

İstanbul Üniversitesi Çeviribilim Dergisi Istanbul University Journal of Translation Studies

Research Article

Open Access

Embracing Technology: Perspectives of Translation and Interpreting Students on Machine Translation (MT) in Turkish Universities



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Abstract

The goal of this study is to analyze the university students' perception of Machine Translation (MT) in the scope of translation and interpreting studies regarding its advantages, obstacles, and ethical issues. Using a structured questionnaire, data was obtained from 82 students attending various state universities in the academic year 2023-2024. The results illustrate that students view the utility of MT as encompassing the effectiveness, accessibility, and cognitive skills of translation involving lexicon and grammatical aspects. Although these aspects are advantageous for MT, the lack of specialization in cultural, contextual, and multilayered document translation is a major limitation for MT. The study emphasizes the need to include MT training in translation curricula, as it is believed that students can benefit from learning critical skills such as post-editing and the ethical evaluation of MT output. More importantly, it emphasizes the need for clear institutional policies surrounding the ethical use of MT. However, most students indicate that they would like more information on MT, the study suggests that the majority of students learned about MT through self-learning rather than formal training. These results add to the ongoing dialogue about the incorporation of technology in translation pedagogy while providing some practical guidance for educators and academic institutions that aim to prepare students for a technology-driven industry better.

Keywords

Ethical issues · Machine Translation (MT) · translation curriculum · translation pedagogy · translator trainees.



Citation: Metin Tekin, B. (2025). Embracing technology: perspectives of translation and interpreting students on Machine Translation (MT) in Turkish Universities. *Istanbul Üniversitesi Çeviribilim Dergisi–Istanbul University Journal of Translation Studies*, (23), 159-177. <https://doi.org/10.26650/iujts.2025.1634780>

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 2025. Metin Tekin, B.

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Introduction

Translation has seen a substantial transformation due to recent technological advancements, which have reshaped existing processes and introduced new instruments that challenge established standards. With unmatched speed and accessibility, MT has become a vital tool in contemporary translation. According to Kiraly (2000, p. 13) “Translator competence does not primarily refer to knowing the correct translation for words, sentences or even texts. It does entail being able to use tools and information to create communicatively successful texts that are accepted as good translations within the community concerned”. Widely utilized by professionals, students, and the general public, MT systems such as Google Translate and DeepL have become indispensable in the translation ecosystem. According to Bowker (2002), “focus has shifted away from the notion that machine should be designed to replace the human translators and now is firmly concentrated on how machines can support human translators.” While these systems have enhanced productivity and facilitated multilingual communication, they also raise concerns about accuracy, ethical implications, and the necessity of human translators to preserve nuance and precision.

It is becoming more common and important for students of translation and interpreting departments to incorporate MT into their academic and professional growth. As students who will be future practitioners in an industry where technology is becoming more prevalent every day, they must learn to integrate MT tools effectively while maintaining the linguistic and cultural competence essential to professional human translators. Their views on MT include what it is good at and the implications it has for them as translators (or non-translators) in an industry driven by technology.

There is a significant amount of research on the benefits, challenges, areas of use, and comparative results of various MT programs. However, there is limited research on MT by the new generation of students taking translation courses. Accordingly, this study tries to investigate university students' perspectives toward MT in terms of their experiences, attitudes and expectations. A questionnaire developed by Liu (K), Kwok, Liu (J), and Cheung was utilized. Using a questionnaire; this study attempts to grasp university students' opinions regarding MT; thus, this study seeks answers to the following: “What are University students' opinions in Translation and Interpreting Department about MT?”

This study contributes to the growing discussion about using technology in the translation department by looking at different perspectives. It aims to provide educators and academic institutions with useful suggestions for successfully integrating MT into their curricula, giving students the tools, they need to handle the difficulties of a quickly evolving sector. The findings also highlight the ongoing value of human knowledge in a field that is becoming increasingly influenced by artificial intelligence developments.

This study has five sections. In the first section, the relevant literature on MT and its role in translation education, addressing both the benefits and challenges has been discussed. The second section presents previous research on students' attitudes toward MT. The third section describes the methodology, including the participants, instruments, and data collection process. The fourth section presents and analyzes the findings of the study. Finally, the conclusion discusses the results, implications for translation pedagogy, and suggestions for further research.

Literature Review

MT and Education

Technological advancements have significantly transformed various aspects of modern life. In terms of translation, the developments in technology changed the translation process, the perspective on translation and translators, and translation education (Özcan Dost, 2024, p. 264). One of these is the methods used in

translation. MT, one of the popular techniques and translation aids, has entered the translation world. MT has its roots in the mid-20th century, when early computational methods were first developed. The first attempt at MT was the 1954 Georgetown experiment; an IBM 701 computer attempted to translate 60 Russian sentences into English; however, the results were far from ideal, they attracted interest in the advancement of MT technology (Trang, 2024, p. 155). According to Lin and Chien (2009, p. 134) “MT is a modern method of translation through computer assistance, which is a sub-field of computational linguistics”. Moreover, Vauquois (1968) added that the goal of MT is to allow a computer to interpret language in terms of lexical, syntactic and semantic aspects, or transfer natural language utterances. Given its historical development and increasing relevance, MT is now a crucial component in translation education.

Acikgöz and Sert (2006) support these ideas and they stated “given that any field in which human beings are actively involved requires the knowledge of another field, MT, having a history almost as old as the modern digital computer, emerged as an attempt to overcome the intricacy of “being informed” in a group of offers to sustain communication” (p. 1).

According to Melby and Warner (1995), sometimes MT is better than human translation for some texts, such as highly technical ones, as it contains very specific topics and words. MT systems are often more efficient than human translators when it comes to texts that contain specialized terminology or highly technical language. For example, scientific, medical, or legal texts often use a precise and consistent set of terms that MT systems can handle effectively. These systems can quickly and accurately process these terms based on large databases or glossaries, ensuring consistency throughout the translation. In contrast, human translators might take longer to research and verify the correct terminology, especially in fields that require deep subject-matter knowledge. Furthermore, MT can handle large volumes of text quickly, which is especially useful for technical documents that need to be translated in a short time frame. He added in the future computers will do a lot better than humans. Therefore, new trends such as MT should be incorporated into the curriculum of Translation Courses within Foreign Language Departments. Incorporating MT into translation education is not meant to replace traditional methods but to complement them. In fact, many translation programs have already incorporated MT tools into their curricula in order to prepare students to maximize their productivity, manage large volumes of text effectively, and devote their time and energy to the subtler aspects of translation that only humans can accomplish, such as cultural adaptation and contextualization. Students not only learn how to work with MT systems but also explore their limitations and the need for post-editing, a skill that becomes increasingly requested in the translation sector. This ensures that they are as prepared as possible for the future of the profession by fostering good software practices, while not sacrificing linguistic acuity due to an overreliance on MT.

According to Jiménez-Crespo (2013, p. 52) “Nowadays, professional translation cannot be considered independent of the technologies that support it. Ideally, students should make use of all the possible translation technologies from the very beginning of their training”. Ultimately, as in all fields of education, staying abreast of the latest trends—such as the integration of MT into translation courses—is essential for enhancing the effectiveness of education and better preparing students for the demands of a technology-driven translation industry.

Key debates: benefits vs. challenges of MT.

Like everything else, MT has both benefits and challenges. Palanichamy & Trojovský (2024, p. 1) state that “MT facilitates cross-linguistic communication by converting text between languages. However, producing contextually accurate translations remains a challenge”. The most obvious advantages are its speed and the fact that most MT programs are free of charge, allowing people to save time and money. MT processes natural spoken or written language without human translators or interpreters at high speed and good quality. In

addition, MT delegates access to resources and information in other languages thereby providing broader knowledge and opportunities. MT has emerged as a critical resource in multiple sectors.

MT has become an essential tool across various sectors. In business, it helps companies communicate with global clients and partners by providing quick translations of emails, contracts, and marketing materials. MT helps remove language barriers in education by enabling students to learn from content written in other languages and take part in cross-border scientific collaborations. MT has also made its place in the healthcare field, where it is used to translate medical documents, patient records, and real-time communication between doctors and patients who speak different languages, thereby enhancing quality of care.

MT is also a significant contributor during real-time communication. An instance of this can be observed in chatbots and customer service apps – these applications implement MT to deliver immediate responses to customers who belong to varied language backgrounds. This makes customer support more efficient and accessible.

Moreover, the use of MT can also promote communication and cooperation across cultural borders by providing real-time translation that allows for sound engagement with people from different linguistic and cultural backgrounds. Furthermore, MT is being used as a useful resource in language education. Its knowledge modeling can be adapted to translate unfamiliar words and phrases which helps learners expand their lexicon and understanding of the language. Also, it assists in translating study materials, such as textbooks or online courses, allowing resources for learning to become more available for non-native speakers.

MT is also interesting from the perspective of the disabled. As an example, MT may aid those who are deaf or hard of hearing to transcribe sign language into text or spoken language. More specifically, it can help the visually impaired, who can use it to convert writing into spoken words, meaning information that would have been inaccessible can now be accessed.

However, despite these benefits, MT has many challenges. MT output still suffers from various accuracy and quality issues. In recent years, errors and inaccuracies affecting the message can cause a lot as of the meaning and clarity, to pass on especially when the translation process involves distant or complex languages. Secondly, MT could not capture the nuances, context and register of human speech resulting in misleading or incorrect translation. MT systems, for instance, frequently fail to achieve both accuracy and fluency on idiomatic phrases, cultural subtleties, and contextually dependent meanings. MT has limitations in its capacity to capture idiomatic expressions, cultural references, or context-specific interpretations that are crucial for accurate translation; in such cases, a human translation can be more suitable. This means MT needs carefully double-checking and amending the translation before actually using it, thinking critically.

In recent years, machine translation (MT) has become an essential tool across various domains due to its notable advantages, including high processing speed, cost-effectiveness, and wide accessibility (Palanichamy & Trojovský, 2024). Particularly, Neural Machine Translation (NMT), which is based on advanced transformer architectures, marks a significant improvement over earlier systems by translating phrases or sentences holistically rather than word by word. This allows for more fluent and contextually accurate translations and makes it possible to handle idiomatic expressions and maintain natural language flow (Palanichamy & Trojovský, 2024). Moreover, MT facilitates global collaboration by bridging language barriers and enabling access to knowledge across linguistic boundaries.

Despite these advantages, several challenges persist. MT systems still struggle with domain-specific terminology, especially in legal or medical contexts, and often fail to accurately translate culturally embedded elements such as metaphors, humor, or tone (Palanichamy & Trojovský, 2024). These limitations highlight the necessity of developing context-aware and culturally sensitive MT models. Additionally, efforts to

expand MT's applicability to low-resource languages are ongoing, furthering the inclusivity of translation technologies in global communication (Palanichamy & Trojovský, 2024).

Previous studies on students' attitudes towards MT.

McBride (2009, p. 175) explored spontaneous views of translators about the questions surrounding MT systems. She ends with a note of caution advising trainers to keep up-to-date with the latest developments and applications of MT systems and the problems they present so they can prepare translators for their future jobs.

Klepikova (2018) has also studied MT, her study is "Students' Common Mistakes in Technical Texts When Using Computer Technologies". This article examines the effectiveness of MT and computer-assisted translation (CAT) tools in translating scientific and technical texts. The research compares rule-based machine translation (RBMT) systems like PROMT and statistical-based systems like Google Translate. Findings indicate that while MT tools offer speed and accessibility, they struggle with syntactic, lexical, and contextual accuracy, particularly in specialized fields like power and electrical engineering. The study advocates for hybrid translation systems that combine RBMT and statistical methods to improve quality. It also highlights the importance of students' active participation in translation competitions and post-editing practices to enhance their technical translation skills and professional qualifications.

Liu et al. (2022) explored the perceptions of translation instructors and learners in Hong Kong regarding MT. The study highlighted the perceived benefits of MT, including increased efficiency and improved lexical knowledge, while also acknowledging its limitations in handling cultural nuances and complex syntactic structures. Ethical concerns were raised by both groups, particularly regarding over-reliance and risks of academic misconduct. Despite these issues, both instructors and students supported the integration of MT training into translation curricula, emphasizing the importance of understanding its appropriate use, constraints, and ethical implications. The researchers introduced the concept of "MT literacy" as a crucial skill for future translators and stressed the importance of combining MT tools with traditional translation methods to foster comprehensive translation competence.

Agustine and Permatasari (2021) examined students' attitudes toward MT in Japanese language classes. While students valued MT for its speed and convenience, they were dissatisfied with its accuracy, as translations often failed to match the context of the target language. The study emphasized the need for post-editing and encouraged educators to guide students in using MT critically to enhance their translation skills.

Another study related to MT was done by Trang (2024) titled "Common Online Technical Tools For Translation: Students' Choices, Perceptions, And Translation Strategies Used". Her study examines how university students use online technical tools for translation, what they choose to use, how they perceive those tools, and what strategies they use. The study shows that the reason for the use of tools such as Google Translate, ChatGPT, and etc is efficiency and accessibility. However, there are challenges like inaccuracies, misinterpretation of context, and difficulty handling cultural nuances. It also highlights the necessity of introducing human involvement (e.g. post-editing) to improve translation quality. It also looks at broad strategies students use for dealing with translation difficulties (e.g., literal translation, substitution, modulation). The results highlight the importance of integrating MT alongside conventional translation curricula to prepare students for a technology-oriented profession.

Turkish experts have also studied MT. Aslan (2023) conducted a study to explore how translation and interpreting students at Marmara University perceive MT. The research involved 140 third- and fourth-year students from English, German, and French departments, who completed a structured questionnaire

consisting of 16 items across four categories. The results revealed that most students are familiar with MT and use it frequently, particularly for saving time and correcting their own translations. While many participants acknowledged that MT facilitates the translation process and improves certain aspects of translation competence, they also highlighted limitations, especially in grasping language subtleties and cultural nuances. Interestingly, although MT is widely accepted, some students do not actively follow developments in the field. The study emphasizes the importance of including MT-related content in translation curricula, with a special focus on post-editing and raising awareness about ethical and effective MT use.

Another study related to MT was carried by Çetiner (2018). In this study, he examines the attitudes of translation students toward Computer-Assisted Translation (CAT) tools. The study, conducted in the Department of English Translation and Interpreting at Kırıkkale University, employed an experimental design, using attitude scales administered before and after a one-semester CAT course. The findings indicated a statistically significant positive change in students' attitudes toward CAT tools after the course. Furthermore, students began to perceive translation technologies as positively impacting productivity and translation quality. The study emphasizes the need for greater inclusion of translation technology instruction in the curriculum and the positive impact students' attitudes on these tools experience.

Among another academic studies on the use of MT in Turkey, the study conducted by Çakır and Bayhan (2021) stands out. This study aimed to reveal the extent to which 49 undergraduate students in the English Language and Literature department at a public university used MT tools in their translation courses and the problems they experienced with these tools. Data were collected through a 24-item open-ended survey and focus group interviews. The results showed that all students reported using MT tools, and they made extensive use of various digital dictionaries and translation tools, particularly Google Translate. Students reported using MT frequently to find word translations, complete homework, and edit translated texts. While most participants believed MT facilitated the translation process and saved time, they emphasized the system's inadequacy in areas such as idioms, cultural expressions, and figurative structures. Furthermore, various problems were noted, such as inaccurate translations, meanings disconnected from context, and internet dependency. Students stated that for ML tools to become more effective, contextual sensitivity should be increased, idioms and metaphors should be translated accurately, pronunciation skills should be improved, and examples of usage should be provided. The study emphasizes the need to strengthen the place of MT as a digital support tool in translation education and to encourage students to use these tools consciously and critically.

Methodology

This study collects and analyses numerical data to create accurate measures so it is quantitative research. Rana et al. (2021, p. 1) point out “Quantitative method is the collection and analysis of numerical data to answer scientific research questions” and they add “Simply, quantitative research methods are systematic ways of gathering and analyzing numerical data with the general purpose of understanding reality” (p. 6). A questionnaire by Liu et al (2022) has been used for this study. A structured instrument, the questionnaire, ensures uniform data collection, enabling researchers to analyze extensive sample sizes efficiently.

Participants

82 students of translation and interpreting majors at different state universities at the 2023-2024 spring Semester have joined this study. The approach used to select the students has been convenience sampling, which refers to recruiting individuals who are immediately accessible and willing to participate in the study. Quicker access to a larger number of willing participants is an adequate reason to choose this sampling method.

Instruments

A structured questionnaire developed and applied by Liu et al (2022) was used for this study. It was developed to understand university students' opinions about MT, and it consists of five sections and 45 items, including various question types such as multiple-choice, dichotomous, and rating-scale questions. The sections are knowledge about MT, experience in using MT, quality of MT, ethics of using MT, and MT and Translation Teaching. The aim of the study is to explore students' knowledge, experiences, and attitudes toward MT, as well as their opinions about its ethical implications and integration into translation curricula in a detailed way.

Furthermore, the questionnaire gathers demographic information, including gender, age, department, and education level. The use of this detailed and structured instrument is aimed to enhance the findings of the study in MT tools in academic and professional translation settings.

Data collection and analysis methods.

In order to obtain more information on the course, the data for this study was gathered at a prearranged time, namely in the middle of the second term. First of all, permission was obtained from the survey owner. Then, an application was made to the ethics committee from the researcher's university and the process for implementation began. After obtaining ethical approval from Ankara Hacı Bayram Veli University (No: E-11054618-302.08.01-254649), the questionnaire has been conducted to the students via a Google survey. Students from different state universities and different translation and interpreting departments were selected, information was given about the survey, and it was administered to the students voluntarily and also they were assured of the anonymity of their responses. It was decided that there was no need to translate the questionnaire because of the participants' high level of proficiency. It took participants an average of 15 minutes to finish the questionnaire.

82 students have participated for the study. Data have been analyzed by IBM SPSS 26.0 (Statistical Package for the Social Sciences) package program. In the statistical analysis step, description statistics for the demographic traits of the students are presented first. Moreover, the frequency and percentage statistics of the students' answers to qualitative questions are also presented. Kolmogorov-Smirnov and Shapiro-Wilk normality tests have been used to determine the test statistics to be used for comparison tests. Independent sample t-test has been used for two groups of the independent variable with a normal distribution and Mann Whitney U test has been used for the two groups of independent variables which did not have a normal distribution. For non-normal distribution in cases of greater than two groups, Kruskal Wallis H test has been performed, while for normal distribution in cases of greater than two groups, ANOVA has been performed. All statistical tests conducted have been carried out at the significance level of 5%.

Findings

Looking at the demographic overview of the study, it is seen that 25.6% are men while 74.4% are women. Out of total participants, 23.2% are 17-20 years old, 65.9% are 20-23 years old and 11% are older than 23. 85.4% of the students are studying in the English translation and interpreting department, 12.2% in the Arabic translation and interpreting department, 1.2% in the French translation and interpreting department, and 1.2% in the translation and interpreting department of other languages. Among the students who have taken part in the study, 30.5% have been identified as being in their first year, 57.3% in their second year, 4.9% in their third year, and 7.3% in their fourth year.

Table 1
Descriptive statistics on demographic information of participants

Gender	Frequency	Percentage
Male	21	25.6
Female	61	74.4
Age		
17-20	19	23.2
20-23	54	65.9
Older than 23	9	11.0
Department		
English Translation and Interpreting Department	70	85.4
Arabic Translation and Interpreting Department	10	12.2
France Translation and Interpreting Department	1	1.2
Other	1	1.2
Education Level		
Undergraduate, year 1	25	30.5
Undergraduate, year 2	47	57.3
Undergraduate, year 3	4	4.9
Undergraduate, year 4	6	7.3

Table 2
Knowledge about MT

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
I know what Machine Translation (MT) is, such as what defines MT, and examples of MT tools and functions, before doing this survey.	8 (9.8%)	5 (6.1%)	19 (23.2%)	25 (30.5%)	25 (30.5%)
I understand the mechanisms that makes MT work, such as rule-based and statistical-based.	15 (18.3%)	12 (14.6%)	26 (31.7%)	16 (19.5%)	13 (15.9%)
I can use MT proficiently.	11 (13.4%)	15 (18.3%)	21 (25.6%)	22 (26.8%)	13 (15.9%)

Table 2 shows that students' self-reported knowledge and proficiency regarding MT. Participating students' knowledge and usage proficiency in machine translation (MT) were measured using three separate statements. Findings indicate that most students have a general understanding of what MT is, what it does, and the tools it encompasses (Mean = 3.66). However, when it comes to technical information about how MT systems operate (e.g., rule-based or statistically based structures), their knowledge level drops significantly (Mean = 3.00). Similarly, students' perceived self-efficacy in using MT tools effectively and competently is also moderate (Mean = 3.13). When these three statements are evaluated together, it appears that students are generally familiar with MT but lack the ability to understand its systemic functioning and use it profes-

sionally. This suggests a need for more structured course content in translation education programs that simultaneously develops technical knowledge and practical skills in MT.

Table 3 shows that 14,6% of the students always prefer using MT. On the other hand, while 39% of the students stated that they sometimes used it to complete their translation assignments, 4,9% stated that they never used it.

Table 3

How often students use MT for translation tasks

	Frequency	Percentage
Always	12	14.6
Frequently	26	31.7
Occasionally	32	39.0
Rarely	8	9.8
Never	4	4.9

Table 4 shows why students prefer using MT. The most common reason is to “improve translation efficiency” (24.6%). The second most common reason is it reduces workload (21.5%). Then, the reasons are “convenience” (15.9%), “learning from MT output” (12.8%), “free of charge” (11.8%), and “satisfactory output quality” (11.3%). The least common reason is “there is no better alternative translation tool” (2.1%).

Table 4

What is/are the reason(s) for using MT in the process of translation?

	Frequency	Percentage
Convenience	31	15.9
Free of charge	23	11.8
Satisfactory output quality	22	11.3
Improve translation efficiency	48	24.6
Learn from MT output	25	12.8
Reduce workload	42	21.5
There is no better alternative translation tool	4	2.1

Table 5 illustrates students’ views on the ethicality of using MT in translation assignments. The most common concern is the “degree of modification of raw machine-translated texts” (29.3%). This suggests that students believe ethicality depends on how much effort is put into editing the MT output.

The second most common factors, both at 23.3%, are “length of texts translated by MT” and “whether MT is used in a graded assignment or not”. These results indicate that the amount of text translated and the stakes of the assignment play a significant role in shaping ethical perceptions.

A smaller group of students (19.0%) believe that “using MT in translation assignments does not involve ethical issues,” reflecting a neutral or accepting attitude toward MT. However, only 5.2% of students think “using MT in translation assignments is always unethical,” suggesting that very few hold a strict view against MT use.

Table 5*Views on the ethicality of using MT in translation assignments*

	Frequency	Percentage
Length of texts translated by MT	27	23.3
Degree of modification of raw machine-translated texts	34	29.3
Whether MT is used in a graded assignment or not	27	23.3
Using MT in translation assignments is always unethical	6	5.2
Using MT in translation assignments does not involve ethical issues	22	19.0

Table 6 shows whether students have received any training in MT tools. Most of the students (74.4 %) state that they don't get any training and they learn individually. However, while a small proportion (20.7%) point out that they have been trained in MT tools within translation-related courses, few students (4.9%) say that they have received training in other places. The findings show that there is a notable lack of formal education in MT as many students have learned MT independently. This shows that there is a need for MT in academic programs.

Table 6*Students' training background in MT tools*

	Frequency	Percentage
Yes, in translation-related course(s)	17	20.7
Yes, in other places	4	4.9
No/self-learning	61	74.4

Table 7 explores students' perspectives on what must be done before using MT in translation assignments. The most frequently selected response is "having basic knowledge about MT, such as functions and mechanisms" (23.8%), indicating that students prioritize foundational understanding of MT tools. This is followed by "becoming familiar with the advantages and limitations of MT tools" (21.0%) and "being able to judge the quality of MT output" (18.6%), reflecting the importance of critical evaluation and informed usage.

Other notable responses include "being aware of the ethical issue of using MT" (15.7%) and "being able to use raw machine-translated texts critically" (11.4%), which emphasize the need for ethical considerations and critical engagement with MT outputs.

Less commonly selected responses include "students should not use MT in translation assignments all the time" (7.6%) and "nothing must be done before one uses MT in translation assignments" (1.9%), suggesting that only a small minority believe MT use requires minimal or no preparation.

These findings highlight the importance of equipping students with the necessary knowledge and skills to use MT effectively and ethically in translation tasks.

Table 7*Perspectives on what must be done before using MT in translation assignments*

	Frequency	Percentage
Have basic knowledge about MT, such as functions and mechanisms	50	23.8
Become familiar with the advantages and limitations of MT tools	44	21.0
Be able to judge the quality of MT output	39	18.6

	Frequency	Percentage
Be able to use raw machine-translated texts critically	24	11.4
Aware of the ethical issue of using MT	33	15.7
Nothing must be done before one uses MT in translation assignments	4	1.9
Students should not use MT in translation assignments all the time	16	7.6

Information about the accuracy levels of the translation texts produced by MT are given in [Table 8](#). In translations from Turkish to English, 40.2% have an average accuracy rating, while 2.4% have a very inaccurate translation accuracy rating. On the other hand, in translations from English to Turkish, 45.1% have an average accuracy rating, while 2.4% have a very inaccurate translation accuracy rating.

Table 8

Information about the accuracy levels of the translation texts produced by MT

	Very Inaccurate	Inaccurate	Average	Accurate	Very Accurate	NA
From Turkish to English	2 (2.4%)	8 (9.8%)	33 (40.2%)	27 (32.9%)	5 (6.1%)	7 (8.5%)
From English to Turkish	2 (2.4%)	4 (4.9%)	37 (45.1%)	27 (32.9%)	6 (7.3%)	6 (7.3%)

[Table 9](#) sheds light on the frequency of use of MT tools by students whenever they perform different tasks during their use of MT for translation assignments. Most students (42.7%) state that they often use MT to check on their own translations, and 30.5% report they use it occasionally. Few students (3.7%) never use MT for this purpose, suggesting that MT is commonly relied upon for self-verification.

MT is used frequently by 42.7% of students and 22.0% always when checking meanings. This is also a grounding example for MT tools that make reiteration of meanings in translation tasks possible. The same applies to 32.9% of students who frequently use MT to search for synonyms, antonyms or finding other words, and 32.9% always depending on MT to do so.

Moreover, for checking grammar structures, 26.8% of students use MT frequently, while 25.6% use it occasionally. However, 15.9% of students never use MT for this task. This suggests that other methods may be preferred/more reliable for revising grammar than MT.

Finally, with respect to the output of translated texts for use in any form (directly or after post-editing), MT is used frequently by 26.8% of the students and occasionally by 26.8% as well. Notably, 9.8% of students never use MT, while another 9.8% always use MT for this purpose, indicating a wide variety of preferences when it comes to using MT in the translation process.

These findings reveal that although MT is commonly employed in applications such as translation verification, meaning checking, and synonyms search, it is less consistently utilized for grammar checking and post-editing. This indicates that although MT tools would be useful for specific aspects of the translation process, they need to be better integrated into other stages of the translation process, including grammar checking and post-editing.

Table 9

Frequency of students' use of MT tools for specific translation tasks

	Never	Rarely	Occasionally	Frequently	Always
Verify your own translations	3 (3.7%)	9 (11.0%)	25 (30.5%)	35 (42.7%)	10 (12.2%)
Check meanings	1	8	20	35	18

	Never	Rarely	Occasionally	Frequently	Always
	(1.2%)	(9.8%)	(24.4%)	(42.7%)	-0,22
Find synonyms, antonyms, or alternative words	4 (4.9%)	9 (11.0%)	15 (18.3%)	27 (32.9%)	27 (32.9%)
Check grammar structures	13 (15.9%)	13 (15.9%)	21 (25.6%)	22 (26.8%)	13 (15.9%)
Produce translated texts for direct use or post-editing	8 (9.8%)	22 (26.8%)	22 (26.8%)	22 (26.8%)	8 (9.8%)

Table 10 examines when students use MT to translate sentences, paragraphs, or entire texts in the process of translation, how often they handle the raw machine-translated texts.

The most common use is “making major modifications, i.e., on the sentence level,” with 41.5% of students reporting occasional use and 29.3% using this approach frequently. This suggests that students often engage in substantial post-editing to improve the quality of MT output.

“Making minor modifications, i.e., on the word level” is also a frequent practice, with 39.0% reporting occasional use and 23.2% frequent use. This indicates that students often refine MT output at a smaller scale to ensure linguistic accuracy.

When it comes to “translating texts by yourself with the assistance of MT,” 30.5% of students frequently use this approach, and 26.8% always rely on it. This highlights a balanced integration of MT and human effort in translation tasks.

However, “using raw machine-translated texts without any modifications” is less common, with 36.6% never using this approach and only 2.4% always doing so. This reflects students’ awareness of the limitations of MT and the need for quality control.

These results show that even though students commonly use MT as a helpful tool, they understand the value of critical engagement and post-editing to guarantee the precision and caliber of their translations.

Table 10

Students’ perspectives on how often they handle raw machine-translated texts

	Never	Rarely	Occasionally	Frequently	Always
Use the raw machine-translated texts without any modifications	30 (36.6%)	22 (26.8%)	20 (24.4%)	8 (9.8%)	2 (2.4%)
Make minor modifications, i.e., on the word level	4 (4.9%)	18 (22.0%)	32 (39.0%)	19 (23.2%)	9 -0,11
Make major modifications, i.e., on the sentence level	8 (9.8%)	10 (12.2%)	34 (41.5%)	24 (29.3%)	6 (7.3%)
Translate the texts by yourself with the assistance of MT	7 (8.5%)	9 -0,11	19 (23.2%)	25 (30.5%)	22 (26.8%)

Table 11 evaluates translations that MT produced of differing text lengths for perceived accuracy. The individual words are rated fairly high: 26.8% of the students rated the translations as accurate and 23.2% rated as very accurate. On the other hand, 32.9% think that the accuracy is average — thus, MT excels at single words, yet there is still room for improvement.

For short phrases, 36.6% rated the accuracy as average, 26.8% as accurate and 17.1% as very accurate. Hence, this implication that MT is good at phrase level, but it does not work after the pair of concepts grow.

For translating sentences, 31.7% of students rate the output as accurate, 17.1% as very accurate, while 34.1% find it average. While sentence-level translations are somewhat trustworthy, they are not infallibly accurate.

Regarding the paragraphs, most report them as average (52.4%) but there are still a good number of students who rate its accuracy (23.2%) Only 2.4% believe paragraph translations to be very accurate, which presents considerable difficulties in preserving chain or cohesiveness and context in longer texts.

For full texts, 42.7% rate the accuracy average, with 26.8% rating them inaccurate and 12.2% very inaccurate. Only a small percentage (6.1%) find the translations accurate, indicating that MT struggles significantly with maintaining quality over longer, more complex texts.

The study shows that MT works effectively with short text lengths, so individual words and short phrases, though its precision drops as text lengths increase. For longer forms of text, there is an even greater necessity for humans to be involved in the proofing process to provide coherence and context.

Table 11

Students' perceptions of MT output accuracy across different text lengths

	Very Inaccurate	Inaccurate	Average	Accurate	Very Accurate	NA
Individual words	1 (1.2%)	6 (7.3%)	27 (32.9%)	22 (26.8%)	19 (23.2%)	7 (8.5%)
Short phrases	4 (4.9%)	9 (11.0%)	30 (36.6%)	22 (26.8%)	14 (17.1%)	3 (3.7%)
Sentences	1 (1.2%)	10 (12.2%)	28 (34.1%)	26 (31.7%)	14 (17.1%)	3 (3.7%)
Paragraphs	5 (6.1%)	9 (11.0%)	43 (52.4%)	19 (23.2%)	2 (2.4%)	4 (4.9%)
Entire texts	10 (12.2%)	22 (26.8%)	35 (42.7%)	5 (6.1%)	3 (3.7%)	7 (8.5%)

Table 12 evaluates students' perceptions of how MT contributes to enhancing various aspects of their translation competence.

The highest-rated area is “knowledge to ensure the efficiency of the translation process,” with 41.5% finding MT useful and 15.9% very useful. This highlights MT's effectiveness in streamlining workflows and improving productivity. Similarly, “knowledge to solve problems in translation” received positive feedback, with 31.7% finding it useful and 13.4% very useful.

“Lexical knowledge of two languages” also stands out, with 31.7% rating MT as useful and 20.7% as very useful, indicating that students value MT for vocabulary-related tasks. “Textual knowledge of the two languages” follows closely, with 39.0% finding MT useful and 17.1% very useful.

In contrast, “bicultural knowledge” is one of the lowest-rated areas, with only 19.5% considering MT useful and 15.9% very useful. This suggests that students recognize MT's limitations in addressing cultural nuances and context. “Knowledge about translation units, strategies, techniques, and problems” and “knowledge about professional translation practice” also received lower ratings for usefulness, with fewer students perceiving MT as very useful in these areas.

The data indicates that students view MT as particularly useful for enhancing efficiency, addressing problems, and expanding lexical knowledge. However, its role in developing cultural and professional translation skills is perceived as less significant. This demonstrates MT's advantages in technical aspects

of translation while emphasizing the importance of human expertise in tasks that demand cultural and contextual insight.

Table 12

Students' Perceptions of the Usefulness of MT in Enhancing Translation Competence Areas

	Very Useless	Useless	Neutral	Useful	Very Useful
Pragmatic and sociolinguistic knowledge of two languages	7 (8.5%)	9 -0,11	36 (43.9%)	18 -0,22	12 (14.6%)
Textual knowledge of the two languages	6 (7.3%)	4 (4.9%)	26 (31.7%)	32 -0,39	14 (17.1%)
Grammatical knowledge of the two languages	5 (6.1%)	13 (15.9%)	22 (26.8%)	29 (35.4%)	13 (15.9%)
Lexical knowledge of two languages	3 (3.7%)	4 (4.9%)	32 -0,39	26 (31.7%)	17 (20.7%)
Bicultural knowledge	12 (14.6%)	15 (18.3%)	26 (31.7%)	16 (19.5%)	13 (15.9%)
General world knowledge	12 (14.6%)	5 (6.1%)	20 (24.4%)	29 (35.4%)	16 (19.5%)
Subject knowledge	8 (9.8%)	11 (13.4%)	25 (30.5%)	28 (34.1%)	10 (12.2%)
Knowledge about translation units, strategies, techniques, and problems	5 (6.1%)	20 (24.4%)	23 -0,28	27 (32.9%)	7 (8.5%)
Knowledge about professional translation practice	9 -0,11	13 (15.9%)	26 (31.7%)	27 (32.9%)	7 (8.5%)
Knowledge about the use of resources, information, and technologies applied to translation	7 (8.5%)	9 -0,11	28 (34.1%)	29 (35.4%)	9 -0,11
Knowledge to ensure the efficiency of the translation process	5 (6.1%)	5 (6.1%)	25 (30.5%)	34 (41.5%)	13 (15.9%)
Knowledge to solve problems in translation	5 (6.1%)	6 (7.3%)	34 (41.5%)	26 (31.7%)	11 (13.4%)

Table 13 presents students' levels of agreement with various statements about MT and its role in translation education.

The highest level of agreement (40.2% agree, 19.5% strongly agree) is with the statement that "instructors remind us that we need to be cautious when using MT." This indicates that educators stress critical engagement with MT, including its shortcomings and dangers.

The statement "I think that the use of MT improves my translation skills" is also highly supported, being agreed by 43.9% and strongly agreed by 8.5% of the participants. This suggests that MT is considered an important learning tool that can help the student acquire the necessary skills. Similarly, 37.8% agree and 17.1% strongly agree that "it is necessary to incorporate MT into translation curricula," and it reflects a positive attitude toward formal MT training.

Students expressed notable interest in further learning, with 37.8% agreeing and 25.6% strongly agreeing with the statement "I am interested in learning more about how to use MT to improve my translation

competence in the future.” This shows a strong desire among students to deepen their understanding and effective use of MT.

However, the statement “instructors have clear policies about the ethical use of MT” garnered more neutral or uncertain responses, with 40.2% unsure and only 28.0% agreeing. This suggests that clearer guidelines on ethical MT usage may be needed.

Finally, while 29.3% agree and 14.6% strongly agree that “instructors encourage the use of MT for translation teaching,” a significant number of students (37.8% unsure) indicates room for improvement in promoting MT as a teaching tool.

Overall, the results reflect a generally positive perception of MT’s role in translation education, coupled with a strong interest in its integration into curricula and a need for clearer policies and guidance.

Table 13

Students’ Agreement Levels on the Use and Pedagogical Role of Machine Translation (MT) in Translation Education

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Instructors have clear policies about the ethical use of MT
3	13	33	23	10	
(3.7%)	(15.9%)	(40.2%)	(29.3%)	(12.2%)	Instructors encourage the use of MT for translation teaching
7	8	31	24	12	
(8.5%)	(9.8%)	(37.8%)	(29.3%)	(14.6%)	Instructors remind us that we need to be cautious when using MT
2	5	26	33	16	
(2.4%)	(6.1%)	(31.7%)	(40.2%)	(19.5%)	I think that the use of MT improves my translation skills
5	5	29	36	7	
(6.1%)	(6.1%)	(35.4%)	(43.9%)	(8.5%)	I think that it is necessary to incorporate MT into translation curricula
5	5	31	27	14	
(6.1%)	(6.1%)	(37.8%)	(32.9%)	(17.1%)	I am interested in learning more about how to use MT to improve my translation competence in the future
5	8	17	31	21	
(6.1%)	(9.8%)	(20.7%)	(37.8%)	(25.6%)	

The levels of knowledge about MT scores were compared according to demographic characteristics and results are presented in Table 14. The average of MT scores knowledge of men was 3.65 ± 1.15 while the average of women was 3.16 ± 1.05 , and this difference was determined to be statistically significant ($p < 0.05$). When the level of knowledge about MT scores is examined in terms of age, the average level of knowledge about MT scores of students aged 17-20 is 3.19 ± 1.02 ; The mean of students aged 20-23 was 3.33 ± 1.05 and the mean of students over 23 was 3.22 ± 1.55 , and it was determined that this difference was not statistically significant ($p > 0.05$). When the level of knowledge about MT scores is examined in terms of department, the average level of knowledge about MT scores of students studying in the English Translation and Interpreting Department is 3.47 ± 0.98 ; The average score of those studying in the Arabic translation and interpreting department is 2.20 ± 1.09 ; The score of those studying French translation and interpreting was 3.33 and those studying translation and interpreting in other languages was 1.00, and this difference was determined to be statistically significant ($p < 0.05$). As a result of the double comparison, the difference between the averages of those studying in the English translation and interpreting department and the Arabic translation and interpreting department was found to be significant. When the level of knowledge about MT scores is examined in terms of education level, the average level of knowledge of first-year students about MT scores is 3.08 ± 1.10 ; second grade students 3.29 ± 1.00 ; The average of third grade students was 4.58 ± 0.63 and fourth grade students was 3.22 ± 1.57 , and it was determined that this difference was not statistically significant ($p > 0.05$).

Table 14

Comparison of knowledge about MT scores in terms of demographic characteristics

Gender	Mean	Std. Dev.	Median	Min	Max	Test Stat.	P-value
Male	3.65	1.15	4.00	1.00	5.00	U=453.00	0.045*
Female	3.16	1.05	3.00	1.00	5.00		
Age							
17-20	3.19	1.02	3.33	1.00	5.00	$\chi^2=0.256$	0.880
20-23	3.33	1.05	3.33	1.00	5.00		
Older than 23	3.22	1.55	3.00	1.00	5.00		
Department							
^a English Translation and Interpreting Department	3.47	0.98	3.33	1.00	5.00	$\chi^2=13.07$	0.004*
^b Arabic Translation and Interpreting Department	2.20	1.09	2.16	1.00	4.33		
^{ab} France Translation and Interpreting Department	3.33	-	3.33	3.33	3.33		
^{ab} Other	1.00	-	1.00	1.00	1.00		
Educational level							
Undergraduate, year 1	3.08	1.10	3.00	1.00	5.00	F=2.274	0.087
Undergraduate, year 2	3.29	1.00	3.33	1.00	5.00		
Undergraduate, year 3	4.58	0.63	4.83	3.67	5.00		
Undergraduate, year 4	3.22	1.57	3.66	1.00	5.00		

Table 15 presents a comparison of students' perceptions of MT and translation teaching based on demographic characteristics, including gender, age, department, and educational level. Overall, the findings indicate no statistically significant differences in perceptions of MT and translation teaching based on gender, age, department, or educational level. However, slight variations suggest that female students and

third-year undergraduates may hold more favorable views. These results highlight the general consistency of student perceptions across demographic groups.

Table 15

Comparison of MT and translation teaching in terms of demographic characteristics

Gender	Mean	Std. Dev.	Median	Min	Max	Test Stat.	P-value
Male	3.06	0.70	3.16	1.00	4.33	t=-1.747	0.084
Female	3.41	0.83	3.50	1.00	5.00		
Age							
17-20	3.27	0.86	3.16	1.00	4.75	F=0.067	0.935
20-23	3.33	0.74	3.29	1.08	5.00		
Older than 23	3.37	1.15	3.91	1.00	4.75		
Department							
^a English Translation and Interpreting Department	3.35	0.79	3.41	1.00	5.00	F=0.132	0.941
^b Arabic Translation and Interpreting Department	3.21	1.06	3.37	1.00	4.75		
^{ab} France Translation and Interpreting Department	3.25	-	3.25	3.25	3.25		
^{ab} Other	3.00	-	3.00	3.00	3.00		
Educational level							
Undergraduate, year 1	3.47	0.82	3.50	1.00	5.00	F=0.934	0.429
Undergraduate, year 2	3.21	0.76	3.25	1.08	4.75		
Undergraduate, year 3	3.75	0.50	4.00	3.00	4.00		
Undergraduate, year 4	3.34	1.29	3.62	1.00	4.75		

Conclusion

The present study is aimed at examining the perceptions of university students about the use of MT in translation and interpreting programs, with a view to possible benefits, challenges, as well as ethical dilemmas. The study reveals that students appreciate such aspects as time, availability, and the potential improvement in certain areas of the whole translation competence, such as lexical and grammatical knowledge, which MT gives. However, they recognize notable limitations as well, which include an inability to reflect the cultural nuances, maintain contextual accuracy, and produce high-quality translations for complex or lengthy texts.

These findings are consistent with previous studies (Liu et al., 2022; Aslan, 2023; Çetiner, 2018), which report that while students value the efficiency and lexical support MT provides, they also express concerns about its inability to handle cultural and contextual subtleties.

By evidence, this type of training in MT will also find its place within such programs in the formal curricula for translation students. Most are eager to undergo training concerning MT tools, especially in developing critical skills for post-editing and critical evaluation of MT output. Based on the research findings, it is also emphasized that rules for the ethics of using MT should be provided for the students in order to make their lives easier concerning the obstacles posed by MT faced in academia or in practice.

Collectively, these studies reinforce the conclusion that while MT is a useful and increasingly necessary tool for translators, its integration into translator training must be guided, ethical, and pedagogically sound.

This study contributes to the growing body of research advocating for MT literacy, post-editing competence, and critical awareness in translation pedagogy.

The results further support the need for integrating MT into curricula, echoing suggestions from previous research for formal instruction, ethical awareness, and critical use of MT tools (Çakır & Bayhan, 2021; Trang, 2024; McBride, 2009).

Further studies may explore the relationship between MT training and students' performance in authentic translation assignments and further study how MT can support creativity and problem-solving in the translation process. It can also be on specialized fields for example, increasing performance of the existing MT tools with neural MT etc. To address this issue, qualitative or mixed research designs may provide an avenue for greater analysis depth and triangulation of results while studies comparing these phenomena across cultures and languages of instruction could offer a greater global perspective in how students experience and view MT as well as their attitudes and behaviors towards this technology. With the continued development of MT, its application in translation education becomes even more important.

Educators would ensure that future translators meet the demands of a high technology, multilingual world by equipping students with the skills to use MT critically and ethically.



Ethics Committee Approval	This study was approved by the ethics committee of Ankara Hacı Bayram Veli University (08.03.2024-254649)
Informed Consent	Written consent was obtained from the participants.
Peer Review	Externally peer-reviewed.
Conflict of Interest	Author declared no conflict of interest.
Grant Support	Author declared no financial support.

Etik Kurul Onayı	Bu çalışma, Ankara Hacı Bayram Veli Üniversitesi Etik Kurulu tarafından onaylanmıştır (08.03.2024-254649).
Bilgilendirilmiş Onam	Katılımcılardan bilgilendirilmiş onam alınmıştır.
Hakem Değerlendirmesi	Dış bağımsız.
Çıkar Çatışması	Yazar çıkar çatışması beyan etmemiştir.
Finansal Destek	Yazar finansal destek beyan etmemiştir.

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