in the Figure 5. In other words, the participants having strong national beliefs experienced more cognitive effort, in terms of fixation counts, when instructed to translate ideologically-loaded texts, in comparison to those participants whose national identity was low and was not consistent with the country's national beliefs. Hence, the participants having

weaker beliefs experienced fewer fixation counts which represents less mental effort. In addition, participants having high cognitive abilities had more fixation counts when translating, in comparison to those participants with low cognitive abilities.

To summarize, the data demonstrates that participants' national identity and cognitive abilities have a positive correlation with the fixation counts during the translation of ideologically-loaded texts that were to be translated based on IRIB standards. Yet, cognitive abilities exert a stronger effect than national identity. These findings imply that participants who identify more strongly with their national identity and have higher cognitive abilities are more engaged with the translation task and may be more meticulous or thorough in their approach. However, it is important to note that correlation does not necessarily imply causation, and therefore further research would be needed to determine the direction and nature of this relationship.

## 5. Conclusion

The present study aimed to investigate the effects of national identity and cognitive abilities on translators' mental effort during translation. Through an eye-tracking study, participants' mental effort was measured in terms of their fixation counts when instructed to translate ideologically-loaded texts consistent with IRIB standards. It was observed that the participants' national identity and cognitive abilities scores were indeed influential factors in shaping their mental effort when translating such texts. Specifically, it was observed that individuals with higher national identity and cognitive abilities scores exhibited a higher level of mental effort during the translation process.

These findings underscore the significance of understanding the factors that contribute to the mental effort translators invest in their actual translation practice. Such insights can be invaluable for both practicing translators when seeking suitable

translation strategies and trainers when planning translation courses. However, further exploration to validate these findings across diverse populations and translation scenarios is needed. Moreover, there is a need for additional inquiries into other potential factors that may impact translators' mental effort during the translation process.

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