

## CRITICAL THINKING AS AN INTEGRAL OUTCOME IN TRANSLATOR AND INTERPRETER TRAINING

Mesut Kuleli<sup>1</sup> and Didem Tuna<sup>2</sup>

<sup>1</sup>Bolu Abant İzzet Baysal University, Bolu, Turkey

<sup>2</sup>İstanbul Yeni Yüzyıl University, Istanbul, Turkey



### Abstract

The aim of this study is to investigate the critical thinking attitudes of translator and interpreter candidates with a view to coming up with recommendations on curriculum development in Translation and Interpretation undergraduate studies. A "Critical Thinking Skills Scale" was administered to 354 translation and interpretation students from five universities in Turkey. Independent sample t-test, one-way ANOVA and post-hoc Scheffe test were used in data analysis. With the highest and lowest attitudes found for receptiveness and inquiry skills respectively, the total critical thinking attitudes of translator candidates are above the average. The class level of the students is inversely correlated with total scores for critical thinking attitudes, in addition to the flexibility and judiciousness subdimensions. Moreover, translator candidates of the Bulgarian language have the highest total scores for critical thinking attitudes as compared to those of English, French, Persian and German. The results show that innovative curricula involving related tasks and activities must be developed for translation and interpretation departments to enhance translator candidates' critical thinking skills, bearing in mind the very nature of the act of translation and interpretation.

**Keywords:** translation, interpreting, critical thinking skills, critical reading

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**Dr. Mesut Kuleli** is Associate Professor at Bolu Abant İzzet Baysal University, School of Foreign Languages, Department of English Translation and Interpreting. His PhD is in the area of Interlingual and Intercultural Translation Studies. His research interests include literary translation, semiotics of translation, and translator and interpreter training. He is the co-author of a book on Semiotics of Translation and the co-editor of books including academic studies on language, literature, and translation studies.

E-mail: [mesut.kuleli@ibu.edu.tr](mailto:mesut.kuleli@ibu.edu.tr)

<https://orcid.org/0000-0002-3477-0412>

**Dr. Didem Tuna** is Associate Professor at İstanbul Yeni Yüzyıl University, Faculty of Sciences and Literature, Department of English Translation and Interpreting and has a PhD in Interlingual and Intercultural Translation Studies Programme. Her research interests include literary translation, semiotics of translation, and translator and interpreter training. She is the co-author of a book on Semiotics of Translation and the co-editor of books including academic studies on language, literature, and translation studies.

E-mail: [didem.tuna@yeniyuzyil.edu.tr](mailto:didem.tuna@yeniyuzyil.edu.tr)

<https://orcid.org/0000-0002-1566-9503>

**Note:** Unless otherwise noted, all translations into English are made by the authors.

People survive by reading the signs surrounding them and producing signs that will enable them to be understood by others. Sign reading and producing skills are not limited to written texts since they operate with visual, auditory, tactile, gustatory, and olfactory messages. Each message produces a meaning or multiple meanings. Hence, "reading" can be defined as reaching a meaning based on what people perceive from the outside world. Any sign reading can be considered a critical reading if it goes through a thinking process to arrive at a judgment. All kinds of indiscriminate reading, if deficient in or devoid of discernment, are more open to manipulation and can be dangerous on both individual and social grounds.

Subject to various definitions, critical thinking can basically be defined as 'a very careful and thoughtful way of dealing with events, issues, problems, decisions, or situations' (Pirozi, 2003, p. 197). Among the many elements constituting its dynamics, 'activating cognitive processes, evaluating the data, analysis of data, application, decision-making, and problem-solving' stand out as the basic components (Halpern, 1999, p. 70-71). Critical thinking is a stance, a manner of approaching all areas of life; it is a way of being, an attitude of presence as a global citizen, a combination of 'fairmindedness, self-insight, and a genuine desire to serve the public good' (Paul and Elder, 2012, p. 5). The mental acts and events constituting a critical thinking process include 'analyzing, judging, hypothesizing, explaining, self-corrective thinking, thinking with criteria, thinking that is sensitive to the context, deciding, problem solving' (Lipman, 1987, p. 5-6) besides asking and answering questions for clarification, defining terms, analyzing arguments, and making inferences (Ennis, 1985, p. 44-48), all of which may also be listed as integral parts of translation. In the same vein, intellectual standards such as clarity, accuracy, relevance, logicalness, breadth, precision, significance, completeness, fairness, and depth are routinely applied to the elements of reasoning (Paul and Elder, 2020, p. 19-20), and all of these standards are essential in translation.

At this point, while thinking about the relationship between critical thinking and translation, it might be helpful to consider critical thinking in terms of its relationship with critical reading. In one sense, 'reading is thinking' (Daiek and Anter, 2004, p. 5), and this suggestion is further confirmed in the relevant literature (Commeyras, 1990, p. 201; Thistlethwaite, 1990, p. 587). Critical reading is 'an interactive process in which the reader actively produces meaning through a set of mental processes [...] involving

predicting, acknowledging, comparing, evaluating and decision-making' (Shihab, 2011, p. 209), which are processes in common with critical thinking. However, these common features do not mean that critical reading and critical thinking are the same phenomenon, particularly when the broader scope of critical thinking is considered; it stands thus to reason that critical reading should be a prerequisite for critical thinking. Accordingly, we can say that a source text could be "read" critically to discover its content and this process is followed by critical thinking when the translator evaluates it to decide how it can be best transmitted in the target language. Not restricted to written texts only, the concept of "reading" includes any message 'coming from a source external to the self' (Bartu, 2003, p. 1); hence critical "reading" is equally – and necessarily – applicable to interpretation, in addition to translation, followed by a "thinking" process to transmit the oral text.

One of the benefits critical reading and thinking confers upon translation and translators is that they allow different kinds of strategic and purposeful uses of language to be detected, thus enabling the translator to transmit the text into the target language without skipping its implicit qualities, also constituting its universe of meaning (Tuna, 2017, p. 143). Furthermore, critical reading 'may allow the translator to see how the choice of pronouns, active or passive voice, and wording may influence the overall meaning' (Tuna, 2017, p. 143), so that they can formulate the target text accordingly. In this sense, critical reading working together with critical thinking gives the translators the opportunity to analyze and evaluate their translation and 'avoid unintended meaning transformations. This awareness also provides students with the opportunity to stand up for their decisions as translators when they deliberately transform the meaning for a particular reason' (Tuna and Avaz, 2019, p. 548). In other words, critical reading does not only apply to the source text; it is also applicable to the target text so that the translators can compare their product to the author's and revise it to the extent they deem necessary, which is realised through a critical thinking process. At this point, if critical thinking involves 'analyzing and evaluating thinking with a view to improving it' (Paul and Elder, 2020, p. 9), it can readily be compared to the process of editing in translation, which is similarly based on analyzing and evaluating the target text with a view to improving it. This can also be explained by the 'self-monitoring and self-corrective' (Paul and Elder, 2020, p. 9) nature of critical thinking, which is also intrinsically the case for translation.

Herein we also witness the consecutive nature of critical reading and critical thinking working together in translation in sequence:

- a critical reading process to understand the source text
- a critical thinking process to create the target text
- a critical reading process to evaluate the target text in comparison to the source text,
- a critical thinking process to formulate the post-translation editing

Furthermore, uncritical and inefficient thinking is not compatible with translation, which, by nature, presupposes inquisitive, open-minded, and solution-oriented approaches as well as flexibility and mindfulness to cope with 'the segments of untranslatability [...] scattered through the text' (Ricœur, 2016, p. 5) and other potential challenges. Therefore, critical reading and thinking skills are crucial in translator training, and their impact is often clearly reflected in the target text.

### **Critical Thinking Skills**

This study investigates the critical thinking skills of translator candidates to describe their critical thinking attitudes and find out any significant differences based on various demographic variables. To that end, the following research questions are addressed in this study:

- (1) What is the level of translator and interpreter candidates' critical thinking attitudes?
- (2) Is there a significant difference between translator and interpreter candidates' critical thinking attitudes based on such variables as;
  - a) gender
  - b) department (the language they study)
  - c) class level

Though the components of critical thinking skills vary across studies in the literature, those used in this study are provided in this part as problem-solving skills, inquiry skills, flexibility, judiciousness, receptiveness, open-mindedness, and mindfulness, and defined in relation to their contributions to critical thinking skills.

### **Problem-solving skills**

Problem-solving is ‘the skill to be able to analyze complex phenomena’ (Whimbey, Lochhead, and Narode, 2013, p. 21) in its simplest definition, and can be further expanded to involve the steps of ‘identifying the problem, determining the relevant information and deepening understanding, enumerating the choices, assessing the situation and making a preliminary decision, and scrutinizing the process and self-correction’ (Facione, 2015, p. 27), which could guide translators and translator candidates throughout their critical thinking processes. Critical thinking followed by critical reading, on the other hand, ‘is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action’ (Scriven and Paul, 1987). Problem-solving as a guide to critical thinking, therefore, corresponds to the decision-making process that the translator goes through when faced with the challenges of the source text. As a result, problem-solving as a critical reading and thinking trait is an integral part of all processes concerning translation, from analysis to transmission and from transmission to editing and re-editing.

### **Inquiry skills**

‘Critical thinkers ask questions of the message, breaking it into its individual components and examining each in turn. Critical thinkers dissect these components looking for sound logic and reasoning’ (Facione, 1990, p. 15). If we consider this definition in terms of any translation process, we should perhaps first reiterate the idea that translation is not possible without understanding – and in fact, in some cases, understanding alone may not render the transmission wholly possible. Therefore, analysis is an integral part of translation, through which understanding is more safely provided. As a critical reader, the translator asks questions of the text, breaks it into its individual components where necessary, and analyzes each, in turn, to ensure a better transfer into the target language. When the transfer is completed, the translators direct their critical approach to the target text, this time checking if it reflects the same signs with the same logic and reasoning as the source text.

### **Flexibility**

Flexibility can be described as the ability, as well as the tendency, to adapt to new

or evolving insights; a willingness to (re)consider issues from more comprehensive and inclusive perspectives. Flexibility provides a panoramic approach, accompanied by or bringing about thorough examination, analysis and overview of different readings, thoughts, and reflections concerning a particular topic, problem, or argument. Flexibility can be considered a prerequisite for critical reading and thinking, as well as any kind of translation-oriented textual analysis, since understanding is the proviso for translation and can be ensured through in-depth deliberation. Moreover, translators tend to shift between various translation strategies because it is unanimously agreed that there is no strategy that fits all translation. Jaaskelainen (1999, p. 71) proposes that the strategies translators adopt are already flexible in nature. The act of translation being, itself, a flexible process, this skill is an indispensable quality for translators.

### **Judiciousness**

Judiciousness, which refers to displaying the right behavior following a sound consideration of options, presupposes alertness, care, chariness, circumspection, and consideration. Translators as critical readers and thinkers are by nature judicious; after the critical reading and deciphering of the source text, they may sometimes find it necessary to ‘read and think more, perhaps because there are more or different questions left unanswered’ (Bartu, 2002, p. 3). Often, translating specific signs in the source text, such as intertextual references, requires further reading from other sources; and this reading process is accompanied by a thinking process in which decisions concerning the target text are shaped among many options. ‘Judiciousness is central to translating, and to evaluating translations [...], it makes possible the balancing of different versions’ merits. [...] They [translating and evaluating translations] are the activities we [translators] carry out as judiciously as possible’ (Will, 1983, p. 214). This shows that while translators might not always be able to find a straightforward solution, they might also at times be faced with more than one solution, and it is in the latter situation that skill in judiciousness will come into play.

### **Receptiveness**

Receptiveness can be defined as ‘a willingness to expose oneself to, and to thoughtfully and fairly consider, the opposing views of others’ (Minson, Chen, and Tinsley, 2020, p. 3070). Critical reading and thinking, by nature, imply alacrity in listening

to other people, analyzing their discourse, and reaching a conclusion, which may result in changing or confirming what one already knows or postponing decision making by deciding to read and think more (Bartu, 2002, p. 3). In accordance with this relationship between critical thinking and receptiveness, Minson, Chen, and Tinsley report that 'receptive individuals choose to consume more information; report less mind wandering when viewing a speech with which they disagree; evaluate supporting and opposing policy arguments more impartially; select a more balanced portfolio of news outlets for later consumption' (2020, p. 3069). Receptive individuals are thus open to new information from different media. Similarly, a translator also needs to interact with many people to find a way to better grasp and transmit the demanding parts of the source text.

### **Open-mindedness**

Open-mindedness is one of the dispositions included in "The California Critical Thinking Disposition Inventory" developed by Facione and Facione (1992) to refer to receptivity to opinions different from one's own without any prejudice. A critical reading process, by nature, may lead readers to reconsider what they already know in the light of new information (Bartu, 2002, p. 3), and this decision process is a critical thinking mechanism that requires open-minded evaluation 'within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences' (Paul and Elder, 2020, p. 9), as in the case of the translator trying to cope with the source text as the product of another mind and culture. 'Critical thinkers look for alternatives, take a position when the evidence and reasons are sufficient to do so, and seek as much precision as the subject permits' (Facione, 1990, p. 102), and this is matched with the idea behind the analysis of source and target texts as well as the post-editing process, in which the translators are ready to revise the target text based on their subjective perception of the source text, which may later prove to have undergone some meaning transformations at different levels (Öztürk Kasar and Tuna, 2017, p. 172).

### **Mindfulness**

Mindfulness as a characteristic of critical reading and thinking can simply be defined as 'awareness, circumspection, discernment, and retention' (Shapiro, 2009, p. 556). All these terms inevitably lead to a consciousness of other ideas and potentialities. Shapiro and Carlson (2009) further suggest that mindful beings can shape their minds in

an accepting manner. Here, "acceptance" refers to the awareness of other ideas irrespective of their origin. Kabat-Zinn (2001, p. 23) refers to "nonjudgmentally" and "momentariness" in mindfulness, implying with the latter that any particular case needs to be considered in its uniqueness. Considering "momentariness" in translation, a sign does not bear a permanent meaning but can be used with its associative or archaic meanings in a source text; therefore, the present meaning of any sign in relation to the neighbouring, or at times even to the far-away, signs in a source text needs to be pondered upon by a translator. These definitions and elaborations of "mindfulness" clearly show its relation to critical thinking. Mindfulness, in this sense, is also applicable to translation. Faced with the exigencies of the source text, the translator as a critical reader will stop to read and think further before acting – that is, translating.

### **Materials and Methods**

This section deals with the research design, research sample, research instrument and procedures, validity and reliability, and data analysis.

#### **Research design**

This quantitative research aims to define and describe translator candidates' critical thinking attitudes without any treatment, thereby rendering this study a descriptive one (Karasar, 2005). As part of descriptive studies, single screening model is used in this study since different variables are identified and described in isolation, without any reference to correlation (Karasar, 2005).

#### **Research sample**

The universe of this study is composed of second, third, and fourth grade undergraduate students attending translation and interpretation departments in Turkey. First-grade students were deliberately excluded from the study since some of them could have been underage considering the standards of The Ethics Committee Approval requiring that the parents of those underage be officially consulted before data collection. The main working languages of translation and interpretation departments in Turkey are English, German, French, Arabic, or Bulgarian, with few cases of Chinese and Russian, restricted to two private universities. Not all universities with translation and interpretation departments offer courses or degrees in all of those languages. Therefore,



convenience sampling method, one of the nonprobability sampling techniques, was used in this study. Even if disadvantages like non-representation of the universe or selection bias are generally reported with convenience sampling, this type of sampling ‘involves engaging volunteers who are selected due to ease of recruitment and willingness to participate and [...] are selected to maximise the sampling of specific types of [demographic independent variables]’ (Brodaty et al., 2014, p. 63). ‘Accessibility [to translator candidates studying languages other than the popular language, that is, English], availability at a given time, and the [participants’] willingness’ (Dörnyei, 2007, p. 99) being the main criteria in line with the research questions in this study, convenience sampling method was employed. The present pandemic conditions also rendered the convenience sampling method essential since the scale could only be administered online to a purposive sampling group. To this end, students from four state universities (one offering only French T&I, one offering Arabic and English T&I departments separately, one offering English, German, and Bulgarian T&I departments separately, and one offering English, French, and Arabic T&I departments separately) and one private university (offering only English T&I) were selected as the sample group. Table 1 shows the demographic qualities of the participants.

**Table 1.** Demographic qualities of the participants in frequencies and percentages

<b>Demographic Quality</b>		<b>f</b>	<b>%</b>
<b>Gender</b>	Female	251	70.9
	Male	103	29.1
	Total	354	100
<b>Department</b>	English T&I	201	56.8
	French T&I	106	29.9
	Persian T&I	11	3.1
	German T&I	12	3.4
	Bulgarian T&I	24	6.8
	Total	354	100
	<b>Class Level</b>	2	153
3		109	30.8
4		92	26.0
Total		354	100

According to Table 1, while the female (251) translator candidates make up 70.9% of the sample group, the highest percentage of participants in the department variable is from English T&I (201), making up 56.8% of the sample group, and finally, the highest percentage of participants in the class level variable comes from second-grade students (153) who make up 43.2% of the sample. Considering the department variable, it is unsurprising that the highest number and percentage of participants come from the English T&I department since four of the five universities selected for this study have English T&I departments while Persian T&I and Bulgarian T&I departments are few in number in Turkish universities.

### **Research instrument and procedures**

The "Critical Thinking Skills" scale developed by Özdemir (2005) through administration on university students was used as the data collection tool in this study. Following validity and reliability studies, Özdemir (2005) administered the scale with three options, while this scale was applied in the present study as a Likert type scale with 5 options from "totally disagree" to "totally agree," following consultation with Özdemir. While the original scale consists of 30 reverse items, the scale was reduced to 22 items divided into seven factors as a result of a validity test in this study. The titles of the factors are determined as problem-solving skills, inquiry skills, flexibility, judiciousness, receptiveness, open-mindedness, and mindfulness, based on the literature review for this study.

With Ethics Committee Approval obtained from Bandırma Onyedi Eylül University, Turkey, on 14.09.2020, decision number 2020-5, the online scale was sent to the General Secretariats of the five universities for initial approval, later to be channeled to students in online platforms due to the COVID-19 pandemic in the fall semester of the 2020-2021 academic year. The participants were asked for their informed consent, and they were assured that the data obtained from their answers would be kept anonymous and confidential, emphasizing the voluntary basis of participation in the study.

### **Validity and reliability**

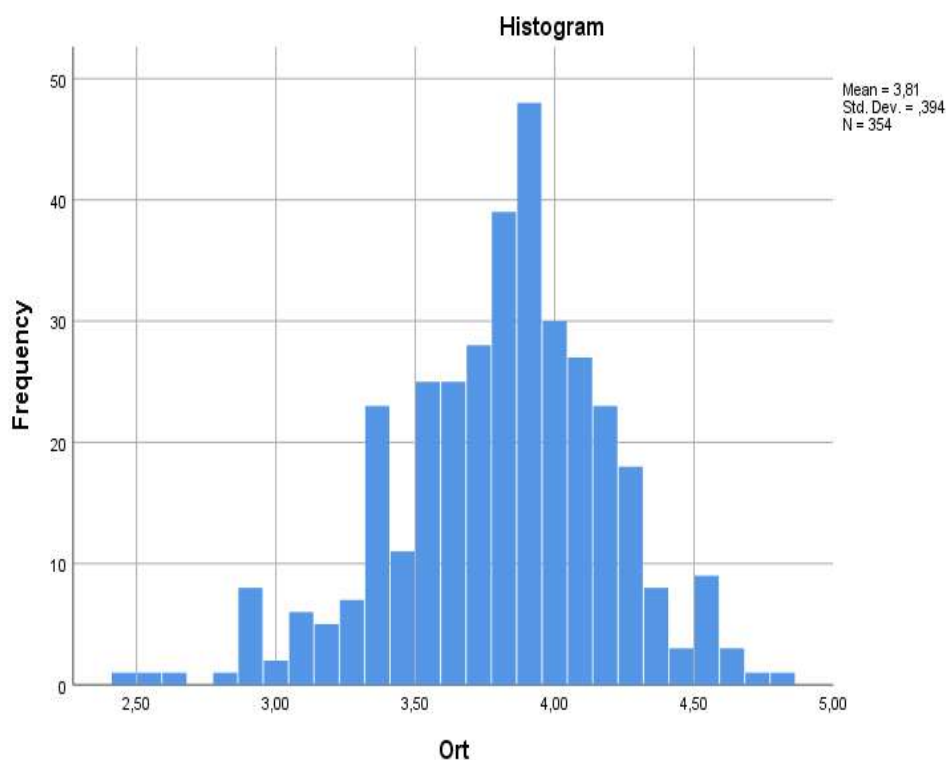
The reliability of the original scale was found to be .78 through cronbach-alpha analysis by Özdemir (2005, p. 305). As the scale was administered to the undergraduate students in a specific department, exploratory factor analysis was conducted on the scale

at the suggestion of the original developer of the scale. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was found to be .707 while Barlett's Test of Sphericity was found to be .000, which points to the suitability of the scale for factor analysis, considering that the KMO index must be above .50, and the Barlett's Test of Sphericity must be significant ( $p < .05$ ) for factor analysis (Hair et al., 1995; Tabachnick and Fidell, 2013). In the factor analysis for construct validity, items belonging to more than one factor were excluded. The analysis yielded seven factors. The factors above the eigenvalue of 1 could be considered significant (Kline, 1994; cited in Büyüköztürk, 2002, p. 479). Moreover, the higher number of factors obtained, the higher is the variance explained (Tabachnick and Fidell, 2001; cited in Büyüköztürk, 2002, p. 479). As a result of factor analysis with varimax rotation, these seven factors explained 56.878% of variance. The cronbach alpha for the reliability of the scale was found to be .705, which is higher than the accepted cut-off point of .70 for reliability.

### **Data analysis**

Following the reverse coding of all items due to the very nature of the scale, the data obtained from the participants was first tested for normality of distribution. Both Kolmogorov-Smirnov and Shapiro-Wilk tests yielded significance with  $p$  values of .002 and .005, respectively, implying the data was not normally distributed ( $p < .05$ ). When the sample size is large, significant results tend to be obtained; however, this might not denote a deviation from normality (Field, 2013, p. 170). Therefore, the histogram of the data was also analyzed. The histogram is given in Figure 1.

**Figure 1.** Histogram for Critical Thinking Skills Scale



The Histogram for the scale, as given in Figure 1, can be interpreted as the normal distribution of the data set obtained in this study. As another test of normality, skewness was found to be  $-0.406$ , while Kurtosis turned out to be  $.310$ , both of which also point to normal distribution based on George and Mallery's (1999) suggestion that skewness and kurtosis values between  $-2$  and  $+2$  are acceptable, and on Tabachnick and Fidell's (2013) suggestion of above  $-1.500$  and below  $+1.500$  for acceptability. Therefore, paying particular attention to the large sample size, histogram and skewness and kurtosis, parametric tests were used in this study. While frequency and percentage statistics were used for demographic qualities, independent sample t-test was used to find whether translator candidates' critical thinking attitudes differed significantly in terms of their genders. To test the significance in terms of departments and class levels, one-way ANOVA test was applied. The root cause of significance emerging from the ANOVA test was found using the post-hoc Scheffe test, one of the most frequently employed post-hoc tests.

## Results

This section deals with the findings based on the research questions. The first subheading is concerned with the level of translator candidates' critical thinking attitudes while the second is devoted to the differences between translator candidates' critical

thinking attitudes based on the independent variables such as gender, department, and class level.

### Translator candidates' critical thinking attitudes

As the data collection tool used in this study is a Likert-type scale, scores between 5.00-4.20 are considered *totally agree*; 4.19-3.40 *agree*; 3.39-2.60 *neither agree nor disagree*; 2.59-1.80 *disagree*; 1.79-1.00 *totally disagree*. The mean score of translator candidates' critical thinking attitudes was found to be 3.81; therefore, their mean score of critical thinking attitudes can be considered above average. Regarding the subdimensions of the scale, translator candidates' problem-solving skills attitudes ( $\bar{x}=4.11$ ), open-mindedness attitudes ( $\bar{x}=3.90$ ), judiciousness attitudes ( $\bar{x}=3.79$ ), flexibility attitudes ( $\bar{x}=3.71$ ), and mindfulness attitudes ( $\bar{x}=3.45$ ) are also above average. Inquiry skills ( $\bar{x}=3.03$ ) are found to have the lowest mean score, despite being on the average. On the other hand, receptiveness attitudes are the highest, with a mean score of 4.54.

### Differences between translator candidates' critical thinking attitudes

This subheading is further divided into three to demonstrate the differences between translator candidates' critical thinking attitudes based on the variables of gender, department, and class level.

#### *Translator candidates' critical thinking skills scores based on gender*

Table 2 shows whether translator candidates' genders make a difference in their total critical thinking skills and subdimensions.

**Table 2.** The results of independent sample t-test regarding gender variable in translator candidates' critical thinking skills

	Gender	N	$\bar{x}$	SD	Df	t	p
<b>Subdimension</b>							
<b>problem-solving skills</b>	Female	251	4.12	.64	352	.207	.836
	Male	103	4.10	.66			
<b>inquiry skills</b>	Female	251	2.93	.87	352	-3.292	.001*
	Male	103	3.28	.98			
<b>flexibility</b>	Female	251	3.73	.56	352	.523	.601
	Male	103	3.69	.64			
<b>judiciousness</b>	Female	251	3.74	.79	352	-1.734	.084

	Male	103	3.90	.70			
<b>receptiveness</b>	Female	251	4.62	.64	352	3.114	.002*
	Male	103	4.35	.78			
<b>open-mindedness</b>	Female	251	3.96	.86	352	1.969	.050
	Male	103	3.76	.97			
<b>mindfulness</b>	Female	251	3.38	.84	352	-2.261	.024*
	Male	103	3.61	.87			
<b>total test</b>	Female	251	3.80	.39	352	-.757	.450
	Male	103	3.83	.40			

Table 2 shows that there is no significant difference between females' and males' critical thinking skills in the total test and in subdimensions such as problem-solving skills, flexibility, and judiciousness. In the open-mindedness subdimension, the mean score of females ( $\bar{x}=3.96$ ) is much higher than that of the males' ( $\bar{x}=3.76$ ); however, the p value is .050, which is the threshold for the significance of statistical difference. Despite this, taking  $p<.05$  as the criterion for significance, this higher score among females does not lead to a significant difference in the open-mindedness subdimension. On the other hand, there is significant difference in the inquiry skills ( $p=.001$ ), receptiveness ( $p=.002$ ), and mindfulness ( $p=.024$ ) subdimensions. The significance of statistical difference favors males in the inquiry skills and mindfulness subdimensions while the mean score of females is significantly higher in the receptiveness subdimension. However, the significant difference in the latter subdimension does not point to a low score for males ( $\bar{x}=4.35$ ) since their score in the receptiveness subdimension is already high.

### ***Translator candidates' critical thinking skills scores based on department***

Translator candidates in the Bulgarian T&I department were found to have the highest mean score in the total test while the lowest mean score belongs to the Persian T&I department. However, it is important to note that the translator candidates in all departments are above the average (between 3.40-4.19) in terms of their critical thinking attitudes. In the problem-solving skills subdimension, the highest mean score belongs to the Bulgarian T&I department ( $\bar{x}=4.33$ ); however, the translator candidates of all other departments are also above the average, with the French ( $\bar{x}=4.18$ ) and German ( $\bar{x}=4.17$ ) T&I departments even approaching the highest reference value of 4.20-5.00. In the inquiry skills subdimension, the highest mean score is that of translator candidates in

English T&I departments ( $\bar{x}=3.19$ ), while the Persian T&I department is found to have the lowest mean score ( $\bar{x}=2.12$ ), rendering the latter the only department to be below the average score (with the reference point of 1.80-2.59). The translator candidates in the Bulgarian T&I department have the highest score in flexibility attitudes, yet all other departments were found to have mean scores above the average. In the judiciousness subdimension, the translator candidates in English T&I possess the highest mean score while the lowest mean score in that subdimension belongs to the Persian T&I department, rendering it the only department on the average. All the departments are within the highest reference value in the receptiveness subdimension, with the German T&I ( $\bar{x}= 4.67$ ) department achieving the highest mean score. The translator candidates in all the departments are above the average in the open-mindedness subdimension, but the members of the Bulgarian T&I department ( $\bar{x}=4.13$ ) have the highest mean score. Whereas the translator candidates in English T&I, Persian T&I, and German T&I departments have mean scores that correspond to the average, French T&I ( $\bar{x}=3.64$ ) and Bulgarian T&I ( $\bar{x}=3.58$ ) departments' mean scores are above the average in the mindfulness subdimension.

Table 3 presents the results of One-Way ANOVA test conducted to find out whether translator candidates significantly differ from each other in terms of critical thinking skills both in total score and subdimensions based on their departments.

**Table 3.** The results of ANOVA test concerning the difference between departments in total score and subdimensions of critical thinking skills

Subdimension		Sum of Squares	df	Mean Square	F	p	Difference between
<b>problem-solving skills</b>	Between groups	2.299	4	.575	1.396	.235	---
	Within groups	143.681	349	.412			
<b>inquiry skills</b>	Between groups	18.661	4	4.665	5.913	.000*	Eng-Pers Eng-Bulg
	Within groups	275.371	349	.789			
<b>flexibility</b>	Between groups	.731	4	.183	.534	.711	---
	Within groups	119.453	349	.342			
<b>judiciousness</b>	Between groups	11.247	4	2.812	4.983	.001*	Eng-Pers
	Within groups	196.913	349	.564			

<b>receptiveness</b>	Between groups	1.497	4	.374	.779	.539	---
	Within groups	167.659	349	.480			
<b>open-mindedness</b>	Between groups	2.949	4	.737	.924	.450	---
	Within groups	278.439	349	.798			
<b>mindfulness</b>	Between groups	6.831	4	1.708	2.385	.051	---
	Within groups	249.952	349	.716			
<b>total test</b>	Between groups	1.222	4	.305	1.987	.096	---
	Within groups	53.645	349	.154			

Table 3 reveals no significant difference in the total test score besides subdimensions such as problem-solving skills, flexibility, receptiveness, open-mindedness, and mindfulness based on department. However, One-Way ANOVA test yields a significant difference between departments in the inquiry skills ( $p=.000$ ) and judiciousness ( $p=.001$ ) subdimensions. In order to find the root causes of this significant difference in the two subdimensions, Scheffe test is administered as a post-hoc test. The results of the Scheffe test show that the difference in the inquiry skills subdimension is attributed to the difference between English T&I-Persian T&I departments and between English T&I-Bulgarian T&I departments, favoring the English T&I department in both. The significant difference in the judiciousness subdimension is found to emerge from the difference between English T&I and Persian T&I departments, favoring the English T&I department, according to the Scheffe test.

### ***Translator candidates' critical thinking skills scores based on class level***

Translator candidates of all class levels involved in this study were found to be above average in their mean scores for problem-solving skills. On the other hand, the mean scores in the inquiry skills subdimension correspond to the average score based on the reference values, with the translator candidates in the second grade ( $\bar{x}=3.09$ ) attaining the highest mean scores. The flexibility subdimension mean scores of all class levels involved in the study can be considered above the average, yet the second-grade participants ( $\bar{x}=3.81$ ) stand out as the group with the highest mean score. Likewise, all class levels belong to the above-average interval with the second-grade participants ( $\bar{x}=3.90$ ) achieving the highest mean score in the judiciousness subdimension. On the



other hand, the receptiveness subdimension mean scores of all class levels correspond to the highest (over 4.20 reference value) interval of critical thinking skills. When it comes to the open-mindedness subdimension, the translator candidates in the second grade ( $\bar{x}=4.01$ ) have the highest mean scores while the other two class levels also fall into the above-average interval. While the participants in the second-grade generally excel in their mean scores for critical thinking skills (regardless of the significance or insignificance of the difference), they are found to be on the average interval in the mindfulness subdimension ( $\bar{x}=3.39$ ), which is the lowest mean score in that subdimension, while the mean scores of the other two class levels are above the average. Finally, the mean scores of the total test show that the translator candidates in all class levels have above-average critical thinking skills, with those in the second-grade ( $\bar{x}=3.85$ ) attaining the highest scores.

One-Way ANOVA test was used to determine if there is any significant difference between the translator candidates' critical thinking skills in terms of class level. The results of the ANOVA test to that end are given in Table 4.

**Table 4.** The results of ANOVA test concerning the difference between class levels in total score and subdimensions of critical thinking skills

Subdimension		Sum of Squares	df	Mean Square	F	p	Difference between
problem-solving skills	Between groups	.011	2	.006	.013	.987	---
	Within groups	145.969	351	.416			
inquiry skills	Between groups	1.515	2	.757	.909	.404	---
	Within groups	292.517	351	.833			
flexibility	Between groups	2.392	2	1.196	3.564	.029*	2-4
	Within groups	117.792	351	.336			
judiciousness	Between groups	4.381	2	2.191	3.773	.024*	2-4
	Within groups	203.778	351	.581			
receptiveness	Between groups	.544	2	.272	.566	.568	---
	Within groups	168.612	351	.480			
open-mindedness	Between groups	3.439	2	1.719	2.171	.116	---
	Within groups	277.949	351	.792			
mindfulness	Between groups	1.354	2	.677	.930	.395	---
	Within groups	255.429	351	.728			
total test	Between groups	.410	2	.205	1.320	.268	---
	Within groups	54.457	351	.155			

As shown in Table 4, there is no significant difference between translator candidates' total test scores for critical thinking skills and for such subdimensions as problem-solving skills, inquiry skills, receptiveness, open-mindedness, and mindfulness based on class level. However, class level reveals a significant difference regarding the flexibility ( $p=.029$ ) and judiciousness ( $p=.024$ ) subdimensions. The Scheffe test, as a post-hoc test, shows that the significant difference in both subdimensions results from the difference between the second-grade and fourth-grade participants, favoring the second-grade in both.

### **Discussion and Conclusion**

As a result of the data analysis, the total critical thinking attitudes of translator candidates were found to be above the average. This finding is in stark contrast with Saud's (2020, p. 24) finding that translation students reported low use of critical thinking skills. While the translator candidates displayed the highest attitude for the receptiveness subdimension, for the inquiry skills subdimension they showed the lowest. As inquiry skills could be considered one of the pivotal skills for translators due to the nature of the endeavor they are involved in, this skill needs to be addressed more closely, not only as an integral part of written or oral translation classes but also as a separate skill, with its importance emphasised in different tasks related to literary translation. Poetry, for instance, tends to be one of the most challenging endeavors for literary translators, requiring the employment of connotative and associative meanings of signs as efficiently as possible. 'Creating a new and innovative language that breaks the usual rules of the standard language with brand-new uses and meanings is probably one of the most important goals of the poet' (Öztürk Kasar and Tuna, 2018, p. 514). In line with this, literary translators are required to investigate the function of any sign in a literary text to reproduce "the foreign" in the local culture as devised by its author.

The significance of inquiry skills also holds true for specific text types such as legal texts. Legal texts can also create problems in translation even though they have specialised language and terminology (Altay, 2002). Inquiry skills could enable a legal translator to research the etymology and background of technical items, allowing the technical translation to overcome any difficulties at the terminological and sentential level. The use of inquiry skills can also be extended to diverse types of oral translation. For instance, a medical/community interpreter providing communication between

health workers and patients or their families needs to be able to first understand the cultural associations of discourses produced in medical settings, the absence of which could lead to failure in the medical procedure (Haffner, 1992, p. 255). As a result, inquiry skills must be a part of the oral translation course syllabus in addition to the specialised field translation syllabus.

The results of the independent sample t-test conducted to find out whether gender makes any significant difference in translator candidates' critical thinking attitudes reveal that male translator candidates' inquiry and mindfulness skills are significantly higher than those of females'. The inclusion of such courses as Discourse Analysis, Translation-Oriented Textual Analysis and Semiotics of Translation in the curriculum of Translation and Interpreting Studies departments would be an important step towards improving translator candidates' critical thinking skills. Group discussions or peer-work tasks within the framework of such courses could enable translator candidates to view their opinions more self-critically, based on the opinions of their peers, which could help enhance specific skills such as mindfulness. Group or peer discussions on the meanings of signs within the class would manifest the multiple perspectives in the reading of signs.

When it comes to the results of the One-Way ANOVA test to find out if translator candidates' critical thinking attitudes differ according to the language of study, it was found as a result of the post-hoc Scheffe test that there is a significant difference between English T&I and Persian T&I students, favoring the former in judiciousness skills. Moreover, there is a significant difference between English T&I students' inquiry skills and those of Persian T&I and Bulgarian T&I, favoring the former. Since the oral and written traditions of the Persian language date back to as early as the Achaemenid Empire, around the 500s BC (Melville, 2012, p. xx), and Bulgarian literature can be traced to the ninth century (Crampton, 2005, p. 15-16), it is no wonder that any written or oral discourse which is subject to translation from these languages should encompass contexts rich in narration. To address this issue, besides the contribution of the above-mentioned courses, which improve and consolidate critical thinking skills, courses such as those included in literary translation modules may also function in the same way. Being usually based on text analysis and literary criticism, these courses, by their very nature, enable students to extend their vision about multiple possible readings of a source text, be it written or oral, so that these potentialities can be preserved in the target text. The

critical thinking process in the analysis of these source texts operates on two aspects. On the first aspect, translators use their critical thinking skills in finding out the meanings of signs and the meaning universe of the source text. Once the translator candidates are given the task of analyzing a text for translation purposes, this could be followed by group discussions or peer-evaluation of the analysis in such courses, which would expose translator candidates to views other than their own.

Finally, the results of the One-Way ANOVA test and the post-hoc Scheffe test to find out whether translator candidates' critical thinking attitudes differ significantly according to their class level revealed a significant difference between the second-grade and fourth-grade students, favoring the former in judiciousness and flexibility. As flexibility involves consulting with others and considering their suggestions, the significant difference disfavoring the fourth-graders might result from their having more confidence in their knowledge of the text types and linguistic competence, and thereby not always deeming it necessary to consult with others. This confidence might be thought to have a consequence for judiciousness skills, which require self-criticism of one's own knowledge and cultural background. In this respect, courses like Sight Translation, Consecutive Interpreting, and Simultaneous Interpreting, which students generally take in the third or fourth grades, should also be designed with activities that involve interaction among peers or between the student and the instructor in charge of the course. These interactions would inevitably and favorably create an atmosphere in which translator candidates judge their own product and others' work within the class. Moreover, post-editing activities in Machine Translation courses, which naturally require critical reading of the translated text, could be designed in such a way as to foster peer-evaluation or group-discussion in order to extend this critical reading to one's own or others' work.

The results discussed so far demonstrate the importance of critical thinking for translators and point to the need for the inclusion of critical thinking skills as a learning outcome in T&I departments' curricula, as is also supported in the relevant literature (Kashirina, 2015; Moghaddas and Khoshsaligheh, 2019; Çetiner, 2018; Sriwantaneeyakul, 2018; Mohseni and Satariyan, 2011). Critical thinking can be taught and learned (Halpern, 1999, p. 70). In conclusion, it would be an asset for T&I students to

be provided with further chances of enhancing their critical thinking skills in line with the very nature of the act of translation.

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**Reviewers:**

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Boris Naimushin, PhD,  
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