

# Breaking Traditional Boundaries in Translation Pedagogy; Evaluating How Senior Lecturers Have Incorporated Digital Tools to Enhance Translation Teaching

Mohamad Ahmad Saleem Khasawneh<sup>1</sup>, & Adawiya Taleb Shawaqfeh<sup>2</sup>

<sup>1</sup> Assistant Professor, Special Education Department, King Khalid University, Saudi Arabia

<sup>2</sup> Associate Professor, English Language and Literature Department, Jadara University, Jordan

Correspondence: Mohamad Ahmad Saleem Khasawneh, Assistant Professor, Special Education Department, King Khalid University, Saudi Arabia. E-mail: mkhasawneh@kku.edu.sa

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## Abstract

Digital technology has brought significant transformation in translation pedagogy, mainly in helping lecturers integrate digital tools in teaching translation courses. However, it is significant to gain insights from the experiences of the senior lecturers who are gradually accepting the integration of technology in translation pedagogy. The focus of this paper is to gain insights from Professors in translation pedagogy on their challenges in transiting from traditional teaching systems to digital technological systems, also sharing their solutions to the challenges. Through the use of both survey questionnaires and semi-structured interviews, data was gathered from 93 extensively experienced professors in translation. The gathered data was analyzed using thematic analysis and statistical measures. The results of the data from the interviews showed four main themes, including the theme of transition challenges, the theme of assessment and evaluation challenges, the theme of inclusion and accessibility in digital technology, and the theme of actions the professors had taken in digital technology. The professors confirmed actions such as "finding appropriate online platforms that allowed for real-time cooperation" (Professor 2), "using virtual translation technologies that enabled real-time collaboration on documents" (Professor 5), and "encouraging collaborative translation exercises in real-time Google Docs" (Professor 2)". The data from the survey questionnaire unveiled specific ways in which digital tools have assisted the senior lecturers in teaching translation courses, including teaching materials for translation courses are now prepared more quickly due to AI technologies, and automated grading systems driven by AI have reduced assessment time and generated feedback for students' translation projects. The Professors generally accepted the impacts of technological advancements, mainly AI tools, in teaching translation and improving the general performance of the learners.

**Keywords:** Digital technology, translation pedagogy, teaching translation

## 1. Introduction

The purpose of this article is to provide insight into how translation pedagogy is evolving through the incorporation of digital tools by senior lecturers in teaching translation courses. It also offers an outlook on how translation pedagogy experts can incorporate digital tools in the future to mold the next generation of translators. In the field of translation education, the dramatic transition from conventional pedagogical approaches to AI-driven teaching systems marks a turning point for academic research. In the past, translation teaching mainly relied on traditional methods that emphasized manual translation methods, language competency, and cultural awareness. Nonetheless, a paradigm shift has occurred with the introduction of sophisticated AI tools, calling into question the fundamentals of translation education. Today's lecturers must navigate a complex digital environment that includes machine learning algorithms, neural networks, and real-time language processing. They are no longer limited to traditional textbooks and classroom environments. Studies like Ducar and Schocket (2018), which show the complex interactions between machine translation and language learning—a juxtaposition unthinkable in the traditional teaching environment—underline this evolution.

The experiences of senior lecturers are especially important in this setting. It is now the responsibility of these experienced lecturers, who have endured the ups and downs of educational evolution, to embrace and adjust to the complex nuances of AI-driven teaching systems. Their journey represents a shift in the educational landscape as a whole. It is a story that covers the potential benefits of enhancing the educational experience in addition to the difficulties of integrating technology. Al-Batineh and Bilali (2017) highlighted the vital necessity of curriculum alignment with the ever-changing demands of the language industry—demands that are amplified in the AI era.

The need to comprehend the coping mechanisms and strategies senior lecturers have implemented in response to this wave of AI integration serves as the driving force behind this study. Senior lecturers are at the nexus of tradition and innovation, having spent their academic careers immersed in conventional methods. This study aims to clarify the intricacies of this intersection by providing a comprehensive analysis of the difficulties these lecturers encounter (El-Boubeki, 2023; Nguyen, 2019; Treve, 2021). Through understanding their

experiences, this study seeks to extract important lessons that can guide translation pedagogy going forward. Both Montiel et al. (2020) and Marczak (2018) highlight how technology is changing education and how important it is to understand how teachers, especially senior lecturers, are navigating this new technological landscape.

This study aims to identify the creative strategies senior lecturers use to bridge the gap between traditional methods and digital innovation, as well as to investigate the specific challenges they face when switching from traditional teaching methods to AI-driven systems. This research is important not only for academics but also for institutions and lecturers who are navigating similar changes because it provides a road map. Through the clarification of senior lecturers' experiences, this study offers complex viewpoints that can guide curriculum development, policy formation, and teacher preparation initiatives. Educational institutions can create a pedagogical environment where the combination of human expertise and AI technologies enhances the learning process by using the insights gained from this exploration. The work of Shen (2017), which highlights the impact of artificial intelligence on teaching and learning in higher education and emphasizes the need for empirical studies to inform educational practices, highlights this transformative potential.

## 2. Related Literatures

### 2.1 A Historical Review of How Translation Pedagogy Has Evolved

Historically, the act of translating has been crucial in bridging cultural divides and promoting communication between people of different backgrounds and languages (Kim, 2019; Nasi, 2018; Bo, 2023). Classical pedagogical approaches, which are based on linguistic and cultural competence, provide the bedrock of today's translation pedagogy (Cheng, 2022; Ciu, 2015). Ancient cultures like those of Egypt and Mesopotamia understood the need to have linguists on hand. Particularly important in the fields of religion and government, these linguists performed pivotal roles in decoding and transforming written texts (Al-Batineh & Bilali, 2017). The demand for professional translators grew as civilizations expanded, and this stimulated the emergence of systematic approaches to translating across languages. Classical languages and an interest in translating ancient works saw a renaissance during the Renaissance (Cheng, 2022; Shen, 2017; Xin, 2022). Notable translators like Erasmus of Rotterdam and scholars in the humanist tradition may be responsible for the development of translation studies as a field of study. In their writings, these experts emphasized the value of linguistic correctness, fidelity to the source material, and interpretive expertise. Kingery (2017), Lee (2023), and Liang (2022) provide examples of how these ideas have influenced the development of translation education throughout time.

The discipline of translation studies underwent a dramatic upheaval in the 20th century, spurred on by influential texts and pioneering scholars. Scholars of translation have been interested in the structural elements of both the source and target languages ever since the emergence of Structuralism in the field of linguistics, pioneered by Ferdinand de Saussure (Jimenez Crespo, 2015; Jing, 2023; Gaspari et al., 2015). The scholar Eugene Nida gave the idea of dynamic equivalence a lot of attention. His translation strategy took into account more than just linguistic equivalents, including cultural context and practicality. Skopos theory, created by Hans Vermeer, also called attention to the value and function of translations in specific contexts, calling into question the viability of generic translation strategies (Marczak, 2018; Manginon, 2021; Man et al., 2020). The aforementioned theoretical frameworks have laid the groundwork for modern translation education by providing instructors with advice on how to include many methods that adequately reflect the complexities of the translation process.

The development of computer-assisted translation (CAT) tools and machine translation (MT) systems is another evidence of the digital age's impact on translation pedagogy (Cheng 2022; Bo 2023; Kim 2019). Students' engagement with texts has undergone radical change as a result of the widespread use of technology in translation lessons from the late 20th and early 21st centuries. Lecturers have begun investigating these technologies' potential, aiming for a middle ground between traditional translation skills and technological know-how. Bo (2023) analyzes ethical worries in literary translation in the age of AI and demonstrates how this trend coincided with a growing interest in the moral implications of machine translation.

The discipline of translation pedagogy has evolved, and with it, the challenge of preparing students to succeed in a more interconnected and globalized society. Ducar and Schocket's (2018) study demonstrates that the use of translation technology requires a rethinking of established instructional models. The senior faculty had the difficult task of navigating this transformation by drawing on their vast experience and learning to use new methods (Ducar & Schocket, 2018). This study by Gaspari, Almaghout, and Doherty (2015) highlights the growing importance of technical knowledge in the area of translation education by providing insights into the abilities necessary for machine translation. Classical foundations, theoretical advancements, and the integration of digital technology have all contributed to the evolution of translation teaching throughout time. This exemplifies how rapidly this academic sector is changing, which has a profound impact on the interactions between educators and their students.

### 2.2 The Rise of AI in Translation Pedagogy

Within the ever-changing realm of translation pedagogy, the advent and progression of Artificial Intelligence (AI) technology have catapulted the discipline into unstudied domains, radically transforming the methodologies used in language teaching and translation practices. The core of this change is centred on the advancement of machine translation technologies (Jing, 2023; Lee, 2023; Mellinger, 2017). Machine translation has always encountered criticism as a result of its initial limitations. Nevertheless, the emergence of statistical machine translation (SMT) was a notable advancement. Pioneering research, such as the study conducted by Kenny and Way, has focused on the pedagogy of machine translation and translation technology. The foundational work of Kenny and Way (2001) established the basis for comprehending the computational intricacies involved in the process of translation. Throughout its development, the profession has seen a significant change in perspective with the emergence of neural machine translation (NMT), an innovative methodology that utilizes neural

networks for text translation (Nasi, 2018; Xin, 2022; Peng, 2019). The noted advancement, as shown in the scholarly work conducted by Ng et al. (2023) on the subject of AI teaching and acquisition between 2000 and 2020, significantly improved the precision of translation, thus narrowing the disparity between human linguistic proficiency and automated efficacy.

The science of Natural Language Processing (NLP) plays a crucial role in the AI-driven reform of translation pedagogy (Xu & You, 2021; Bo, 2023). Natural Language Processing (NLP) approaches have been widely studied in research, such as the study conducted by Shadiev and Huang (2020) on student attention and cognitive load during lectures, which was assisted by speech-enabled language translation (Shadiev & Huang, 2020). These techniques allow computers to understand and produce human language. The integration of sentiment analysis, named entity identification, and language production into translation classrooms has been seen to enhance the quality of teaching and learning experiences (Cui, 2015; Kim, 2019). The capabilities of these applications are enhanced by the progress made in neural networks, deep learning algorithms, and semantic analysis. This progress has led to a new era where machines can understand the context, subtleties, and cultural complexities that are essential in translation. These aspects were previously thought to be unique to human translators (Shen, 2017; Peng, 2019).

In addition to conventional machine translation, artificial intelligence (AI)--based applications have become prevalent in several aspects of language teaching and translation procedures. An area of significance is the use of Computer-Assisted Translation (CAT) tools, as examined in the research conducted by Man, Mo, Chau, O'Toole, and Lee (2020) about the adoption of translation technology in a postgraduate program in China (Man et al., 2020).

The inclusion of AI technology in the field of translation pedagogy extends to the domains of Virtual Reality (VR) and Augmented Reality (AR). Lecturers are now investigating immersive environments as a means for students to engage in translation exercises within realistic contexts, hence facilitating priceless experiential learning opportunities. The authors Hubscher-Davidson and Devaux (2021) argue that the adoption of virtual reality (VR) and augmented reality (AR) technologies, as examined in their study on teaching translation and interpreting in virtual environments, signifies a move towards comprehensive language education encounters. This shift entails learners actively participating in diverse language and cultural activities. Moreover, the integration of AI technology in collaborative translation platforms has facilitated seamless collaboration among students, overcoming geographical limitations and promoting the formation of global communities of language learners. The integration of artificial intelligence technology in language teaching and translation processes has led to a convergence of human knowledge and machine capabilities, therefore challenging conventional understandings in this field (Jing, 2023; Lee, 2023; Nasi, 2018).

### *2.3 A Review of How Digital Technologies Have Transformed Translation Pedagogy*

Digital technology has transformed the teaching and learning of many courses at the university level. The core of this influence lies in the development of machine translation tools, a progression that has been well documented in scholarly research, including the seminal study conducted by Kenny and Way (2001). Machine translation has undergone continuous evolution, progressing from simple rule-based translation to advanced neural machine translation (NMT) systems (Jing, 2023). Throughout this development, machine translation has consistently improved its accuracy and efficiency.

The integration of statistical machine translation (SMT) with neural networks, as investigated by Ng et al. (2023), has significantly improved the accuracy of translated texts, therefore blurring the conventional distinctions between human-generated and machine-generated content. Natural Language Processing (NLP) has emerged as a pivotal factor in this influence, radically transforming the understanding and generation of language. The study conducted by Shadiev and Huang (2020) serves as an example of the incorporation of natural language processing (NLP) in the domain of real-time language processing, specifically focusing on speech-enabled language translation. The multifarious uses of natural language processing (NLP), including sentiment analysis, machine understanding, and language production, have significantly impacted translation education. This influence is evident in the research conducted by Montiel, Delgado-Ceballos, Ortiz-de-Mandojana, and Antolin-Lopez (2020). These applications facilitate the ability of computers to not only comprehend the grammatical structure of a language but also to understand the surrounding context, nuanced nuances, and cultural intricacies, therefore achieving a level of expertise comparable to that of human translators.

The study undertaken by Man, Mo, Chau, O'Toole, and Lee (2020) provides evidence of the broader influence of AI-driven applications on Computer-Assisted Translation (CAT) technologies. Computer-assisted translation (CAT) systems, formerly limited to providing translation ideas, have evolved to include contextual analysis and real-time suggestions, so enhancing human translation efforts. Furthermore, the use of artificial intelligence (AI) in collaborative translation platforms has facilitated the overcoming of geographical limitations and the establishment of worldwide communities consisting of language learners and experts (Hubscher-Davidson & Devaux, 2021; Lee, 2023; Xin, 2022). Collaborative platforms serve to improve the learning experience and also reflect the collaborative character seen in modern translation efforts within the professional domain.

The use of Virtual Reality (VR) and Augmented Reality (AR) technology has significantly advanced the field of translation teaching by introducing immersive and interactive elements, hence facilitating experience learning. The research conducted by Hubscher-Davidson and Devaux (2021) on the teaching of translating and interpreting inside virtual settings serves as a notable demonstration of this groundbreaking advancement. Within these digital environments, individuals have the opportunity to actively participate in authentic translation situations, so facilitating the connection between theoretical understanding and real-world implementation.

### 3. Methodology and Procedures

To document the procedures for the collection and analysis of the collected, it is important to provide a breakdown of the methodological processes.

#### 3.1 Study Method

This study adopts both quantitative and qualitative methods in the analysis of the experiences of the senior lecturers in transitioning from traditional means of teaching translation courses to the more digitalized methods. There is a need to gain deductive insights into the challenges of transiting from traditional systems into digital platforms at the university level, and also explore the sentiments of the lecturers on the implications of this transition. The qualitative data is projected to further support the findings that are generated from the quantitative analysis.

#### 3.2 Research Questions

The following research questions, generated from the extensive review of related studies and the earlier-mentioned objectives, are listed below:

- I. How difficult is it for senior lecturers in translation to transition from traditional teaching methods to the use of digital tools?
- II. In what ways have AI tools helped senior lecturers in facilitating their teaching of translation courses?

These two questions form the major basis for the collection of the quantitative and qualitative data, and also the premise for the analysis of the collected data.

#### 3.3 Study Community

Lecturers are key stakeholders in global university education. They not only teach in the lecture halls; they further mould their students to effectively pursue their careers after graduation. As such, it is significant to gain insights from them on their experiences in transitioning from traditional teaching tools to the use of AI technologies in enhancing the teaching proficiency and learning abilities of their students. In addition, the lecturership is a community that embodies both young and old academic professionals. In this study, the focus is on older lecturers, mainly those who are aged between 45 years and above. This criterion does not exclude younger lecturers from participating in the study, but our main focus is on older lecturers, who we refer to in this study as senior lecturers.

#### 3.4 Study Sample

Through expert sampling techniques, a total of 93 senior lecturers in translation studies participated in the study. These are academic professionals and seasoned researchers, who must have attained the rank of full professorship or assistant professor. They were meticulously selected from various public and private universities. One major criterion for participation in the study is that the participant must be an active lecturer, currently teaching different translation courses. Another important criterion is that the lecturer must be highly ranked, to be at least an assistant or associate professor.

#### 3.5 Study Tools

For the interest of time and in consideration of the activities of the participants in this study, both the interview and survey questionnaires were used for data collection, but they were very brief. For the survey, only nine (9) survey items were included, including four demographic questions and five survey items generated from the second research question. For the interview, the participants answered only two questions that were developed from the first research question. Both the interview and the survey questionnaire are not expected to take more than 25 minutes each. In the survey, an informed consent was attached to ensure that the participants gave their consent before attending to the questions. In terms of the interview, the researchers first sent a consent form and brief explanation of the study to the five participants before conducting the interview.

#### 3.6 Analysis Procedure

The data generated through interviews are analyzed using thematic coding, wherein the recurrent themes are developed and submitted to anchor the data presentation with a brief analysis of the themes and associated data. the quantitative data was analyzed statistically.

### 4. Results and Discussion of Findings

The results of the collected data are presented in this section of the paper, with a detailed discussion of key findings.

#### 4.1 Results

The results, apart from a summary of the demographic variable, are presented in different subparts by the research questions. Table 1 below summarizes the results of the demographic variables.

Table 1. Result of Demographic Variables

Category	Variables	Frequency	Percentage
Gender	Female	21	22.58%
	Male	72	77.42%
Age	Less than 40years	3	3.22%
	41-50years	13	13.97%
	51-60years	49	52.69%
	61 years and above	28	30.11%
Years of Experience	5-9 years or less	5	5.38%
	10-14 years	27	29.03%
	15 years and above	61	72.04%
Academic Rank	Professor	71	76.35%
	Associate Prof.	16	17.21%
	Assistant Prof.	6	6.45%
	Lecturer	20	18.18%

The table presents a thorough summary of the demographic attributes of the professors surveyed. A substantial majority of the participants (77.42%) identified as male, while a notable percentage (52.69%) fell within the age range of 51-60 years. About the participants' academic background, a significant proportion of the respondents had a teaching experience of 15 years or more (72.04%). Regarding the academic hierarchy, a substantial proportion of the participants had the esteemed post of professor (76.35%). It is worth noting that the gender distribution exhibited a greater proportion of men, whilst the age distribution revealed a prevailing presence of professors belonging to the 51-60 age bracket. The data emphasizes the need to enhance diversity, especially with gender, and showcases the extensive expertise of the professors who were questioned. The majority of participants in the research occupy prestigious positions in academia, showing a group of experienced professionals.

4.1.1 Results of the First Research Question

To properly answer the first research question, mainly aimed at getting the sentiments of the professors, a series of interviews were conducted. Two major questions and the answer guide were used in conducting the interviews. They are:

- i. Could you elaborate on the particular difficulties you encountered switching from using traditional teaching techniques to digital technologies as a professor in translation? Please provide specific instances of the challenges you faced and the steps you took to overcome them.
- ii. What elements of traditional methods of teaching, in your opinion as a professor, were especially difficult to incorporate into digital tools, and why? If there were any particular teaching strategies, readings, or classroom activities that presented challenges in the digital setting, please describe them.

Appendix 1 contains the extracts from the interviews conducted. From the results of the interviews, four major themes were identified, and they form the basis of this result.

**a. The Theme of Transition Challenges**

In the interviews, the five professors confirmed that they had different forms of challenges in transitioning from traditional teaching tools to the use of digital tools in teaching translation. Expressions such as "adapting engaging in-person talks to online platforms", and "difficult to translate this interaction to digital instruments" are seen in the responses of Professors 1 and 3. Also, in the speeches of Professors 2, 4, and 5, the expressions "using group activities and cooperative initiatives was one element that was difficult to include into digital technologies", "finding appropriate online platforms that allowed for real-time cooperation", "maintaining the same level of participation online needed patience and creative thinking", and "the use of group activities and cooperative initiatives was one element that was difficult to include into digital technologies." Professor 1 specifically emphasized that "after experimenting with several technologies, I was successful in using platforms that let students work together simultaneously on papers and presentations." Professor 3 stated that "controlling group dynamics and guaranteeing equitable participation remained difficult." Lastly, Professor 5 argued that "I extended virtual office hours, promoted frequent contact among group members, and developed explicit norms for online cooperation" as a way to get used to the use of digital tools in teaching translation at the university level.

**b. The Theme of Assessment and Evaluation Challenges**

There are arrays of challenges the professors observe in the transition from traditional teaching systems to digital systems; however, the challenge of assessment and evaluation remains significant. According to Professor 2, "conversion of evaluations to a digital format", "maintaining the validity of online tests", and "Creating open-book tests that promoted knowledge application and critical thinking" are the main challenges in this regard. It is also evident in the comments of Professor 3 that "rethinking evaluation techniques was necessary as we moved to digital technologies". Professor 1 stated that "I also concentrated on creating open-book tests that promoted knowledge application and critical thinking", and "I devised online tests with a range of question types." Professor 2 further stated that "but there were concerns about maintaining the validity of online tests", "I looked into proctoring software and put in place explicit policies on academic honesty", and "Rethinking evaluation techniques was necessary as we moved to digital technologies." Professor 5 summarised that "I concentrated on creating open-book tests that promoted knowledge application and critical thinking."

**c. The theme of Inclusion and Accessibility in Digital Learning**

The Professors who participated in the interview also discussed possible solutions to the challenges they face in transitioning from traditional teaching tools to the use of digital tools in translation education. They specifically mentioned "ensuring inclusion and accessibility in the digital learning environment" (Professor 3), "course materials that are accessible" (Professor 1), "replicate in the digital realm the feeling of a shared physical area" (Professor 4), and "making the shift to digital tools required taking into account pupils with varying levels of internet access and impairments" (Professor 5). These expressions affirm the commitment of the senior lecturers to ensuring the effective use of digital tools and systems in teaching translation. Professor 2 specifically mentioned, "I worked with the university's accessibility services for producing course materials that are accessible, such as transcripts for videos, and set up recorded synchronous sessions." Professor 5 summarized that "all students, regardless of their circumstances, were able to interact effectively with the course content", and that "technical issues sometimes hampered the experience."

**d. The Theme of Actions in Digital Technology by the Professors**

To further validate the fact that they have been effective in the use of digital technology in teaching translation, the professors affirmed certain actions they had taken in the use of digital tools to teach translation, as affirmed by the expressions below:

- i. "Finding appropriate online platforms that allowed for real-time cooperation" (Professor 2)
- ii. "Using virtual translation technologies that enabled real-time collaboration on documents" (Professor 5).
- iii. "Encouraging collaborative translation exercises in real-time Google Docs" (Professor 2)
- iv. "Make efforts to enable students to engage on creative projects as a group using AI tools" (Professor 4)
- v. "I included gamified components into the online learning environment" (Professor 1).
- vi. "Developing competitive tasks associated with translation tasks" (Professor 5).
- vii. "Encouraging students to actively engage in these gamified exercises" (Professor 1).
- viii. "Gamified exercises not only created enthusiasm but also resulted in creative and novel solutions to translation problems" (Professor 3)
- ix. "Helped students develop a feeling of community and collaborative learning" (Professor 3)

The above expressions extracted from the interview conversations with the professors unveil the uniqueness of the experiences of the lecturers. they shared their difficulties and explored the actions they have taken and the impacts of those actions on improving the academic performance of the students.

**4.1.2 Results of How AI Tools have Helped Lecturers in Facilitating their Teaching of Translation Courses**

The second research question focuses on unveiling specific ways in which AI tools have helped senior lecturers in facilitating their teaching of translation courses. The question forms the basis for the designing of the questionnaire, and the results are contained in the table below:

Table 2. Results of Research Question 2

Survey Item	SA	A	N	SD	D	Mean	Std. Dev
Teaching materials for translation courses are now prepared more quickly due to AI technologies.	36.36	47.27	11.82	1.82	2.73	3.12	1.19
Automated grading systems driven by AI have reduced assessment time and generated feedback for students' translation projects.	32.73	28.18	20.01	10.02	9.09	3.55	1.15
AI-powered language models have helped create a variety of difficult and demanding translation tasks that may be used in the classroom.	25.45	28.18	21.82	14.53	10.01	3.35	1.17
Real-time translation explanations and demonstrations during lectures have been made possible by AI-driven language translation systems.	15.45	18.15	27.26	20.92	18.17	2.64	1.30
By recognizing students' learning habits and areas for development, AI-driven data analytics have made it possible to implement individualized teaching strategies.	18.18	20.05	23.64	18.18	20.	2.94	1.27

The data shown in Table 2 provides a comprehensive depiction of the many effects that AI technologies have on the teaching of translation courses. The participants widely agreed that the use of AI to rapidly generate educational materials plays a crucial role in speeding up the process of creating content. This is shown by the mean score of 3.12. In addition, the integration of artificial intelligence (AI)-based grading systems resulted in a notable decrease in the duration of assessments and facilitated prompt response on students' translation assignments, as shown by the substantial agreement percentages (Mean = 3.55). Artificial intelligence (AI) technologies have also been involved in the development of a wide range of translation activities that are both broad and hard, specifically designed for classroom usage. However, the consensus on the effectiveness of these tasks, albeit significant, suggests that there is still space for improvement (Mean = 3.35). On the other hand, the reception of AI-driven systems that provide real-time translation explanations during lectures has been varied, indicating possible difficulties in implementing this particular application (Mean = 2.64). Furthermore, the use of personalized teaching methods informed by artificial intelligence-powered data analysis has provided a nuanced viewpoint, shedding light on the intricacies associated with customizing techniques based on data-derived observations (Mean = 2.94). The results as a whole emphasize the significant impact that AI

technologies can have on improving teaching processes. However, additional research and development are required to fully utilize their educational effectiveness, particularly in areas such as real-time classroom applications and personalized teaching strategies. The available data indicates that while artificial intelligence (AI) has made notable progress in accelerating conventional procedures, there is still a need for ongoing improvement and pedagogical adjustment. This is necessary to align with the changing landscape of AI integration within the field of translation education.

#### *4.2 Discussion of Findings and Implications of Analysis*

The results of the collected quantitative and qualitative data have been presented in this section, focusing on key significant insights from the views of the professors who participated in the study. The results were anchored on the two research questions. Through the first research question, the results of the interviews were submitted. Different themes were highlighted and the recurring expressions in themes were submitted also.

The views of the professors are significant in understanding the nature of the challenges they face. The professors' difficulties in switching from conventional teaching techniques to digital tools in translation studies align with the conclusions of other translation studies researchers. By Professors 1 and 3's challenges in transferring interactive in-person engagements to virtual platforms, Akmalayah et al. (2020) highlighted the challenges encountered in teaching remotely during the pandemic (Akmalayah et al., 2020; Almahasees & Qassem, 2021). Furthermore, Al-Batineh and Bilali (2017) emphasized the significance of curriculum alignment with the language business and the ongoing need for adaptation in translation education. Huertas Barros and Vine (2018) explored how assessment practices are evolving and how collaborative learning is taking place in translation courses; their results are consistent with the difficulties associated with incorporating group activities into digital technology (Huertas Barros & Vine, 2018). Furthermore, researchers such as Marczak (2018) and Rico and Gonz lez Pastor (2022) have underscored the influence of digital technologies and machine translation on translation pedagogy, underscoring the challenges encountered by teachers in successfully integrating these instruments.

The lecturers' creative methods also reflect the recommendations put forward by experts in the subject. Peng (2019) emphasized the significance of comprehending the digital tools used in education while discussing the technical, pedagogical, and subject knowledge necessary for successful teaching (Peng, 2019). In an attempt to sustain student engagement in the digital classroom, Shadiev and Huang (2020) investigated the use of speech-enabled language translation to improve student attention and satisfaction (Shadiev & Huang, 2020). All of these references provide credence to the difficulties that the teachers are facing and highlight the larger conversation in translation pedagogy about the use of cutting-edge teaching strategies and digital resources.

Within the domain of digital learning, challenges about assessment and evaluation are of significant interest to academics, whose perspectives align with the broader conversation in the field of translation pedagogy. Professor 2's concerns about keeping hold of the authenticity of online assessments align with the persisting scholarly discourse, as elucidated by Rico and Gonz lez Pastor (2022), underscoring the imperative of using rigorous evaluation techniques in the contemporary digital landscape. This situation is consistent with the findings of Akmalayah et al. (2020), who noted the challenges encountered in online teaching during the pandemic and emphasized the need to use novel approaches to evaluation (Akmalayah et al., 2020). Furthermore, the efforts of the professors to design transparent assessments that foster critical thinking and the application of knowledge align with the discourse presented by Huertas Barros and Vine (2018), who conducted a study on the transformation of assessment methods in translation courses (Huertas Barros & Vine, 2018). The emphasis placed by professors on the reconsideration of assessment procedures is reinforced by the findings of Alkhawaja et al. (2022), which underscore the need to implement pedagogical strategies that are successful in the context of online education after the COVID-19 pandemic (Alkhawaja et al., 2022).

Within the context of inclusion and accessibility in the realm of digital learning, the dedication of the professors to guaranteeing equitable educational opportunities is by the wider discussions in this domain. The focus placed by Professor 3 on the replication of a collaborative physical space inside the digital domain aligns with the discourse presented by Montiel et al. (2020), which underscores the utilization of technology to establish inclusive educational settings (Montiel et al., 2020). The efforts made by Professor 5 to cater to students with diverse degrees of internet access and limitations align with the challenges and solutions outlined in the scholarly work of Shadiev and Huang (2020). This highlights the significance of ensuring accessibility in educational settings that rely on technology (Shadiev & Huang, 2020).

The use of digital technology by professors in teaching translation courses aligns with the creative practices proposed by researchers in the field of translation education. The use of virtual translation technologies by Professor 2 is the examination of technology in the field of translation teaching, as elucidated by Mangiron (2021). This underscores the importance of translation competence and the creation of curriculum in the realm of online education (Mangiron, 2021). Likewise, the use of gamified elements by Professor 1 aligns with Kim's (2019) investigation into the capabilities and limitations of machine translation in educational settings, highlighting the innovative integration of technology (Kim, 2019). Additionally, the recommendation of Professor 5 for collaborative translation exercises conducted in real-time using Google Docs aligns with the findings of Al-Shehari's (2017) research on collaborative learning in the field of translation. This research emphasizes the significance of engaging in real-time collaboration inside digital platforms (Al-Shehari, 2017).

In a nutshell, the experiences and actions of the professors in resolving obstacles and embracing possibilities in digital learning are indicative of the wider context of translation education. The organization's inventive approaches and dedication to inclusive methodologies correspond with current discourse in the discipline, underscoring the need for continuing adjustment and imaginative incorporation of digital resources to advance translation education in the era of digital technology.

The second research question focuses on the specific areas in which AI tools have facilitated the teaching of translation by the participating professors. The first survey question brought attention to the expedited creation of teaching materials using artificial intelligence technology, with a mean score of 3.12. A considerable proportion of respondents (36.36%) agreed, while a majority (47.27%) indicated partial agreement, regarding the expedited preparation of teaching materials for translation courses facilitated by the use of artificial intelligence (AI) technology. This comprehensive agreement is consistent with the wider body of literature that highlights the efficacy of artificial intelligence (AI) in generating content, hence corroborating the favourable outcomes shown in prior research investigations (Cheng, 2022; Marczak, 2018). The second survey question examined the impact of AI-driven grading systems on the reduction of assessment time and the creation of feedback. The mean score for this item was 3.55. A notable proportion of respondents (32.73%) agreed, highlighting the crucial role of artificial intelligence (AI) in accelerating evaluation procedures and guaranteeing prompt feedback. This perspective is supported by the works of Kenny (2020) and Ducar & Schocket (2018).

Regarding the generation of demanding translation assignments, the participants exhibited a moderate level of consensus (25.45% agreed and 28.18% somewhat agreed), as shown by the mean score of 3.35. This suggests a favourable reaction, however, it is not as robust as the preceding elements. This discovery is consistent with the existing body of work that highlights the potential of artificial intelligence (AI) in broadening and enhancing classroom activities. However, there is a need for more investigation and improvement in this area (Huertas Barros & Vine, 2018; Man et al., 2020). The reaction to real-time translation explanations during lectures helped by AI-driven technologies (Mean = 2.64) was varied. Among the respondents, 27.26% expressed agreement, 20.92% indicated partial agreement, and 18.17% expressed disagreement. However, the mean value indicates a comparatively lower level of consensus. The observed variability in the replies underscores a possible avenue for improvement, underscoring the need for continuous investigation and advancement in interactive artificial intelligence-based educational systems (Jiménez-Crespo, 2015; Cubeles & Riu, 2018).

Finally, the reception of the deployment of personalized teaching tactics using AI-powered data analytics was varied, with an average rating of 2.94. Among the respondents, 23.64% expressed agreement, 20.05% indicated partial agreement, and 20.18% expressed disagreement. However, the average number indicates a reasonable level of agreement. The aforementioned discovery highlights the intricate nature of customizing teaching methods using data analytics, hence emphasizing the need for more studies aimed at augmenting the efficacy of personalized artificial intelligence-driven techniques (Hubscher-Davidson & Devaux, 2021; Shadiev & Huang, 2020).

In summary, the results suggest a mostly favourable reception towards the influence of artificial intelligence (AI) technology on many facets of instructing translation courses. The recognition of the benefits in terms of efficiency in material preparation and assessment processes is widely accepted. However, there are areas such as providing real-time explanations during lectures and implementing personalized teaching strategies that offer the potential for improvement and further investigation. This highlights the importance of ongoing development and pedagogical adaptation within the framework of integrating AI into translation education.

## 5. Conclusions

This research evaluated the difficulties encountered by senior professors while shifting from traditional teaching approaches to using digital resources in the teaching of translation courses. The challenges faced by professors were recognized, with assessment and evaluation being seen as a particularly major obstacle. The authors placed significant emphasis on the need to reconsider evaluation methodologies within the digital domain. This includes advocating for the use of transparent assessments as a means to foster critical thinking skills and the practical application of information. The issue of ensuring the integrity of online assessments has raised apprehension, leading to an examination of proctoring software and the implementation of clear academic honesty norms. The crucial considerations of inclusivity and accessibility were given significant attention by the instructors, who demonstrated conscientious efforts to enable meaningful engagement with course material for all students, including those with diverse degrees of internet access and impairments. The incorporation of real-time collaboration platforms and gamified elements seeks to facilitate the connection between physical and digital learning settings. Furthermore, the research emphasized the proactive actions taken by academics, like the establishment of clear guidelines for online collaboration and the use of virtual reality simulations to increase the tactile aspects of translation research.

In conclusion, this research provides insights into the complex terrain of using artificial intelligence techniques in the field of translation teaching. Firstly, it highlights the transformational capacity of artificial intelligence (AI) technology, as shown by the accelerated production of educational resources and efficient evaluation procedures. Furthermore, the results demonstrate the intricate difficulties associated with implementing real-time classroom apps and tailoring teaching tactics to individual students. These intricacies underscore the need for ongoing research and development to fully use the teaching capabilities of artificial intelligence in translation courses. Finally, the research emphasizes the resilience and flexibility of lecturers, as seen by their proactive efforts to tackle obstacles. The dedication of academics to fostering inclusion, promoting innovation, and facilitating increased interaction demonstrates a promising perspective on the future of digital learning in the field of translation education.

Within a larger framework, these findings indicate a significant change in the field of translation education, suggesting a direction toward more interactive, comprehensive, and technology-oriented educational settings. To effectively address the issues and advancements in education, professors and technology developers must engage in joint endeavours. Through the strategic consideration of existing difficulties and the use of the advantageous attributes possessed by artificial intelligence (AI) technologies, the field of translation education has the potential to adapt and cater to the requirements of the contemporary digital era. This adaptation process has the promise of augmenting the educational journeys of students, equipping them with the necessary skills and knowledge to navigate the intricate and

technology-centric professional environment.

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### **Data sharing statement**

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## Appendix 1: Interviews Extracts

### 1. Professor 1

*“Adapting engaging in-person talks to online platforms was one of the biggest challenges I faced throughout the move. In a conventional classroom, I could read students' minds by observing their body language and facial expressions. Because these non-verbal clues were absent, it was difficult to translate this interaction to digital instruments. To solve this, I began having students post their ideas in writing on online discussion boards, which allowed me to gauge their comprehension based on their answers. However maintaining the same level of participation online needed patience and creative thinking, including adding multimedia components and real-time online tests to keep students engaged. The use of group activities and cooperative initiatives was one element that was difficult to include in digital technologies. In a conventional classroom, I could simply split up the students into smaller groups and lead in-person conversations. Finding appropriate online platforms that allowed for real-time cooperation was necessary to convert this dynamic to digital technologies. After experimenting with several technologies, I was successful in using platforms that let students work together simultaneously on papers and presentations. Even yet, controlling group dynamics and guaranteeing equitable participation remained difficult. To help students who had difficulties in the online group setting, I extended virtual office hours, promoted frequent contact among group members, and developed explicit norms for online cooperation.”*

### 2. Professor 2

*“Sustaining a feeling of personal connection with my pupils was one of the biggest obstacles I had throughout the move. It was easier for me to build rapport in a conventional classroom setting via in-person encounters than it was in a virtual one. I created a virtual “welcome” mood by adding personalized video greetings at the start of online courses to address this. To give students a taste of the personalized attention they would get in a traditional classroom, I also planned frequent virtual office hours during which they could ask questions one-on-one. Despite these efforts, I found that developing a solid online teacher-student connection needed constant encouragement and contact, which I got by responding to assignments promptly and taking an active role in online conversations. One of the biggest obstacles was transferring the practical, hands-on activities to an online setting. For example, practical sessions in translation studies, where students collaborate on translation projects, are very beneficial. It was difficult to adapt this collaborative experience to internet use. The spontaneity and dynamic interactivity of in-person meetings were difficult to duplicate, despite my experiments with virtual translation technologies that enabled real-time collaboration on documents. I made sure students had all the tools they needed to complete the translation assignments by giving them thorough, step-by-step teachings and teaching videos. To encourage cooperation among students despite the distance, I also set up online peer-review forums where they could comment on each other's work.”*

### 3. Professor 3

*“The conversion of evaluations to a digital format was one of the biggest challenges I faced. In the old days of teaching, I assessed pupils’*

comprehension via in-person tests and presentations. Rethinking evaluation techniques was necessary as we moved to digital technologies. To evaluate various comprehension levels, I devised online tests with a range of question types. However, there were concerns about maintaining the validity of online tests. To resolve this, I looked into proctoring software and put in place explicit policies on academic honesty. To maintain assessment rigor despite the online format, I also concentrated on creating open-book tests that promoted knowledge application and critical thinking. A difficult task was to imitate the impromptu, lively conversations that take place in a conventional classroom. Effective teaching is reliant on the dynamic interchange of ideas and the prompt feedback provided by pupils. It was difficult to integrate this with digital technologies. I tried virtual discussion boards, but there was no interaction in real-time. I used technologies that enabled breakout rooms for small group talks to add live video discussions and increase participation. The organic flow of in-person conversations was difficult to replicate, despite these attempts. To address this, I urged students to take an active role in online debates and stressed the value of providing meaningful answers and peer comments to keep the conversations going deep.”

#### 4. Professor 4

“Ensuring inclusion and accessibility in the digital learning environment was one of the difficulties I encountered. Through individualized interactions, I could easily meet a variety of learning requirements in a regular classroom. Making the shift to digital tools required taking into account pupils with varying levels of internet access and impairments. I worked with the university's accessibility services to solve this by producing course materials that are accessible, such as transcripts for videos and other formats for visual information. In addition, I set up recorded synchronous sessions so that students with limited time may see the material at a later time. All students, regardless of their circumstances, were able to interact effectively with the course content because of the many involvement channels offered. A difficult task was to replicate in the digital realm the feeling of a shared physical area. The actual presence of students in a conventional classroom promotes shared learning and a feeling of community. This requires innovative thinking to translate to digital instruments. I used platforms for virtual reality (VR) where students could make avatars and communicate in an online classroom. Technical issues sometimes hampered the experience, even if this method improved the feeling of presence. Furthermore, I set up frequent synchronous video conferences so that students could see and communicate with one another, emulating a shared environment. Notwithstanding the difficulties, these initiatives were essential in helping students develop a feeling of community and collaborative learning across the digital divide.”

#### 5. Professor 5

“I found that being creative and spontaneous in a digital learning setting was one of the biggest problems I faced. Conventional education often involves spontaneous conversations, imaginative brainstorming sessions, and exercises that are adjusted on the fly based on the replies of the pupils. It was intimidating to try to replicate this spontaneity on the web. I explored real-time collaboration tools to solve this, such as collaborative translation exercises in real-time Google Docs, which enabled students to engage in creative projects as a group. Furthermore, I included gamified components into the online learning environment by developing competitive tasks associated with translation tasks. Encouraging students to actively engage in these gamified exercises not only created enthusiasm but also resulted in creative and novel solutions to translation problems. A particularly difficult task was to replicate the tactile and sensory perceptions that are essential to translation research. When using physical texts in traditional teaching, students often feel the paper's texture, which influences their translation decisions. The task of incorporating this tactile sense into digital tools proved difficult. In response, I included virtual reality simulations and audio recordings of subtleties in spoken language, allowing students to experience translation circumstances that they could encounter in real life. To provide students access to visually interesting resources that encouraged creativity, I also worked with digital artists to produce aesthetically immersive digital texts. Despite these difficulties, the multimodal experiences helped students grasp translation in a deep and nuanced manner while also bridging the divide between the real and digital worlds.”