| RESEARCH ARTICLE

Future Translators' Linguistic and Non-linguistic Competencies and Skills in The Age of Neural Machine Translation and Artificial Intelligence: A Content Analysis

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| ABSTRACT

Artificial Intelligence (AI) and machine learning (ML) are disrupting the way millions of people work. According to the Future of Jobs Report published by the World Economic Forum (WEF 2022), the Fourth Industrial Revolution will result in the disappearance of more than 75 million jobs by 2025. While this is considered bad news to many, the report also predicts the creation of 133 million jobs for the same reason. Among the at-risk jobs are translation and language services jobs which have witnessed a sharp drop in demand due to the adoption of AI and ML technologies in machine translation systems making them capable of producing translations that match the translations produced by expert human translators. Using content analysis method of online translation job advertisements in Saudi Arabia, this study sheds light on the current in-demand translator linguistic and non-linguistic competences and skills from the perspective of employers and matches those with the well-established translator competence models in literature. Through a content analysis of 213 online job advertisements, the study identifies five key competency domains: Language and Culture, Personal and Interpersonal, Service Provision, Technology, and Translation Knowledge. While language proficiency remains crucial, there is a growing emphasis on "soft skills," project management, technological adaptability, and ethical practice. The findings reveal a partial alignment with existing competency models but also highlight potential gaps, particularly regarding strategic planning and document analysis skills. The study underscores the need for translator education to adapt to the evolving demands of the industry, integrating traditional skills with emerging technologies and fostering a culture of lifelong learning. By bridging the gap between academic training and industry expectations, we can better equip future translators to navigate the complexities of the profession and thrive in the age of Neural Machine Translation and AI.

1. Introduction

Higher education institutions around the globe have been under incredible pressure to produce graduates with adequate skills and knowledge that make them fit to work in the already competitive and scarce job market. The gap between what employers expect and graduates' actual attributes is widening especially that higher education institutions are forced to prepare students for jobs that have not yet been created, for technologies that have not yet been invented, and to solve problems that have not yet been anticipated. Translation programs and students are not an exception. As suggested by future work reports and whitepapers published by major world economy experts such as World Economic Forum, McKinsey and Cognizant, the emerging disruptive technologies related to the Fourth Industrial Revolution, (such as Artificial Intelligence, automation, Internet of Things, Deep Learning) are expected to have a gigantic impact on every aspect of our life. These changes are anticipated to challenge many of

our assumptions and enforce radical changes to the basis of world economies and consequently transform the supply, demand, market needs and consumer behavior, which all will affect the way business is run, employment outlook and workforce needs. Unemployment rates will reach the sky as these smart AI-enabled technologies will do the jobs of millions of employees around the world. According to Brougham & Haar (2017), more than 30% of today's jobs will disappear by 2025. The birth of these smart technologies and their continuous development does not necessarily mean that they will take over the world where will find humans without jobs while machines and computers are going to work instead. On the contrary, it means that completely new jobs will emerge and the existing ones will need to cope up with the change, or will ultimately perish. In its 2021 whitepaper, the Cognizant Centre for the Future of Work predicted that more than 21 million new jobs will be generated in the coming few years, but these jobs require new skill sets and competencies that not most of graduates have. The pressure on higher education system now goes beyond offering courses and degree programs in these advanced technologies, but also extends to making sure that graduates have the right mix of knowledge and skills that are needed to survive in the future uncertain and highly competitive job market. These skills, which are referred to as 21st century skills, future employability skills, and Industry 4.0 employability skills, have been defined and identified by the aforementioned world economic reports and by several other scholars. The conclusions and recommendations of these reports and studies suggest that HEIs should equip their graduates with these employability skills by 2030 prior to their transition to the job market in order to be able to sustain employment by either working in the newly invented jobs, or cope with the ones that changed and embraced radical changes due to disruptive technology adoption. Based on the finding and recommendations of these studies and reports, the emphasis on the importance of equipping students with employability skills and attributes is seen as an effective measure to help graduate sustain employment in tomorrow's job market. The lack of 21st century employability skills in HEIs graduates has already been sensed by employers around the world. Teng et al., (2019) for example, posit that lack of employability skills is considered a current global issue and some major employers around the world have voiced their concerns regarding entry-level job applicants who demonstrated a lack of or inadequacy of 21st century employability skills. Despite the significant number of studies and world economic reports advocating the urgent need for equipping graduates with 21st century employability skills, a huge gap and a big mismatch can be noticed between what the job market expects and what HEIs do (Kőnig et al., 2016; Ahmad & Pesch, 2017; Singh et al., 2017). The aim of this study is to shed light on the expectations of the labor market in terms of the skills and attributes applicants applying for Translation jobs in the Middle East should possess. The comparison of these expectations with the future 21st century employability skills highlighted by the world economy reports and with the program learning outcomes of Translation programs in MENA HEIs will give us a good idea on how 5 much Translation graduates are prepared for the future job market and what areas that need immediate and serious intervention from HEIs. The following section we highlight the literature related to Industry 4.0 and 21st century employability skills.

2 Literature Review
2.1 Investigating Translation Job Market Expectations and Employability Skills Through Job Advertisement Analysis
To gain an insight into the expectations of employers at the translation job market in terms of applicants' employability skills, we adopt a market-driven search approach where translation job advertisements are surveyed and then analysed. Although this method has gained popularity in literature for exploring employability skills needed in the labour market, the number of studies that surveyed translation job advertisements are very limited. Bowker (2004), for example, analysed 301 translation-related job advertisements in Canada to find out what skills and qualifications employers were expecting translation job applicants to have in an attempt to evaluate the translation market needs. Al-Batineh and Bilali (2017) conducted a study in which they analysed 50 job advertisements for translation jobs in the Middle East and North Africa. To optimize translation training curriculum, they compared their findings with translation course descriptions at some HEIs' translation programs. Chan (2010) examined the expectations of Hong Kong's translation market leaders by surveying 66 translation job advertisements. Mu et al. (2017) focused on translation profession in the global market and analysed 212 translation jobs advertisements in 19 countries around the world with the purpose to cast light on the translation market needs and to come forward with recommendations for improving translation curriculum. Although these studies offer distinguished contribution to the topic of preparing translators for the labour market, they have a limitation in terms of lack or limited information about the methodology implemented in conducting content analysis. The coding procedure along with reliability checks are not adequately described in these studies. Analysing job advertisements is a well-established research approach that helps researchers and educators examine and track the changes of the roles and responsibilities of professionals over time (Gold and Grotti, 2013) and can act as an excellent determinant of the roles and responsibilities employers expect translators to be able to do and hence help translation programs develop translation curriculum accordingly (Kelly, 2005). Translation job advertisements analyses are valued for providing frames of reference of the competencies and skills expected by employers and as a benchmark for translation curriculum developers.

As observed in the discussion above, employers and job market trends are what shape or drive translation curriculum, and not the other way around. The reason may be partially attributed to the fact that translation is considered as an emerging profession

(Lambert, 2020), the success of its practitioners is measured by the clients' satisfaction with the translators' competence (Mazzei & Aibo, 2022). Therefore, it imperative for HEIs and translation programs to take into consideration the competencies and skills sought by employers and job market trends when designing, developing or revamping translation curricula to avoid supplying the market with unwanted and under-prepared translators (Hu & Hu, 2020). Generally, job market needs are constantly changing with the rapid changes happening in the world due to technological advances and science breakthroughs in addition to the evolution and fluctuations of economies. Hence, it is worthwhile to keep evaluating translation programs and translation market and respond promptly to these changes that not only are affecting the translation profession, but also affecting human capital capabilities and talents for all professions.

Based on the assumption that job advertisements offer easily accessible data about the skills, attributes and competencies expected in translators in today's job markets, this study aims to analyse translation job advertisements on different online job portals in Saudi Arabia to identify the needed skills and relate the findings to the recommended 21st century and Industry 4.0 employability skills.

2.2 Translator Employability

Employability as a concept has gained a lot of attention of many scholars across many disciplines in literature. The concept itself has evolved over the years, from centring around people's ability to secure jobs to focus on the set of human capabilities and skills that empower employees to perform their tasks and guarantee a sustainable employment undertaking throughout their career. Different scholars defined employability in many different ways depending on the perspectives from which they looked at the concept. However, most of the definitions share in common the importance of equipping graduates with job survival skills that help them secure employment in the changing and competitive job market. Defining employability is not an easy task as the concept itself involves interrelated aspects, factors and dimensions. However, for the sake of this study, we adopt the definition by Harvey and Knight (2005) who defined employability in terms of two broad approaches. In their definition, employability is seen as "a job getting" and as "developing attributes for graduate employment" (p. 5). They argue that the former approach can be seen as problematic by academicians whereas the latter is viewed as an area to which they can contribute. Our focus in this paper is on the second approach where employability refers to the set of skills and attributes graduates should have in order to be able to get, retain and develop in a job (p. 5).

2.3 Defining Translator Competence: A Multifaceted Approach

When talking about qualifications we normally refer to the set of attributes that graduates have such as education levels, college/university majors, certificates and work experience (Doyle 2018; Svoboda & Sosoni, 2023). In this study we use the term "translator competence" which refers to the "know-what", the "know how" and the of translators' attitudes that are crucial to perform a professional translation duty (Kelly 2005; EMT expert group 2017; PACTE, 2019). The concept of translator competence has been widely discussed in literature with scholars taking two distinct approaches to the concept; a minimalist and a multi-component approaches. As the name suggests, the minimalist approach, promoted by Pym (2003), refers to the translator's ability to generate more than one acceptable translation of a given text and the ability to confidently choose one translation of all the translations produced with sound justifications. The multi-component approach, on the other hand, is more complicated and multi-faceted as it consists of a set of different components or sub-components; such as language and culture competence, translation competence, technology competence, personal and interpersonal competence and service provision competence. The reason why the present study adopts a multi-perspective approach towards translators' employability is simply because this approach benefits translators' training and help prepare them for the labour market based on the ever-changing market needs. For the training to be successful, a market-oriented translation curriculum is needed, which can only be achieved when translation learning outcomes are defined based on translator qualities that are required by their potential employer (Kelly (2005, 33). To inform translation curriculum development and curriculum renewal processes, the following section puts forward a development model for a market-driven translation curriculum that is based on translator's competence and on data collected by surveying learning and market needs.

Table 1: The five translator competencies adopted in the current study

	Translator Competencies	Description of the Competencies
1	Language and Culture (Transcultural and Sociolinguistic Awareness and Communicative Skills).	This competence, which is the first competence in the EMT Competence Framework, encompasses all the general or language-specific linguistic, sociolinguistic, cultural and transcultural knowledge and skills that constitute the basis for advanced translation competence. It is the driving force behind all the other competences described in this reference framework, and it is thus important and expected that students also perfect their competences in these areas during their studies.
2	Translation Competence (Strategic, Methodological and Thematic Competence)	Translation competence, central to this framework, encompasses more than mere interlingual or intralingual translation, extending to strategic, methodological, and thematic skills across the entire translation process, from initial document analysis to final quality control. Applicants are expected to detail their proficiency in domain-specific, media-specific, and situation-specific translations within their curriculum, including specialized fields such as public service translation, localization, multimodal translation, and accessibility. Additionally, this competence includes translating with pivot languages and integrates the growing significance of machine translation (MT) in professional workflows. Mastery of MT, understanding its potential and limitations, is deemed crucial for contemporary translation competence.
3	Technology Competence	This competence encompasses the complete range of knowledge and skills necessary for applying and consulting on current and emerging translation technologies throughout the translation process. It also covers fundamental understanding of machine translation technologies and the capability to deploy machine translation as required.
4	Personal and Interpersonal Competence	Personal and Interpersonal Competence: This skill area encompasses a range of generic abilities, commonly known as "soft skills," which are crucial for improving graduates' adaptability and employability.
5	Service Provision Competence	Service Provision Competence: This competence encompasses the full spectrum of skills necessary for delivering translation and broader language services within a professional setting. It includes understanding the needs of clients, commissioners, and users, engaging in negotiations, and extends to managing projects and ensuring quality assurance.

2.4 Integrating Market Needs into Translator Training: A Competency-Based Curriculum Framework

In literature, there are a number of curriculum development models that academics follow to renew, revamp or develop curricula in HEIs (see Kelly 2005; Graves 2000; Calvo 2011; Meyer and Bushney 2008). To formulate a curriculum development model that is market-driven and that is based on learning needs analysis, a comprehensive model is developed. Figure 1 below shows curriculum development cycle that reflects the cyclical and recursive nature of any curriculum development process. As the model suggests, developing curriculum should begin with three essential steps. The first step requires that market needs should be well pre-defined. To do so, it is essential that academics and curriculum developers should collect and triangulate data via different data sources using quantitative data gathering techniques such as; surveys and statistical content analysis, and qualitative data collection techniques such as Delphi qualitative consensus method, interviews, focus groups and observations. The collected data should come from different sources and stakeholders such as interns, graduating students, alumni, job advertisements, employers, field experts and professionals. The second step of curriculum development involves 8 the conceptualization of teaching content which can be implemented by conducting a deep meta-analysis of the self-reflections of teaching practitioners who followed the curriculum under development and/or by running meta-analysis of literature. The final step of curriculum development entails analyzing learning needs. To investigate learning needs, students' profiles should be examined along with availability of local resources and circumstantial restrictions using different diagnostic tests and panning tools such as diagnostic assessments and SWOT analyses. Although implementing the aforementioned three steps lay the foundation for any curriculum development processes, there are other steps that should follow in order to close the loop and formulate a proper curriculum that is fit for purpose. After curriculum developers make sure that they implemented the three steps successfully, they need to formulate the course goals and objectives, formulate teaching beliefs, explain the curriculum in more details, generate the suitable syllabi from

the curriculum, develop the right teaching and learning resources and materials, choose and align the right teaching strategies and plan the right assessments for learners that measure their learning and performance based on the learning outcomes. Although the process seems exhaustive and long, it is of utmost importance to close the development cycle loop properly and verify the effectiveness of the curriculum by evaluating the curriculum through different stakeholders' satisfaction surveys such as students, teachers, program directors and employers. The effectiveness of developed curricula can also be verified by tracking alumni career development, conducting self-assessments and engaging in peer-review activities. The results should serve as a baseline for re-initiating the curriculum development process again for further re-design or updating. The aim of the present study is to identify the competencies, skills, attributes and qualifications required by employers for translation jobs through content analysis of online job advertisements and benchmarking those with the general industry 4.0 employability skills 21st century skills. The finding of the study may serve as a useful source of reference for educators and employers in general and for language and translation program directors, students and practitioners in particular.

Research Questions

1. Based on recent job advertisements online, what qualifications and linguistic competencies are employers looking for when hiring translators in the Saudi Job market, and how much are these qualifications and competencies aligned with the most recent globally recommended translator competency models?

2. Do the available translator competency models reflect the 21st century and 4th industrial revolution skills and competencies needed for future jobs and for the new era of neural translation?

3. How can we develop a translator competency model that can inform translator training programs that can enhance future translators' employability in the age of Neural Machine Translation and Artificial Intelligence?

3. Methodology

According to Kelly (2005), the ultimate and overarching objective of all translation programs is to produce competent translators who are able to work professionally in the labour market, and to do so, HEIs need to know what these future translators will be normally required to do by their employers. To get an idea about the current needs of the employers in the translation job market, she argues that studying the job descriptions in translation job advertisements may be one of the most accurate and effective ways to assess the state of the art of translation profession (p. 25). The present study aims to identify the competencies and skills required in the translation labour market in the MENA region, and to match those with the suggested translator competence model that is based on 21st century and Industry 4.0. In order to achieve this objective, a systematic content analysis approach was adopted, following the three phases proposed by Almgerbi et al. (2022), Rios et al. (2020) and Wang & Li (2020). The preparation phase involved three different steps: data collection, sampling, and the identification of the unit of analysis.

3.1 Data Collection

The data collection process lasted for five months (December 2023 to April 2024). Three major job portals were used to compile a dataset consisting of translation jobs offered in Saudi Arabia: LinkedIn, Bayt.com, and Google Job search function. LinkedIn was used as it is considered the most highly used and globally accepted professional job portal (López-Carril et al., 2022). Bayt.com was used due to its popularity as a top and award-winning job-seeking portal in the Middle East and North Africa region, particularly in Saudi Arabia (Aljohani et al., 2022). While both career portals post jobs in Arabic and English, the vast majority of job advertisements on LinkedIn are typically posted and described in English. The opposite is true for Bayt.com, as most of its job postings are in Arabic. The translation jobs posted in Arabic were translated into English before the coding process. Google Job search function was used to add a third layer of data for further analysis and to ensure that all relevant job postings were captured.

3.2 Sampling

Purposive sampling technique was used to ensure the right representation of current job market needs for translation jobs (Thomas, 2022). The search parameters and keywords in the three portals were set to find "full-time" "translation" "translator" jobs in Saudi Arabia. To ensure reliability and reduce sampling bias, a pool of all the advertised "translator" and/or "translation" job advertisements in the period from December, 2023 to April, 2024 was created. The compiled pool of job advertisements was treated as a representative sample of the currently in-demand skills, competencies, and qualifications.

3.3 Unit of Analysis

The unit of analysis was each individual job advertisement. Each job advertisement that matched the search criteria and parameters was copied and pasted into a separate file. The name of the employer was used as the file name. If the same employer posted more than one translation position, a serial number was added to the name of the employer in the file name.

3.4 Organizing Phase

During the organizing phase, the classification matrices were developed, and data was coded into the different categories of these matrices. The matrix categories of translator competences were based on translator competence models of the European Master's in Translation (EMT, 2022) (Table 2). For 21st century and Industry 4.0 employability skills, the competencies and skills matrices were based on the contributions of Veiga Díaz (2020) and Galán-Mañas & Olalla-Soler (2021), along with published reports and whitepapers by major world economy experts such as the World Economic Forum, McKinsey, and Cognizant. Each component of the competencies was defined by a set of descriptors. Using well-established translator competency models for the coding process of the data was deemed essential for validity. To identify themes and draw clear conclusions out of the collected qualitative data, a computer-assisted qualitative data analysis software (NVivo 12) was used for content analysis of the collected translation job advertisements.

3.5 Reporting Phase

The last phase of data preparation was the reporting phase. In order to come up with a systematic categorization of the data, descriptive analysis of the subcategories of each translator competence component was performed and included in the frequency of occurrence count. Additionally, the other components of job advertisements that are not part of translator competence components, but are related to the qualifications of translators, such as proficiency in a third language, university degree requirements, certificates and years of experience, were collected inductively from the job descriptions. Since reviewing literature did not yield any preconceived categories for translator qualifications that could be used for classifying data, the themes and categories that emerged were refined via open coding, making it ready for quantitative analysis.

In conclusion, the present study adopted a systematic content analysis approach to identify the competencies and skills required in the translation labour market in Saudi Arabia and to match those with the suggested translator competence model that is based on 21st century and Industry 4.0. The data collection process involved using three major job portals, purposive sampling technique, and the identification of each individual job advertisement as the unit of analysis. The organizing phase involved the development of classification matrices based on well-established translator competency models, and the use of computer-assisted qualitative data analysis software for content analysis. The reporting phase involved descriptive analysis of the subcategories of each translator competence component and the identification of themes and categories related to translator qualifications through open coding.

In the examination of job advertisements within the translation industry, the delineation of responsibilities incumbent upon the linguistic professional encompasses a spectrum of competencies, as follows:

Table 2: The sub-competencies of the five main translator competencies adopted in the current study.

|	Competencies	Sub-Competencies
1	**Language and Culture (Transcultural and Sociolinguistic Awareness and Communicative Skills).**	1) Competency in a third language 2) Awareness of the culture & business etiquette 3) Post-editing skills 4) Proofreading and revision 5) Written communication proficiency (summary writing, document drafting, or technical authorship) 6) Directionality of translation 7) Adept oral communication skills, such as interpreting, delivering oral presentations, and conducting business negotiations
2	**Translation Competence (Strategic, Methodological and Thematic Competence)**	1) Document Analysis and Strategic Planning 2) Adaptation and Contextualization 3) Research and Specialized Knowledge Development 4) Operational Competence 5) Cultural and Interpersonal Mediation 6) Technological Proficiency
3	**Technology Competence**	1) Quality Management and Ethical Practice Expertise and proficiency in widely-used localization software such as SDL Trados Studio, MemoQ, Across, and Wordfast. 2) Utilize search engines, corpus-driven resources, text analysis software, and computer-assisted translation (CAT) tools proficiently. 3) Document archiving and retrieving skills 4) Employ the most pertinent IT applications, including Microsoft suite tools such as Word, PowerPoint, Excel, and others.
4	**Personal and Interpersonal Competence**	1) Having excellent executive ability 2) Willing to work overtime and any shift 3) Adaptable to difference and change 4) Good at time management 5) Having/showing leadership potential 6) Cherish collaboration and teamwork 7) Customer services oriented 8) Proactive 9) Enterprising 10) Committed 11) Patient 12) Enthusiastic 13) stress tolerant 14) Willing to learn 15) Quality-focused 16) Good communicator 17) Detail-oriented 18) Shows responsibility
5	**Service Provision Competence**	1) Understand and implement the standards applicable to the provision of a language service 2) Apply the quality management and quality assurance procedures 3) Problem identification and problem-solving 4) Project planning and monitoring

4. Results and Discussion

4.1 Qualifications

The qualifications sought by employers are illustrated in Figure1. Five sub-components form the translator qualifications namely, level of education, university major, target language proficiency, experience, and certification.

4.1.1 Minimum level of education

There is a consensus, both within the Saudi job market and internationally, that the minimum educational threshold for translators is a Bachelor's degree, as evidenced by 77% of the job advertisements. This is consistent with the findings of Mu et al. (2017) and Pym et al. (2016). Notably, doctoral-level qualifications were not referenced in any job postings, highlighting a lack of demand for such advanced academic credentials within the translation job market except for academic positions at HEI's (AlShaye and BinSultan, 2024).

Figure 1: The required translator qualifications in the job advertisements: frequencies and percentages.
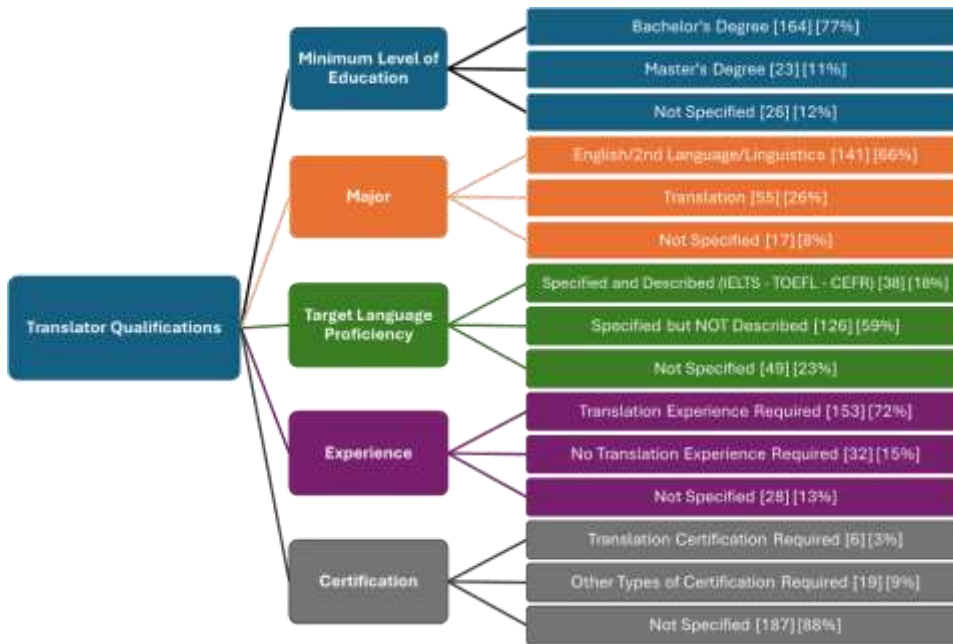
4.1.2 University Major

Contrary to Bowker's (2004) findings, where a prevalent demand for specialized translation degrees was noted in the Canadian context, the current study aligns with the international perspectives of Xiangdong Li (2022), Mu et al. (2017) and Pym et al. (2016), suggesting that a specialized degree in translation is not deemed indispensable by employers. Merely 26% of the job postings required a translation degree, whereas a language specialization was sought in 66% of cases. This disparity points to a potential disconnect between academic institutions and employers, indicating a possible unawareness of translation as a distinct academic discipline.

4.1.3 Target language proficiency

The analysis of Saudi Arabian translation job advertisements revealed a significant emphasis on target language proficiency, although the level of detail in specifying this requirement varied considerably. A substantial 59% of job advertisements emphasized the need for proficiency in the target language, using descriptors such as "excellent command," "native-like," or "very good," but without outlining specific proficiency levels, similar to the observations of Alwazna (2019) regarding the Saudi Arabian context. This suggests a general understanding of the importance of language skills but a lack of standardized benchmarks for evaluation. In contrast, 18% of the analyzed advertisements provided more concrete benchmarks, requiring applicants to demonstrate proficiency through established standards like IELTS (8.0 or above) or TOEFL iBT (110 or above), aligning with the findings of Al-Batineh and Bilali (2017) who noted the increasing adoption of such tests by Middle Eastern employers. Interestingly, 23% of the job advertisements did not mention target language proficiency at all, potentially assuming this skill as a given for translation positions or relying on other assessment methods during the hiring process, a phenomenon also observed by Alhaj (2020) in the Gulf region. These findings suggest a complex landscape regarding target language proficiency expectations within the Saudi Arabian translation market, with a need for further investigation into the specific skills and qualifications employers prioritize when evaluating candidates.

4.1.4 Work experience

There is a pronounced trend among employers in Saudi Arabia to underscore the significance of prior experience in translation, with a substantial 72% of job advertisements stipulating this requirement. This observation corroborates the research of Yang and Niu (2023); Samman, H. M. (2022); Bowker (2004), Chan (2010), and Al-Batineh & Bilali (2017), reinforcing the market's valuation of experiential credentials.

4.1.5 Certification

Being a certified or sworn translator does not seem to be critical for employers in Saudi Arabia. These findings are further corroborated by the works of Bowker (2005), Ibrahim (2007), Chan (2010), and Mu et al. (2017), which collectively suggest that certification is not a prevalent requirement in most translation job markets. In the Saudi context, a mere 6% of the positions demanded translation certification, whereas a higher emphasis was placed on other types of certification; such as project and/or performance management, at 9%. The inference here is that employers may equate language proficiency with translation competence, thus undervaluing the specialized nature of the translation profession in Saudi Arabia.

4.2 Competencies

As illustrated in Figure 2, the analysis of the job advertisements reveals the mention of five distinct categories of competencies: Language and Culture Competence, highlighted by 86% of the postings; Personal and Interpersonal Competence, noted in 79%; Service Provision Competence, included in 64%; Technology Competence, acknowledged by 51%; and Translation Competence, identified in 22.5% of the job advertisements. This distribution of competencies aligns closely with the findings presented by Al-Batineh and Bilali (2017), corroborating their research into the prevalent professional skills demanded in the translation industry.

Figure 2: Frequency of competences cited in the job advertisements.
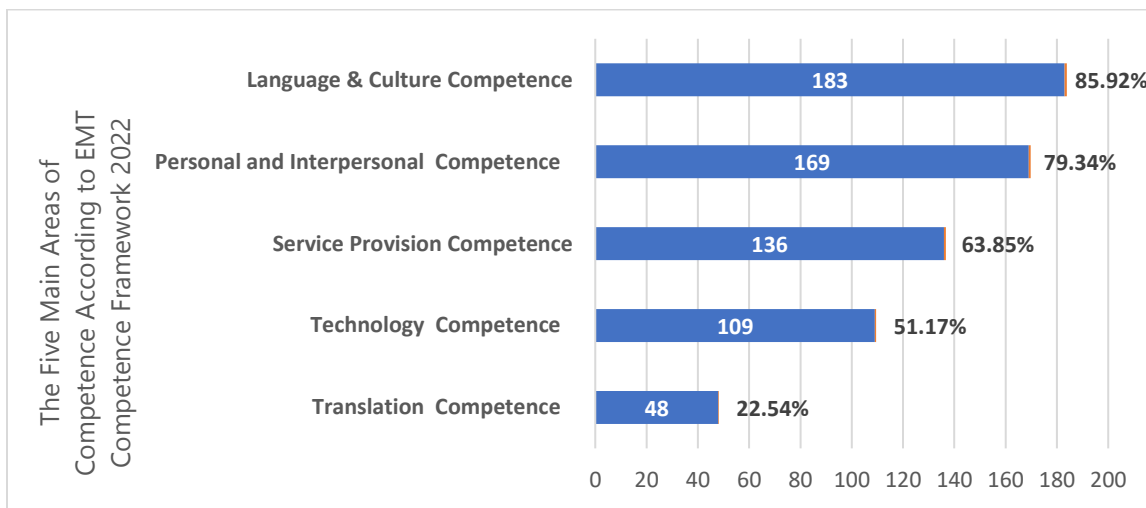
4.2.1 Language and Culture Competence:

At the heart of translation proficiency lies Language and Culture Competence. This foundational competence was recognized by an overwhelming 86% of job postings, highlighting its primacy in the translation profession. Such a high demand starkly contrasts with the findings of Bowker (2004) and Al-Batineh and Bilali (2017), who reported a greater emphasis on instrumental competencies related to the use of translation-specific technology, with linguistic competence trailing at fourth and second place in their respective studies.

The analysis of the job advertisements revealed that 64% of the employers required that job applicants to have adept oral communication skills, such as interpreting, delivering oral presentations, and conducting business negotiations. The analysis further reveals that approximately 53% of job advertisements sought translators who are culturally aware

Figure 3: Language & Culture Competence
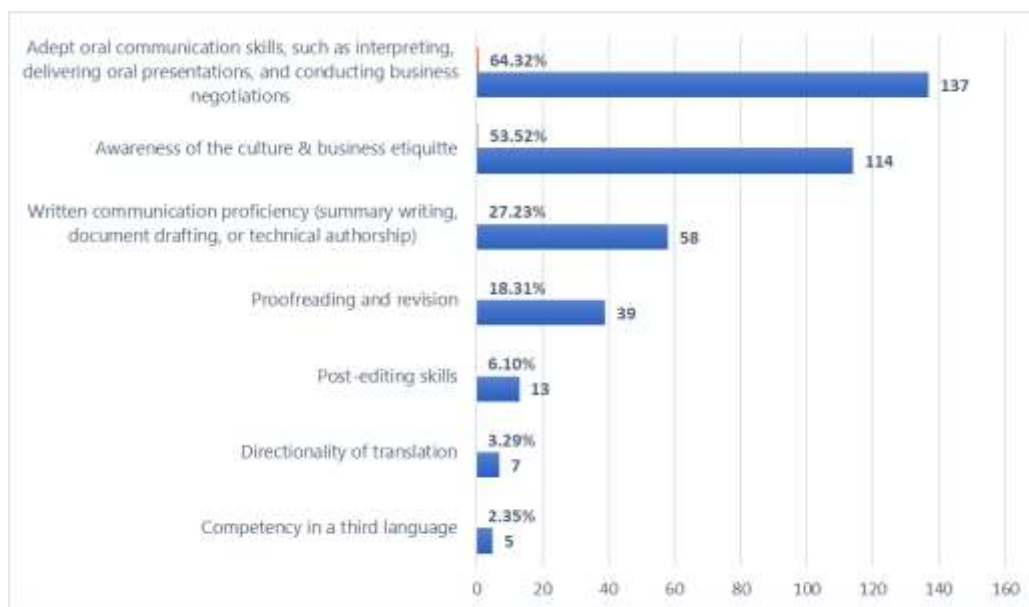
Beyond mere translation, the data indicates a demand for translators who are adept at a range of language services. A significant 27% of job advertisements specified the need for written communication proficiency including summary writing, document drafting, or technical authorship), with proofreading and revision mentioned in 18%, and post-editing in 6%. As far as the ability to operate in both directions of translation [A –> B] and [B –> A], the data reveals that 3% of the job advertisements mentioned this skill. This requirement is particularly salient in the Saudi context, where translators are more commonly expected to work into their foreign languages, a practice that deviates from the global norm of translating into one's native language, as exemplified by the Spanish translation market (Schnell & Rodríguez, 2017) and the Chinese one (Li, 2022). Proficiency in a third language, or 'C' language, was specified by 2% of the job advertisements. These findings are in alignment with Schnell & Rodríguez (2017) and Ayuso et al., (2022), who observed a comprehensive set of language services demanded of translators, extending beyond translation to encompass correction, proofreading, editing, and technical writing tasks.

The surge in demand for translators who are culturally aware correlates with the expansion of Saudi Arabia's openness to the world and the flourishing tourism sector, suggesting a direct link between industry needs and translation service requirements and underscoring the importance of cultural understanding for a better ability to navigate professional settings.

In conclusion, the findings underscore the centrality of linguistic and cultural competencies in translation, while also pointing to the importance of a diverse skill set that includes specialized knowledge and a range of language-related services. The translation industry appears to be evolving towards greater specialization and a broader service provision model, necessitating a reassessment of translator education and training to ensure alignment with these industry trends and demands.

4.2.2 Personal and Interpersonal Competence
Among the competencies valued in the translation industry, personal and interpersonal competence. This domain encompasses a spectrum of generic abilities, commonly denoted as "soft skills," which significantly augment the adaptability and employability of graduates.

Personal and Interpersonal Competences are delineated as pivotal for professional success, as evidenced by their prominence in 51% of job postings, which underscore the importance of demonstrating a sense of responsibility. This is closely followed by an appreciation for collaboration and teamwork, highlighted in 41% of the listings. Additionally, a meticulous attention to detail is recognized in 38% of the advertisements, while conscientiousness and diligence are esteemed in 28%, and effective communication skills are valued in 26%.

Furthermore, a commitment to quality, a readiness to engage in continuous learning, and a customer-service orientation each command attention in 23% of the job postings. The capability to manage stress is also a noted requirement, appearing in 21% of

the advertisements. Leadership potential, enthusiasm, and proficient time management skills each garner mention in 13% of the listings.

Patience is another valued trait, noted in 12% of the postings, while dedication and an enterprising spirit are cited in 10%. Similarly, excellent executive abilities, a willingness to accommodate extended working hours and varying shifts, as well as a proactive stance and adaptability to diverse environments and changes, are each recognized respectively in 8% and 10% of the job advertisements. These competencies collectively underscore the multifaceted nature of the skills that enhance professional efficacy and adaptability in the dynamic landscape of employment. As visualized in Figure 4, this suite of competencies collectively enhances a translator's adaptability and employability, reinforcing the general trend observed in previous research.

Figure 4: Personal and Interpersonal Competence
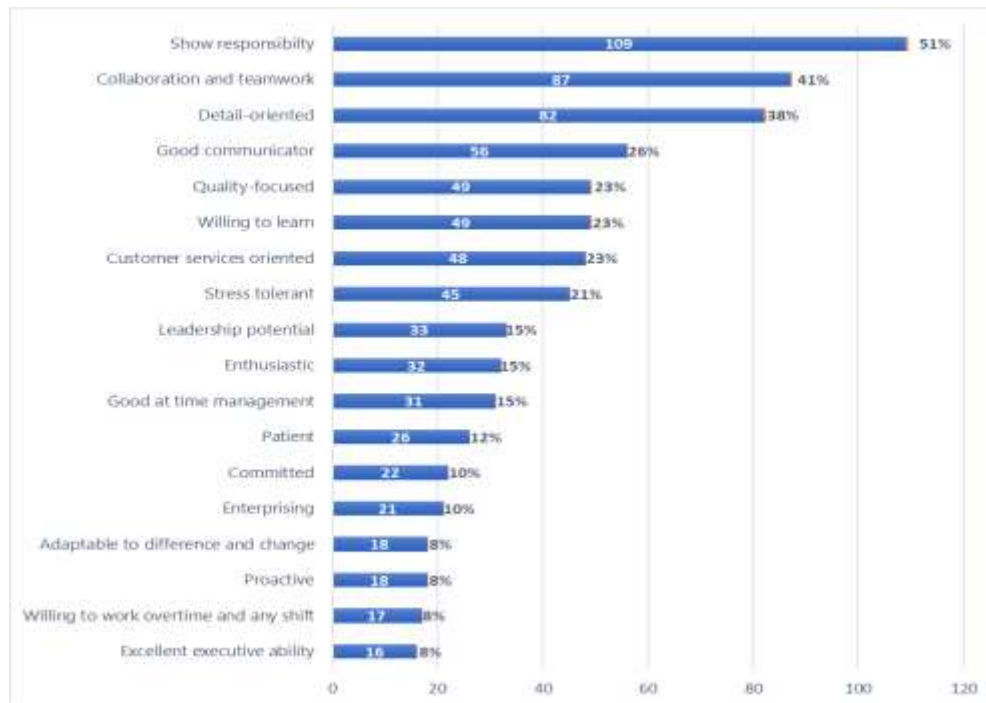
The pre-eminence of showing responsibility and team spirit resonates particularly within the Arab world and the Middle East, as outlined by Al-Batineh and Bilali (2017) and Oraki and Tajvidi (2020) underscoring the universal demand for these skills across diverse cultural landscapes. The abilities to plan and manage time, cope with workloadvertisements, stress, and critical professional instances, function autonomously or within virtual, multicultural, and multilingual teams, and employ communication technologies appropriately are increasingly critical in a profession characterized by tight deadlines and complex project requirements.

Furthermore, the capacity to focus on quality, being willing to learn by engaging in ongoing self-evaluation and skill development through both individual and collaborative learning reflects a broader understanding of the translator's role in the digital age. These competencies, which extend beyond the mere cognitive domain to include the personal and interpersonal professional activity, are also echoed by the expectations of Canadian and international employers (Bowker, 2004; Mu, Shen, & Zou, 2017), the Chinese market (Xiangdong Li, 2022) and the in the Arab context (Al-Batineh and Al Tenaijy, 2024; AlShaye and BinSultan, 2024).

It is noteworthy that the data highlights a substantial alignment between the competencies identified by employers and the soft skills emphasized in the professional and academic literature. A translator's ability to manage stress, collaborate effectively, and lead projects is as vital as their linguistic expertise. This convergence suggests a holistic approach to translator training, one that integrates technical translation skills with personal and interpersonal development.

This comprehensive skill set is essential not only for traditional translation tasks but also for the broader range of language services that professionals are expected to provide. In this context, customer awareness, indicative of a translator's ability to understand

and meet client needs, and management potential, reflecting the capacity to oversee projects and possibly lead teams, are increasingly relevant.

Moreover, the emphasis on continuous professional development and lifelong learning is a testament to the dynamic nature of the translation industry. Translators must be prepared to evolve with changing technologies, market demands, and workplace environments. In practice, this means fostering a mindset geared towards self-improvement and adaptability, ensuring that translators remain competitive and effective in their roles.

In conclusion, the findings demonstrate a clear mandate for translation education and training programs to incorporate a balanced focus on both hard and soft skills. By doing so, they can equip future translators not only with the technical know-how required for translation but also with the personal and interpersonal competencies that are crucial for thriving in today's fast-paced and interconnected professional world.

4.2.3 Service Provision Competence

Service Provision Competence for Translators encapsulates an extensive range of skills essential for the effective delivery of translation and broader language services within a professional context. This competence demands that translators maintain a keen awareness of evolving societal trends, industry shifts, and new market dynamics, alongside developing job profiles. Integral to this role is the ability to understand and implement the standards applicable to the provision of a language service, apply the quality management and quality assurance procedures, identify problems and suggest solutions, and plan and monitor projects successfully.

As Figures 2 and 5 elucidate, a substantial 64% of job postings enumerated the need for service provision competence, underlining the trend towards market specialization (AlShaye and BinSultan, 2024; Guerberof and Asimakoulas, 2024).

Figure 5: Service Provision Competence

The empirical data elucidates that the most prominent domains demanding service provision competence encompass project planning and monitoring skills (10%), problem identification and problem-solving (9%), application of quality management and quality assurance procedures (9%), and understanding and implementing the standards applicable to the provision of a language service (5%). This distribution corroborates the seminal findings of Aguayo-Arrabal (2023), Durmuş (2023), Krause and Froeliger (2023), and Valdez et al. (2023), which consistently underscore the indispensable nature of service provision competence in the translation industry. This multifaceted competence significantly bolsters the overall effectiveness and professionalism of translators in an increasingly globalized market, with numerous compelling implications.

Key aspects of this service provision competence include ensuring client satisfaction through effective communication, timely delivery, and high-quality translations that consistently meet or exceed client expectations, thereby fostering long-term relationships and securing repeat business. Moreover, the dynamic nature of the translation industry, with its frequent shifts in

market demands and technological advancements, necessitates that translators remain agile, updating and adapting their services to meet evolving client needs, such as expanding into new areas like machine translation post-editing. Furthermore, encompassing essential skills such as project management, negotiation, and adherence to ethical standards, Service Provision Competence significantly bolsters the professionalism of translators, which is crucial for building trust and credibility. Additionally, the rigorous application of quality assurance processes ensures the integrity and high standard of translations, providing a competitive edge in the market by distinguishing translators who prioritize superior customer service, effective project management, and robust quality control.

4.2.4 Technology Competence

This critical competence domain encapsulates a comprehensive array of knowledge and skills pivotal for the deployment and advisement on current and emergent translation technologies throughout the translation process. As shown in Figure 2, more than half of the job advertisements (51%) required that prospective job applicants have one or more technology-related skill. Technology competence encompasses foundational insights into machine translation (MT) technologies and the strategic implementation of such systems to meet anticipated needs. This competence demands that translators proficiently engage with the most pertinent information technology applications, spanning the complete spectrum of office software, and rapidly acclimate to novel tools and IT resources, following a rigorous evaluation of their relevance and the implications of changes on established work practices.

In the exploration of job advertisements within the translation industry, our analysis illuminated the various facets of Technology and Instrumental Competence demanded by employers. This competence encompasses a comprehensive suite of skills critical for the effective deployment and advisement on contemporary and future translation technologies throughout the translation process.

Firstly, our findings indicate a surprisingly low emphasis on specific localization tools in job advertisements. Despite the critical role that widely-used localization software such as SDL Trados Studio, MemoQ, Across, and Wordfast play in the industry, only 1% of the job advertisements explicitly mentioned these tools (see Figure 6). This may suggest a presumptive expectation of such knowledge among professional translators or possibly a shift towards more generalized technological competencies.

Secondly, the ability to proficiently utilize search engines, corpus-driven resources, text analysis software, and computer-assisted translation (CAT) tools was mentioned in 19% of the analyzed job advertisements. This indicates a moderate recognition of the importance of these digital tools in enhancing translation efficiency and quality, aligning with industry trends towards increased digital integration.

The skill of document archiving and retrieval was mentioned in 28% of the job advertisements. This relatively higher percentage reflects the ongoing need for translators to manage and organize large volumes of information efficiently, a crucial aspect of professional translation practice that supports consistency and accessibility in translation projects.

Moreover, the requirement for familiarity with the most relevant IT applications, including the Microsoft suite tools such as Word, PowerPoint, and Excel, was noted in 31% of the job advertisements. This finding underscores the foundational role that basic IT skills play in the daily functions of a translator, facilitating document handling, presentation preparation, and data analysis.

Figure 6: Technology Competence
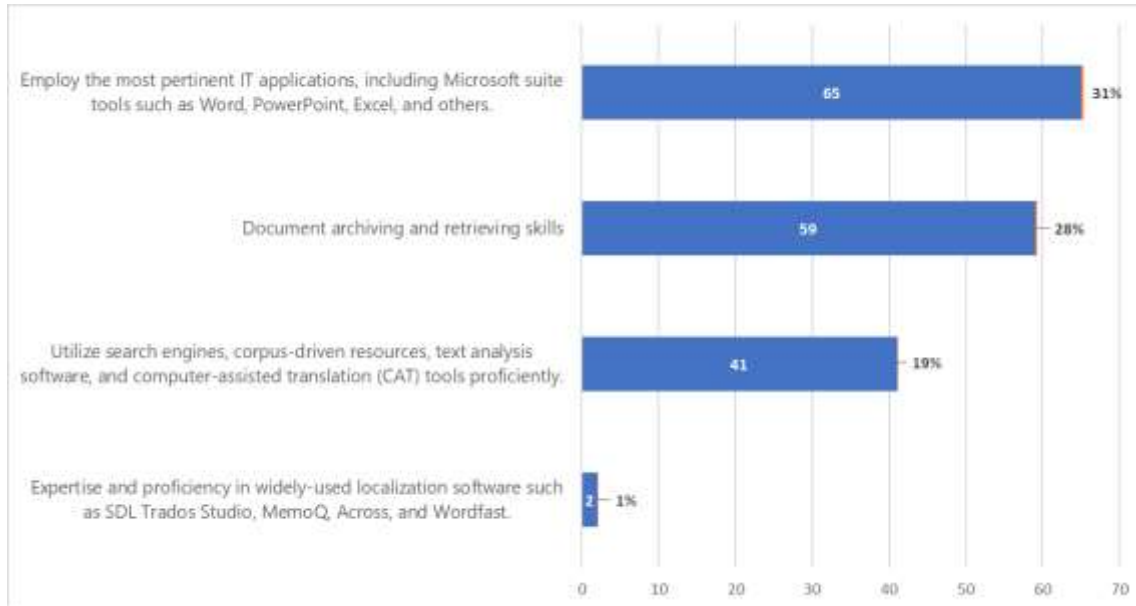
These results underscore the complex landscape of technological competencies required in the translation industry. While there is a clear demand for foundational IT skills and document management capabilities, the specific expertise in advanced localization tools remains curiously underemphasized in job descriptions. This could indicate a gap between the skills taught in translation training programs and those actually highlighted by employers in the job market, or it might reflect an evolving industry where such specific skills are assumed rather than explicitly stated.

Overall, the preference for generic IT skills could suggest that employers prioritize a foundational understanding of technology that can support a wide range of tasks within the translation process, from text editing to data organization. The emphasis on document archiving signals the industry's recognition of the importance of data retention and retrieval, which is essential for maintaining translation consistency, upholding quality standards, and ensuring efficient project management.

The relatively lower priority given to CAT tools proficiency might reflect a nuanced understanding of the translation field's technological landscape, where such tools are only one component of the broader digital proficiency required. However, this should not undermine the value of CAT tools, which, as described by Bowker (2003), are increasingly integral to the profession for their efficiency gains and quality control features. Similarly, Xiangdong Li (2022), AlShaye and BinSultan, (2024) and Guerberof and Asimakoulas, (2024) assert the growing indispensability of technology in translation, not only as a means to enhance productivity but also to participate effectively in the evolving digital ecosystem of the translation industry. It is important to consider, however, that the specific requirements regarding instrumental competence may vary based on the size and nature of the employing organization. Larger corporations and translation agencies might be more inclined to have dedicated resources for training translators in the use of specialized software, thereby placing a greater emphasis on other core competencies during the hiring process. Conversely, freelance translators or those employed by smaller firms may find that a comprehensive skill set in both general IT and CAT tools is crucial for their daily operations and marketability.

Furthermore, Mu, Shen, and Zou (2017) highlight the shift toward a more technology-integrated approach in translation, where the ability to adapt and utilize various software is becoming a standard professional requirement. This aligns with the observations of Al-Batineh and Bilali (2017), who suggest that the industry's competitive landscape necessitates a dual competence in both general and specialized technological skills.

These insights suggest a need for ongoing dialogue between educational institutions and industry stakeholders to ensure that translation curricula remain aligned with market demands, particularly in fostering a robust technological skill set that encompasses both general and specialized competencies. The current landscape indicates a need for curricula that not only impart knowledge of machine translation technologies and CAT tools but also emphasize the development of broader IT skills that are increasingly valued by employers. This would ensure that aspiring translators are well-equipped to meet the demands of a technology-driven

marketplace and are capable of contributing to the industry not merely as translators but also as proficient users and advisors of translation technology.

4.2.5 Translation Knowledge Competence

As Figure 2 shows, our content analysis of 213 job advertisements for translator positions in Saudi Arabia revealed that 22.5% mentioned competencies, knowledge, skills, or experiences related to Translation Competence as defined by the EMT Competence Framework. This framework positions translation competence as a foundational skill set encompassing strategic, methodological, and thematic competencies spanning from initial document analysis to final quality control (EMT, 2017).

The most frequently mentioned area was quality management and ethical practice, appearing in 13% of the analysed job advertisements (Figure 7). This finding aligns with the growing emphasis on quality assurance and ethical standards in the translation industry, as highlighted by Schnell & Rodríguez (2017). Translators are expected to implement quality control strategies, review and revise translations according to established standards, and uphold ethical principles throughout the translation process.

Figure 7: Translation Knowledge Competence
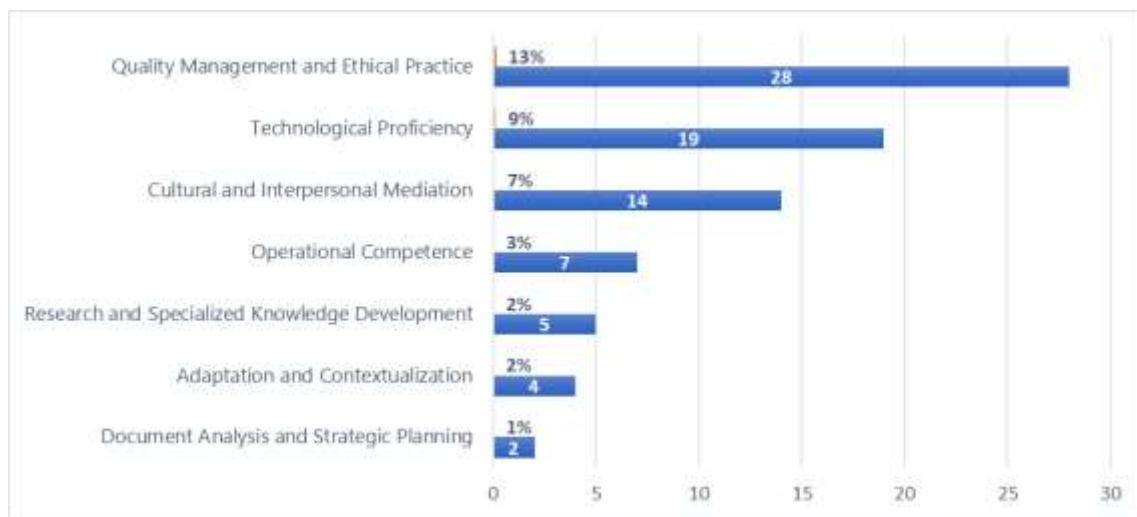
Technological Proficiency was the second most prevalent area, mentioned in 9% of the job advertisements. This reflects the increasing integration of translation tools and machine translation (MT) in professional workflows, as noted by Venkatesan (2023), Liu (2023) and Al-Batineh and Al Tenaijy (2024). Competence in this area extends to editing content for translation tools, post-editing MT outputs, and using appropriate tools and techniques to maintain quality in MT-enhanced projects.

Cultural and Interpersonal Mediation was referenced in 7% of the job advertisements, highlighting the importance of translators' ability to operate effectively in diverse cultural contexts and adapt content accordingly Xiangdong Li (2022), AlShaye and BinSultan, (2024) and Guerberof and Asimakoulas, (2024). This skill is particularly relevant in settings such as public service translation, localization, and community management.

Operational Competence, which includes following specific instructions, translating across various fields, and drafting texts for specific purposes, was mentioned in 3% of the advertisements. Research and Specialized Knowledge Development and Adaptation and Contextualization each appeared in 2% of the job postings, emphasizing the need for translators to conduct thorough research, develop domain-specific knowledge Shawaqfeh and Khasawneh (2023) and adapt messages to fit market needs and target audiences Guerberof and Asimakoulas, (2024).

Surprisingly, Document Analysis and Strategic Planning was the least mentioned area, appearing in only 1% of the job advertisements. This may suggest a gap between the skills emphasized in translator training programs and those explicitly sought by employers Khasawneh (2023), or could indicate that these competencies are assumed as foundational for professional translators.

While the overall percentage of job advertisements mentioning Translation Competence (22.5%) indicates its significance in the job market, the varying emphasis on specific sub-competencies highlights the evolving demands of the translation industry. As

technology and AI continue to shape the landscape of translation Xiangdong Li (2022), AlShaye and BinSultan, (2024), it is crucial for translators to cultivate a comprehensive skill set that encompasses both traditional competencies and emerging technological capabilities. Additionally, the low mention of certain areas, such as Document Analysis and Strategic Planning, calls for further dialogue between academia and industry to ensure that translator training remains aligned with market needs.

In conclusion, our study reveals that the Saudi Arabian translation job market is slowly shifting towards a more digital and AI-driven future, with a notable emphasis on Quality Management, Ethical Practice, and Technological Proficiency. However, the findings also underscore the enduring importance of cultural mediation, research skills, and adaptability in the face of evolving industry demands. As the translation landscape continues to change, it is essential for translators to proactively develop a well-rounded skill set that enables them to navigate the challenges and opportunities presented by neural machine translation and artificial intelligence.

5. Conclusion
This study aimed to investigate the qualifications and competencies sought by employers in the Saudi Arabian translation job market, assess the alignment of these requirements with contemporary translator competency models, and propose a competency model that can inform translator training programs to enhance future translators' employability in the age of neural machine translation and artificial intelligence.

The analysis of 213 job advertisements revealed that the most sought-after qualifications were a bachelor's degree (77%), language specialization (66%), target language proficiency (59%), and work experience (72%). Notably, specialized translation degrees (26%) and certification (6%) were not as highly prioritized by employers, suggesting a potential disconnect between academic institutions and industry demands.

In terms of competencies, the study identified five main categories: Language and Culture Competence (86%), Personal and Interpersonal Competence (79%), Service Provision Competence (64%), Technology Competence (51%), and Translation Competence (22.5%). The high emphasis on linguistic and cultural competencies, coupled with the demand for a diverse skill set encompassing specialized knowledge and various language-related services, indicates an evolving industry that requires translators to possess a broad range of capabilities beyond traditional translation tasks.

The findings also highlight the importance of personal and interpersonal competencies, or "soft skills," which are crucial for translators to thrive in today's fast-paced and interconnected professional world. These skills include responsibility, collaboration, attention to detail, communication, and adaptability, among others. The prominence of these competencies suggests that translator training programs should incorporate a balanced focus on both hard and soft skills to better prepare graduates for the job market.

Service Provision Competence emerged as another critical aspect, with 64% of job postings emphasizing skills such as project planning, problem-solving, quality management, and adherence to industry standards. This underscores the need for translators to maintain a keen awareness of evolving market trends and develop the ability to deliver high-quality language services while fostering long-term client relationships.

Technology Competence was mentioned in 51% of the job advertisements, with a focus on proficiency in general IT applications, document archiving, and retrieval. Surprisingly, specific localization tools were only mentioned in 1% of the postings, suggesting a potential gap between the skills taught in translation training programs and those explicitly sought by employers. This finding highlights the need for ongoing dialogue between educational institutions and industry stakeholders to ensure that curricula remain aligned with market demands.

However, it is important to acknowledge that the analysed job advertisements did not explicitly mention AI as a required skill or competency for translators. Furthermore, only 51% of the job advertisements mentioned technology or translation technology in their requirements. This suggests that while there is some recognition of the importance of technological skills in the translation industry, the current job market may not be fully acknowledging or preparing for the expected rapid trend towards the use of AI and translation technology. Consequently, it raises questions about whether the current job advertisements accurately reflect the future translators' linguistic and non-linguistic competencies and skills needed in the age of Neural Machine Translation, Artificial Intelligence, and the 4th Industrial Revolution. It may be crucial for the translation industry to proactively address this potential gap and invest in training and education programs that equip translators with the necessary skills to adapt and thrive in an increasingly AI-driven landscape. This would ensure that translators are prepared to meet the evolving demands of the market and maintain their relevance in the face of technological advancements.

Lastly, Translation Competence, as defined by the EMT Competence Framework, was mentioned in 22.5% of the job advertisements. Quality management, ethical practice, and technological proficiency were the most frequently cited sub-competencies, reflecting the growing emphasis on these areas in the translation industry. The varying emphasis on specific sub-competencies underscores the evolving demands of the field and the need for translators to cultivate a comprehensive skill set that encompasses both traditional competencies and emerging technological capabilities.

Limitations and Recommendations

While this study provides valuable insights into the qualifications and competencies sought by employers in the Saudi Arabian translation job market, it is not without limitations. The analysis was based on a sample of 213 job advertisements, which may not be representative of the entire industry. Additionally, the study focused on the Saudi Arabian context, and the findings may not be generalizable to other regions or countries.

To address these limitations and build upon the current research, future studies could expand the sample size and include job advertisements from various sources and geographic locations. Furthermore, conducting interviews with employers and industry professionals could provide a more comprehensive understanding of the skills and competencies valued in the translation market.

Based on the findings of this study, it is recommended that translator training programs in Saudi Arabia and beyond adapt their curricula to better align with industry demands. This may involve incorporating a stronger focus on linguistic and cultural competencies, personal and interpersonal skills, service provision, and technology proficiency. Additionally, fostering collaboration between academia and industry can help ensure that graduates are well-prepared to meet the challenges and opportunities presented by the rapidly evolving translation landscape in the age of neural machine translation and artificial intelligence.

In conclusion, this study highlights the importance of a holistic approach to translator training that encompasses a wide range of qualifications and competencies. By developing a competency model that reflects the needs of the 21st century and the 4th industrial revolution, translator training programs can enhance future translators' employability and contribute to the growth and success of the translation industry in the age of neural machine translation and artificial intelligence.

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