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# INSIGHTS ON AI-DRIVEN ANXIETY AND CAREER AWARENESS IN TRANSLATOR EDUCATION: A CASE STUDY*

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**Abstract**

*In recent years, advances in artificial intelligence technologies have intensified discussions about the future of the translation profession. The present study aims to evaluate the occupational career awareness of translation students and their anxiety about artificial intelligence in the context of the translation profession and the relationships between these two variables by using multiple data collection methods. In this framework, Kırklareli University's Department of English Translation and Interpreting was selected as the research sample. The study used multiple data collection techniques and utilized quantitative and qualitative methodological approaches simultaneously. In this regard, demographic and occupational questions, an Artificial Intelligence Anxiety Scale, and an Occupational Career Awareness Scale were administered to the students, and 166 valid questionnaires were collected. In addition, a focus group interview was conducted with the participation of 10 students from different years of study. As a result, translation students' AI anxiety was not at a high level. At the same time, their career awareness was high, and there was no statistical relationship between the two. It was observed that the uncertainty experienced while entering the sector and job search were the main factors that increased AI anxiety. Finally, the majority of the students emphasized that to decrease their anxiety levels, AI-related courses should be included in the curriculum from the first year onwards.*

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# ÇEVİRMEN EĞİTİMİNDE YAPAY ZEKÂ KAYGISI VE KARİYER FARKINDALIĞI ÜZERİNE BİR VAKA ÇALIŞMASI

**Öz**

*Son yıllarda yapay zekâ teknolojilerindeki ilerlemeler çevirmenlik mesleğinin geleceği hakkındaki tartışmaları yoğunlaştırmıştır. Mevcut çalışma konuyu çevirmen eğitimi boyutuyla ele alarak mütercim tercümanlık bölümü öğrencilerinin mesleki kariyer farkındalıkları ve çeviri mesleği bağlamındaki yapay zekâ endişeleri ile bu iki değişken arasındaki ilişkileri çoklu veri toplama yöntemleri kullanarak değerlendirmeyi amaçlamaktadır. Bu çerçevede, Kırklareli Üniversitesi İngilizce Mütercim-Tercümanlık Bölümü araştırma örneklemi olarak seçilmiştir. Araştırmada çoklu veri toplama tekniği kullanılmış, nicel ve nitel yöntemsel yaklaşımlardan aynı anda faydalanılmıştır. Bu bağlamda öncelikle demografik ve mesleki sorular ile Yapay Zekâ Kaygısı Ölçeği ve Mesleki Kariyer Farkındalığı Ölçeği öğrencilere uygulanmış, sonuçta 166 geçerli anket toplanmıştır. Ayrıca farklı sınıflardan 10 öğrencinin katılımıyla bir odak grup görüşmesi gerçekleştirilmiştir. Çalışma sonucunda, çeviri öğrencilerinin yapay zekâ kaygılarının yüksek düzeyde olmadığı, kariyer farkındalıklarının ise yüksek olduğu, bu ikisi arasında ise istatistiksel bir ilişki olmadığı bulunmuştur. Sektöre girme ve iş arama sürecinde yaşanan belirsizliğin yapay zekâ kaygısını artıran ana etmenler olduğu görülmüştür. Son olarak, bu alandaki derslerin ilk sınıftan itibaren müfredatlarda yerini alması ve böylece kaygı düzeylerinin giderilmesi, öğrencilerin büyük çoğunluğunun üzerinde durduğu bir konu olmuştur.*

***Anahtar Sözcükler:*** *Çevirmen eğitimi, mesleki kariyer farkındalığı, yapay zekâ kaygısı, çeviri öğrencileri, çoklu yöntem*

## 1. Introduction

Recent advancements in artificial intelligence (AI) technologies, particularly in the fields of natural language processing (NLP) and neural machine translation (NMT), have considerably transformed

workflows throughout numerous linguistically intensive professions, with translation being one of the most impacted. Among the most notable innovations are large language models (LLMs) and AI-integrated computer-aided translation (CAT) tools, which have not only streamlined the translation process but have also significantly enhanced efficiency (Pekcoşkun, 2023). However, these advancements raise critical questions regarding the evolving role and responsibilities of human translators, as their traditional functions may increasingly be supplemented or even replaced by these emerging technologies. This evolution is underscored by recent studies (Gene et al., 2024; Ravshanovna, 2024) that highlight the necessity for human translators to adapt to this rapidly changing landscape, potentially requiring them to take on more complex and nuanced tasks in conjunction with AI tools.

Neural machine translation (NMT) systems now demonstrate notable improvements in fluency and contextual sensitivity, including zero-shot translation capabilities for low-resource languages (Stahlberg, 2020; Pekcoşkun Güner & Güner, 2023). When embedded in CAT environments, these systems offer advanced functionalities such as automated terminology management, predictive text generation, and error detection, which have become integral to contemporary translation workflows (Castilho et al., 2017; Zang et al., 2024). However, the accessibility of AI-powered tools to the general public, who often lack a deep understanding of language or translation, has contributed to widespread misconceptions, including the belief that professional translation is being rendered obsolete (Ross, 2016; Şahin, 2023). The quick advancement of technology has intensified these narratives, adding a new layer of pressure and uncertainty, especially for new professionals in the industry.

In this context, translation students are uniquely positioned at the intersection of technological innovation and professional formation. Unlike professional translators who may have developed coping mechanisms for technological disruptions, students still develop their occupational identities and expectations. This developmental stage renders them more susceptible to perceptions of threat or uncertainty, which is an affective response conceptualized in the literature as *AI anxiety* (Johnson & Verdicchio, 2017; Wang & Wang, 2022). While AI anxiety is gaining scholarly attention, most existing studies focus on professional translators' adaptation to machine translation tools (Mihalache, 2021; Moorkens, 2017; Vieira, 2020). Therefore, a substantial gap exists in the literature regarding translation students' interpretations, interactions, and psychological impacts of AI technologies in translator education programs. This gap signifies a lack of comprehensive research and understanding of these critical dimensions essential for effectively integrating AI into educational methodologies for translation studies.

Parallel to these concerns, *occupational career awareness*, defined as individuals' understanding of professional requirements, opportunities, and self-alignment with a chosen field (Yaşar, 2019), has been identified as a protective factor in navigating future uncertainty. In this context, Şimşek and Karahüseyinoğlu (2024), in their study examining the relationship between career awareness and future anxiety among university students in Turkey, concluded that students with higher career awareness experienced a decrease in feelings of hopelessness about the future. Research has shown that career awareness provides numerous benefits to students. Those with high career awareness can set their goals more efficiently and focus on achieving them (Ernst and Bowen, 2014; Ndung'u, 2018; Lau, Chung and Wang, 2021; Deng et al., 2022). Additionally, they demonstrate higher skills in evaluating career opportunities (Saranapala and Devadas, 2020; Mahir, 2019) and are better equipped to cope with challenges in their work and personal lives (Li et al., 2022). Accordingly, students with high career awareness do not face significant difficulties in achieving a work-life balance in the future and, as a result, are more successful in their academic and work lives (Makay, 1980). However, existing studies have generally been conducted on students from different fields, and a similar quantitative study focusing on translation students has yet to be found in the literature, highlighting a research gap in this area.

The curriculum of the case in hand, i.e., the Department of English Translation and Interpreting at Kırklareli University, where the present study was conducted, offers courses on professional awareness and CAT and AI-powered translation tools. The compulsory courses include Specialized Translation (offered every semester starting from the 4th semester), Computer-Aided Translation Tools (5th semester), and Editing and Proofreading (6th semester), while the elective courses include Localization (6th semester) and Professional Competencies (6th semester). These courses are taught by experienced scholars in translation studies and software engineering. Starting from the second year, students receive intensive training in both the translation profession and translation technologies, especially during their third year.

Within this framework, the primary objective of this research is to evaluate the occupational career awareness of translation students of Kirklareli University and their levels of AI-related anxiety in the context of translation processes, as well as to analyze the relationship between these two variables using multiple data collection methods. The study aims to determine if translation students have concerns about securing future employment due to AI, evaluating the role of AI anxiety in their career awareness and expectations by analyzing survey data and focus group interviews. Furthermore, the study investigates how frequently and for what purposes translation students use AI-powered translation tools and their perspectives on the future of the translation profession. Another aim of the study is to understand how students utilize AI and

CAT tools and their level of awareness regarding these technologies. Ultimately, the goal is to bridge the gap between students' career expectations and goals within the evolving translation market shaped by technological advancements.

The research questions guiding this study are as follows:

**Research Question 1:** What is the awareness level of translation students regarding AI-powered translation tools, and which tools do they use?)

**Research Question 2:** What are the levels of occupational career awareness and AI anxiety among translation students, and is there a relationship between these variables?

**Research Question 3:** What are the perceived occupational opportunities and threats related to AI-powered translation tools among translation students?

**Research Question 4:** What are the expectations of translation students at different years of study regarding the use of AI-powered translation tools and their careers?

Before presenting the findings related to these research questions, a literature review on AI-related anxiety among translators and the methodology of the study will be provided.

## 2. AI Anxiety Among Translators

AI anxiety (AIA), which can be described as the panic and tension felt in response to the advancement of artificial intelligence, brings concerns about independence and feelings of uncertainty due to the rapid development of technology (Johnson and Verdicchio, 2017; Wang and Wang, 2022). If this state of anxiety persists, individuals may find themselves unable to perform tasks that require the use of AI or technology in general (Johnson and Verdicchio, 2017). Consequently, this situation may place individuals at a disadvantage both socially and professionally.

A review of the literature reveals that studies predominantly focus on the impact of AI and computer-aided translation (CAT) tools on translation processes and efficiency (Mihalache, 2021; Cadwell, O'Brien, and Teixeira, 2018; Mitchell and Raley, 2018; Frey and Osborne, 2017; Moorkens, 2017; Şahin, 2015; Korkmaz and Acar, 2017). However, as noted by Vieira (2020), there is a limited number of studies investigating the anxiety, future expectations, and career goals of translators and translation students in response to the rise of AI. Ren (2022) highlighted that the pressure and anxiety experienced by translators could lead to physical and psychological issues in the long term.

A quantitative survey conducted by Kirov and Malamin (2022) among 188 translators in Bulgaria found that while there was AI-related anxiety among Bulgarian translators, the data did not support the notion that AI tools would completely replace translators. In the sample, 52% of the translators stated that they felt "somewhat threatened" by AI technologies, 31% reported feeling "not threatened," and 17% expressed feeling "highly threatened." The study's findings and data from translators suggest that rather than eliminating jobs, AI is expected to transform the field by creating new opportunities in areas such as post-editing, AI-powered translation tool management, AI training, and project management.

The assumption that the rise of machine translation, and especially AI, will eliminate language barriers or the need for translators is hasty and does not reflect the full reality (Ross, 2016; Şahin, 2023). For instance, as Kirov and Yordanova (2020) point out, the introduction of AI technologies has not eradicated translation jobs but has instead reshaped them, increasing opportunities in part-time work and post-editing. Similarly, according to Çetiner (2019) and Pekcoşkun (2023), machine translation applications are not yet capable of producing publishable translations without human intervention. In this context, new job opportunities have emerged in the form of pre-editing, post-editing, and more.

Other recent studies by Wang (2023) adopted a more optimistic perspective, suggesting that the integration of AI technologies into translator education can enhance efficiency. Wilson et al. (2017) also argued that AI can help reduce translation errors, which could have positive effects on both the translation process and the well-being of translators. As evidenced by the literature, AI and CAT tools have a multifaceted impact on the translation profession and the anxiety levels and career expectations of translators and translation students, making it a topic worthy of scientific investigation.

No studies in the Turkish literature have explored the potential anxiety, future expectations, and career goal changes of translators and/or translation students due to the widespread adoption of AI-powered translation tools. This gap in the literature indicates a significant research deficiency. Furthermore, existing international studies primarily focus on measuring the AI anxiety levels of professional translators. In contrast, there is a lack of comprehensive research addressing the concerns and career expectations of translation students at the threshold of entering the profession.

In this context, the present study aims to fill this gap in the literature by employing both quantitative (survey data collection and analysis) and qualitative (focus group interviews) research methods to gather data from translation students at different levels of study.

## 3. Methodology

A multimethod approach has been adopted within the scope of this research, combining both quantitative and qualitative data collection and analysis to ensure a comprehensive understanding of the research problem. The rationale for adopting a multimethod approach lies in its potential to provide a more nuanced interpretation of participants' perceptions of AI and career awareness. Specifically, the first phase of the study is based on the quantitative evaluation of survey results. In this phase, only the questions regarding the challenges in the translation profession and future opportunities are open-ended, and the responses to these questions have been analyzed quantitatively. The second phase of the research is based on the qualitative evaluation of the results from the focus group interviews.

### 3.1. Participant selection

A preliminary study was conducted to determine the research population before designing the study. It was determined that 280 active students (Preparatory Class, 1st, 2nd, 3rd, and 4th-year students) are enrolled in the Department of English Translation and Interpreting at Kırklareli University. The presence of active students at all levels of study, including the preparatory class, provided a suitable basis for the research. It has been calculated that, in a sample of 280 people, reaching 163 individuals is sufficient to represent the research population with a 95% confidence level and a 5% margin of error.[1] Following the survey distribution, 172 responses were collected, of which 166 were deemed valid for analysis, thus achieving an adequate sample representation.

### 3.2. Measurement tools

The first section of the survey form includes demographic and occupational questions. The demographic questions aim to gather basic information such as participants' ages, genders, and the year of study. The occupational questions are designed to determine whether students have previously worked as paid translators, which AI and CAT tools they use for translation, and their intentions to pursue a translation career after graduation. The inclusion of these questions allows for a contextual understanding of the respondents' backgrounds and their occupational aspirations.

The second section of the survey form includes the Artificial Intelligence Anxiety Scale developed by Wang and Wang (2019) and adapted into Turkish with validity and reliability studies conducted by Terzi (2020), as well as the Occupational Career Awareness Scale with validity and reliability studies in Turkish conducted by Yaşar and Sunay (2019). The Artificial Intelligence Anxiety Scale consists of four sub-

[1] https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=5&pp=50&ps=280&x=Calculate

dimensions: learning, job replacement, sociotechnical blindness, and AI configuration. The learning dimension focuses on the anxiety experienced while learning to use AI applications, the job replacement dimension addresses the perceived threat of job loss due to AI applications, the sociotechnical blindness dimension concerns the anxiety experienced by individuals who fail to recognize that AI applications function through collaboration between humans and social institutions, and finally, the AI configuration dimension examines the anxiety of individuals who find humanoid AI products or applications frightening and intimidating. The scale consists of a total of 21 items, with no reverse-coded items (CA=0.933).

The Occupational Career Awareness Scale includes a total of 18 items distributed across four dimensions: Occupational Development Inclination (6 items), Occupational Readiness (4 items), Occupational Awareness (4 items), and Occupational Confidence (4 items). The occupational development inclination dimension measures individuals' awareness of institutions and new trends in their career fields. The occupational readiness dimension assesses their level of preparedness for entering the job market, the occupational awareness dimension evaluates their awareness of career development, and the occupational confidence dimension measures their self-confidence in an occupational sense. There are no reverse-coded items in the scale (CA=0.912).

### 3.3. Data collection

All data collection procedures were conducted between January and April 2024. The survey was conducted both online and offline on a voluntary basis with student consent. Before administering the survey, the scope, aim, and scientific nature of the research were explained to the participants. Following the survey implementation, a focus group interview was conducted with a total of 10 students. The focus group participants were selected considering differences in levels of study, including students from the preparatory class, 1st, 2nd, 3rd, and 4th-year students. The group included students with extensive experience using AI and CAT tools, as well as those with limited or no experience. This approach allowed the study to examine the differences in anxiety between students with varying levels of experience and evaluate these differences by the year of study. The focus group interview was structured to last approximately 45 minutes, with key thematic areas identified beforehand to guide the conversation. The interview was recorded with the consent of participants and subsequently transcribed to ensure accuracy in analysis. The focus group interview addressed students' thoughts and experiences regarding AI-powered translation tools, their potential occupational anxieties, career goals, perspectives on the future of the translation profession, and their evaluation of the education they have received in light of technological advancements.

### 3.4. Data analysis

The analysis was conducted using the SPSS software package, which is widely recognized for its comprehensive statistical capabilities. Descriptive statistics were carefully computed and presented to provide a clear overview of the data characteristics. Given that the data exhibited a non-normal distribution, a non-parametric correlation analysis was appropriately employed to assess the relationships between the variables without the assumptions required for parametric tests. Furthermore, the qualitative data collected from the focus group interviews were meticulously analyzed using MAXQDA Analytics Pro 2020 software, which is specifically designed for qualitative research and provides robust tools for coding and interpreting textual data.

### 3.5. Ethical approval

Ethical approval for all phases of the research was obtained from the Kırklareli University Scientific Research and Publication Ethics Committee, as documented in approval number E-35523585-302.99-102926 dated 07.11.2023. In accordance with ethical standards, all data sets collected during the research have been preserved to uphold the principles of participant anonymity and to ensure the confidentiality of personal information, thereby safeguarding the interests and privacy of all individuals involved in the study.

## 4. Findings

### 4.1. Demographic and occupational data

The English Translation and Interpreting Department at Kırklareli University comprises five years of study, including the preparatory year. The survey achieved a balanced participation across different years, with the highest representation from preparatory and senior-year students. The study population consists of 280 undergraduate students. A total of 170 students voluntarily participated in the survey, and 166 valid responses were included in the analysis, reaching 59% of the target population. Participants' ages range from 18 to 33 years, with an average age of 21.

**Table 1. Demographic and Occupational Characteristics**

| | **Frequency (n)** | **Percentage (%)** |
|---|---|---|
| Gender | | |
| Female | 90 | 54.2 |
| Male | 73 | 44.0 |
| Other | 3 | 1.8 |
| **Year of study** | | |

| | | |
|---|---|---|
| Preparatory | 46 | 27.7 |
| 1st Year | 29 | 17.5 |
| 2nd Year | 28 | 16.9 |
| 3rd Year | 23 | 13.9 |
| 4th Year | 40 | 24.1 |
| **Intention to pursue translation career** | | |
| Yes | 86 | 51.8 |
| No | 14 | 8.4 |
| Unsure | 66 | 39.8 |
| **Use of CAT tools** | | |
| Yes | 101 | 60.8 |
| No | 65 | 39.2 |
| **Paid translation experience** | | |
| Yes | 28 | 16.9 |
| No | 138 | 83.1 |
| **Total** | 166 | 100 |

When asked whether they intend to pursue a career in translation after graduation, 51.8% of the participants responded "yes," 39.8% were "unsure," and 8.4% answered "no." These findings indicate that more than half of the students enrolled in the Translation and Interpreting program aspire to become translators, while a portion of the undecided students may also consider entering the profession in the future.

*(Research Question 1: What is the awareness level of translation students regarding AI and CAT tools, and which tools do they use?)*

Regarding their areas of interest, 114 students expressed an interest in technical translation, i.e., non-literary translation, including specialized translation and localization, 81 in literary translation, and 65 in interpreting. When asked if they had previously used any CAT, MT, and AI tools, 101 students responded "yes," while 65 indicated "no." This suggests that the use of translation tools is prevalent, particularly as part of coursework assignments. As mentioned previously, the department offers courses on CAT tools and localization in the fifth and sixth semesters, taught by field experts.

Concerning paid translation experience, 28 students reported working as paid translators, whereas 138 did not, which means only a small proportion of students have engaged in translation work during their

studies. A closer analysis of the survey results reveals that female students exhibit higher levels of anxiety regarding AI compared to their male counterparts, and their occupational awareness is also higher. However, no significant variation in AI anxiety or career awareness was observed across different years of study. The findings also indicate that students who are aware of the potential future impact of AI developments are those who intend to pursue a career in translation.

The analysis further showed no significant difference in AI anxiety levels between students who use AI, CAT and MT tools and those who do not. The most frequently used tool among students is DeepL (65 students), followed by SmartCAT (24 students), ChatGPT (17 students), Google Translate (13 students), MateCAT (11 students), and MemoQ (11 students). Furthermore, 59 students indicated that they do not utilize any translation tools. About one-third of the students employ DeepL, another third refrain from using any translation tools, while the final third incorporates a range of other tools. This suggests that a significant number of students possess a strong awareness of translation tools and consistently stay updated on new advancements in the field.

### 4.2. The Relationship between AI Anxiety and Occupational Career Awareness

*(Research Question 2: What are the levels of occupational career awareness and AI anxiety among translation students, and is there a relationship between these variables?)*

**Table 2. Descriptive Statistics**

| Sub-dimensions | Mean | Standard Deviation |
|---|---|---|
| Learning | 2.33 | 0.87 |
| Job replacement | 3.36 | 0.99 |
| Sociotechnical Blindness | 3.30 | 0.92 |
| AI Configuration | 2.82 | 1.17 |
| AI Anxiety | 2.86 | 0.76 |
| Occupational Development and Awareness | 3.31 | 0.72 |
| Occupational Readiness | 3.14 | 0.89 |
| Occupational Consciousness | 3.75 | 0.80 |
| Occupational Self-confidence | 3.16 | 0.82 |
| Occupational Awareness | 3.34 | 0.66 |

To investigate the research questions, we assessed students' concerns about AI and their awareness of career opportunities. Descriptive statistics in Table 2 provide mean scores for the AI Anxiety and Occupational Awareness scales and their sub-dimensions, measured on a 5-point scale. Scores are classified as follows: 5.00-4.20 (Very High), 4.19-3.40 (High), 3.39-2.60 (Moderate), 2.59-1.80 (Low), and 1.79-1.00 (Very Low). Analysis reveals that students' occupational awareness levels are higher than their AI anxiety levels, with the most significant concerns related to job market stability and career prospects. Moreover, students exhibit low levels of anxiety regarding their ability to master AI-powered tools, reflecting their confidence and enthusiasm in adapting to new technologies.

The main concern about AI relates to the job market and career transitions. It is noted that the prevailing narrative suggesting that "artificial intelligence will replace translators" and similar technological advancements somewhat troubles students. Nonetheless, they exhibit minimal anxiety about mastering and effectively using AI-powered translation tools. This generation, often called digital natives, appears more assured and willing to embrace new technologies. Additionally, survey findings reveal that students possess a strong sense of occupational awareness and an even greater level of occupational consciousness. This can likely be attributed to the professionalization-related courses and career activities integrated into the curriculum. The comparatively lower ratings in occupational self-confidence and readiness may be linked to the small number of students who have entered the paid translation market far.

The next stage of the study focuses on the relationship between AI anxiety and occupational career awareness among students. As the data did not meet the normality assumption, as indicated by skewness and kurtosis values outside the acceptable range of -2 to +2 (George & Mallery, 2010), non-parametric statistical methods were used. Non-parametric methods do not rely on assumptions of normality and are suitable for analysing data that deviate from a normal distribution. In this case, non-parametric correlation analysis was used to assess the relationships between the variables. This approach ensures that the analysis remains robust and valid even when the data do not follow a normal distribution. The coefficient scores presented in Table 3 range between 0 and 1, with the following interpretation for the connection between dimensions:

- 0.00–0.20: Very low
- 0.21–0.40: Low
- 0.41–0.60: Moderate
- 0.61–0.80: High
- 0.81–1.00: Very high

**Table 3. Correlation Table (*p<0.01, p<0.05)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **1. Learning** | 1 | | | | | | | | | |
| **2. Job Replacement** | 0.455** | 1 | | | | | | | | |
| **3. Sociotechnical Blindness** | 0.368** | 0.685** | 1 | | | | | | | |
| **4. AI Configuration** | 0.471** | 0.545** | 0.669** | 1 | | | | | | |
| **5. AI Anxiety (Average)** | 0.801** | 0.835** | 0.775** | 0.769** | 1 | | | | | |
| **6. Occupational Development and Awareness** | -0.019 | 0.099 | 0.181* | 0.089 | 0.085 | 1 | | | | |
| **7. Occupational Readiness** | 0.020 | -0.027 | 0.037 | 0.073 | 0.023 | 0.555** | 1 | | | |
| **8. Occupational Consciousness** | 0.089 | 0.267** | 0.301** | 0.218** | 0.250** | 0.547** | 0.491** | 1 | | |
| **9. Occupation** | 0.013 | -0.087 | 0.029 | 0.100 | 0.001 | 0.605** | 0.675** | 0.538** | 1 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **al Confidence** | | | | | | | | | | |
| **10. Occupational Awareness (Average)** | 0.027 | 0.076 | 0.167* | 0.141 | 0.106 | 0.848** | 0.824** | 0.767** | 0.847** | 1 |

A careful review of the statistical data reveals no significant relationship between AI anxiety and occupational awareness. Consequently, there is no evidence that greater occupational awareness alleviates AI anxiety. These findings suggest that the two variables function independently. Focusing on AI, it seems that fears about job displacement and job hunting are the main triggers of AI anxiety. Conversely, regarding occupational awareness, a boost in occupational self-confidence emerges as the most influential factor affecting it.

### 4.3. Focus group interviews: Student perceptions of opportunities and threats

*(Research Question 3: What are the perceived occupational opportunities and threats related to AI-powered translation tools among translation students?)*

In response to open-ended questions, students highlighted several challenges related to pursuing a career in translation. A significant portion of participants expressed concerns about competition from individuals without formal translation training, which creates pressure to distinguish themselves and justify higher fees. The lack of occupational certification and comprehensive translator organizations contributes to concerns about "unfair competition" in the industry.

> "While striving to establish originality in the field of literary translation, we may face various criticisms and even legal scrutiny as translators. This concern about maintaining originality discourages us from deviating from machine translation suggestions."

Students also emphasized the difficulty of establishing a foothold in both technical and literary translation. They think that even those who establish themselves as literary translators face challenges in securing a consistent workflow. Thus, many students are hesitant to pursue a career in literary translation due to financial concerns, despite perceiving AI as inadequate in this field. Additionally, students reported feeling caught between the advancing capabilities of AI in technical translation and their occupational aspirations.

> "I love literary translation, but I know it's not sustainable unless you're already well-known. Most of us won't get regular projects in that field. At the same time, technical translation is becoming more automated, and I worry there won't be enough work left for us."

When asked about potential career opportunities, students highlighted the versatility of a degree in English Translation and Interpreting. They noted that translation offers diverse career pathways, allowing them to explore different sectors beyond traditional translator roles. Moreover, students acknowledged that their education provides a broad social and cultural perspective, positioning them as valuable assets in various occupational settings.

> "Even if I won't work as a full-time translator, I feel that this department gives me skills I can use anywhere like communication, intercultural awareness, and critical thinking. I'm considering roles in publishing or international NGOs because translation isn't the only path anymore."

### 4.4 Focus group interviews: Translator education and changing expectations

(*Research Question 4: What are the expectations of translation students at different years of study regarding the use of AI-powered translation tools and their careers?*)

Focus group interviews were conducted with students to expand on the survey findings. As anticipated, third and fourth-year students displayed a strong awareness of AI-powered translation tools. In contrast, preparatory and first-year students indicated that they had limited knowledge about these translation tools and primarily answered questions based on assumptions.

> "In preparatory and first-year classes, we only used computer-aided translation tools to make texts more understandable, not for actual translation."

Overall, students underlined that enrolling in courses on AI, MT, and CAT tools during the initial two years of their studies may increase the curriculum's intensity but also boost productivity. They primarily believe this would improve their opportunities for securing part-time jobs while studying.

> "When I use translation tools on my own, I feel that I cannot fully benefit from them. I need guidance to progress from scratch to an advanced level. Taking courses on AI-powered tools from the beginning of our studies could be beneficial."

Third-year students reported that they often utilize these tools for specialized translation fields and have created their own terminology databases. They also noted using machine-generated outputs for technical texts, which they then post-edit. Meanwhile, fourth-year students expressed some negative experiences, indicating that AI and machine translation tools struggle with literary texts. This ineffectiveness can increase

the translator's workload and may stifle their creativity. There was a shared agreement on the importance of prioritizing human involvement in sensitive areas like literary translation.

As students progress through their translator education, their concerns about the industry and work life increase. They expressed their feelings of financial anxiety and fear of taking risks. Innovations in the sector and the evolving role of translators have led to future-related concerns among some students.

> "Now we are close to graduation, we see the translation market is not very stable. It's not only enough to translate well; we also must think how to survive. I feel afraid to take risks like freelance work because maybe there is no safe plan if it goes wrong."

Additionally, fourth-year students pointed out concerns regarding translator rights, the need for unionization, and insufficient wages. As a result, lower-year students mainly aim to pursue careers in translation after graduation, while upper-year students consider exploring other fields, viewing translation as a supplementary skill.

> "In my first year, I was sure I wanted to be a translator. But now, I see many translators work too much and get little money. Nobody talks about translator rights or fair payment. Maybe I can use translation in another job but not as main career, like logistics etc."

The general outcome of the focus group interviews suggests that there is no significant concern regarding the future of the profession. All student groups recognize that AI tools mainly function as supportive resources for translators. More experienced students reported utilizing translation tools effectively. However, senior students approaching graduation expressed concern about insufficient AI-focused training, which has resulted in feelings of inadequacy. They highlighted the necessity to develop additional skills to distinguish themselves in the job market and surpass the average level of competence.

> "Translation will not disappear, but it will increasingly merge with editing. I believe that during job interviews, mastery of new technologies and skills will be crucial, and we will inevitably have to learn these to differentiate ourselves from competitors."

Furthermore, focus group interviews indicated that students' concerns about AI primarily arise from the challenges of learning to use AI tools effectively. This anxiety tends to intensify as they progress in their studies. While there is widespread agreement on the significance of AI-powered translation tools in the industry, students often emphasized both their advantages and limitations. Ultimately, it can be concluded that the prevalent discourse surrounding the notion that "AI will take our jobs" does not invoke despair among our participants.

"The translation services expected from the *dragomans* in the Ottoman era were different, just as they were before AI, and they will continue to evolve with technology. However, translators will always be needed in one form or another."

## 5. Discussion

This study explored the relationship between translation students' AI-related anxiety and their occupational career awareness through a multimethod approach involving validated scales and focus group interviews. This study provides an in-depth examination of the occupational career awareness and AI-related anxiety levels of students in the Department of English Translation and Interpreting at Kırklareli University. The findings, though limited to one case, contribute to a growing yet underdeveloped body of literature addressing how students in translator education perceive technological disruption and career trajectories.

The statistical findings indicate that translation students' AI anxiety is not at a level that negatively impacts their occupational outlook, while their occupational career awareness is notably high. Furthermore, no statistically significant relationship was found between AI anxiety and occupational awareness, suggesting that these two variables operate independently. The independence of these factors may stem from the unpredictable future of AI technologies, which limits students' confidence in their career stability regardless of their awareness levels.

The findings revealed that students across all years of study demonstrated moderate to high awareness of AI-powered translation tools, with DeepL, SmartCAT, and ChatGPT among the most commonly used. This aligns with Gene et al. (2024), who observed increasing reliance on hybrid AI-CAT workflows in educational settings. However, early-year students lacked structured training, supporting Wang's (2023) conclusion that AI tool literacy often remains informal or instructor-dependent at the undergraduate level. Furthermore, students' tool use did not significantly predict AI anxiety. However, qualitative data suggested that students with hands-on experience exhibited greater confidence in managing translation technologies, highlighting the roles of perceived ease of use and utility in reducing resistance to new technologies.

Quantitative findings revealed no notable statistical link between AI anxiety and awareness of occupational careers, contradicting previous assumptions in studies like that of Şimşek and Karahüseyinoğlu (2024), which suggested a negative relationship between clarity in career choices and future anxiety. Our results indicate that various cognitive and experiential factors, including digital exposure, career progression, and self-efficacy, might independently affect both AI anxiety and career awareness. Interestingly, while students expressed confidence in their ability to learn and adapt to AI tools (low

learning-related anxiety), they were more anxious about job replacement and employment uncertainty, which is a pattern previously documented by Kirov and Malamin (2022) and echoed in Ren (2022), who linked AI anxiety to professional identity destabilization.

Moreover, students saw AI as both an opportunity and a threat. The competitive translation market and the absence of certification standards were seen as greater threats than AI alone. These concerns mirror findings from Mihalache (2021) and Vieira (2020), who emphasized that translators' anxiety often stems from broader structural precarity rather than from AI directly. At the same time, many participants recognized the potential for new roles in post-editing, tool training, and localization project management, foreshadowing an outlook supported by Mbotake (2024), who suggested that training translators not just in translation, but in post-editing and tool usage, preparing them for management-oriented roles in localization workflows.

Moreover, their perceptions of AI shifted as students advanced through the program. Upper-year students indicated a desire for earlier and more structured instruction in CAT and AI technologies. Their responses echo Tang (2020) and Wang (2023), who found that structured AI integration into the curriculum increases confidence and reduces career anxiety. Furthermore, senior students raised concerns about the profession's changing identity, calling for more attention to unionization, ethical considerations, and long-term employability. This reflects He's (2024) findings on career exits among translation graduates in China, suggesting that failing to update educational frameworks may contribute to attrition from the field, which in turn will adversely impact the sustainability of the translation profession.

## 6. Conclusion

The results of the study demonstrated that while AI-related anxiety exists, particularly regarding job security and labor market competition, it does not correlate statistically with career awareness levels. Students overall expressed high occupational awareness, yet exhibited variable confidence in applying AI tools, particularly among students at lower levels of study. The focus group data revealed that students' anxiety is more closely tied to perceptions of insufficient institutional preparation than to the technology itself. This suggests that pedagogical design, rather than the pace of technological change, may play a more direct role in shaping students' professional outlook.

One of the key takeaways from this study is the urgent need to restructure translation education curricula to introduce AI and CAT tools earlier in the academic timeline. Students clearly identified structured, progressive exposure to translation technologies as both a confidence-builder and a career enabler. In practical terms, this means embedding mandatory AI-focused modules by the second year,

offering cross-disciplinary workshops in collaboration with computer science or software engineering departments, and simulating real-world translation workflows that combine CAT tools, post-editing tasks, and ethical problem-solving scenarios. Despite the absence of a direct statistical link between occupational awareness and AI anxiety, it is important to consider potential mediating variables such as prior exposure to AI tools, institutional support mechanisms, and evolving industry demands. Future research could explore these factors through longitudinal studies to gain a more comprehensive understanding of how students' perceptions of AI evolve over time.

The limitations of this study include its single-institution sample and cross-sectional design, which may limit generalizability. Further research is recommended across diverse institutions and over longer timescales to track changes in student perceptions. It may also be useful to explore how individual differences (such as personality traits, digital literacy, and prior tech exposure) moderate the relationship between AI anxiety and career preparation. Still, the findings of this study offer valuable insights for future research and curriculum development aimed at addressing the challenges posed by AI in the field of translation. Moreover, collaboration between academia and industry stakeholders is crucial to ensuring that translation graduates are equipped with the necessary skills to navigate an AI-driven occupational landscape.

In conclusion, this study contributes to the growing body of literature on translator education and AI by shedding light on students' career perceptions and concerns. By integrating AI-focused educational strategies and fostering occupational self-confidence, translator education and training programs can better equip students for future challenges, helping them to approach their careers with a more informed and resilient outlook.

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