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Practitioner Perspectives on Artificial Intelligence-assisted Translation of Study Material in a Comprehensive, Open, Distance and e-Learning Institution

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Abstract: The integration of artificial intelligence (AI) has the potential to significantly enhance teaching and learning experiences, as well as to improve the quality of the editing and translation of study material within the context of comprehensive open, distance, and e-learning (CODeL). However, research concerning language practitioners' experiences with AI translation in multilingual CODeL settings in the Global South remains limited. This study addresses this gap by investigating the utilisation of AI tools for the translation of learning materials in a CODeL context. Guided by sociolinguistic theory, the study employed a literature review and qualitative methods to achieve its objectives. The study was conducted at an urban-based CODeL institution, involving 12 purposively selected language practitioners. An interpretivist paradigm was adopted, with sociolinguistic theory and thematic analysis employed to analyse primary data obtained from language practitioners through individual interviews conducted via Microsoft Teams. The findings revealed that language practitioners use AI tools cautiously for translation tasks, primarily for memory-building and initial drafts, due to concerns regarding contextual accuracy, cultural relevance, and limited support for indigenous languages. This study contributes empirical insight into the tensions between the potential of AI and sociolinguistic integrity in an under-researched multilingual CODeL setting. In conclusion, language practitioners have yet to optimally utilise AI tools for the translation of study materials in a CODeL context. The study recommends strategic investment in AI tools, alongside professional development and localisation efforts, to strengthen the translation of learning materials while safeguarding linguistic diversity and ensuring inclusive educational access

Keywords: Artificial intelligence, comprehensive open, distance and e-learning, language processing technologies, machine translation, translation.

1. Introduction

Comprehensive open, distance and e-learning (CODeL) institutions are increasingly adopting multilingualism to foster inclusivity and equitable access to education. However, the manual translation of instructional materials into various languages presents significant challenges, being often time-consuming, resource-intensive, and variable in quality. A potential solution lies in recent advancements in artificial intelligence (AI), particularly machine translation (MT), which automates the translation process to enhance accessibility, consistency, and efficiency (Rivera-Trigueros, 2022). Nevertheless, considerable inquiry remains regarding the efficacy, accuracy, and contextual appropriateness of AI-generated translations in educational environments. It is thus imperative to critically evaluate whether AI solutions can effectively facilitate the translation of content without compromising pedagogical integrity or student comprehension in the CODeL framework, wherein student support, self-directed study, and accessibility are paramount.

AI refers to systems capable of emulating human cognitive processes (Oguntona & Emere, 2025). It primarily entails the development and application of computational models and algorithms that can learn from experience and adapt to new inputs autonomously, without necessitating human

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intervention (Ratten, 2024). AI has increasingly transformed numerous sectors, with significant implications in education, particularly within the realm of language services. In the context of CODeL, AI-driven translation technologies present novel opportunities to enhance access, inclusion, and pedagogical effectiveness. This perspective is supported by Amini et al. (2024), who underscore the vital role of AI in translation, as it can augment efficiency, speed, and accuracy, thereby facilitating cross-linguistic communication. However, there are pertinent concerns regarding the utilisation of AI, particularly the ethical challenges associated with its integration into African higher education (Maluleke, 2025).

Globally, translation has become progressively more important in promoting cross-cultural interaction. Dai (2024) emphasises the significance of effective translation processes, particularly in a global educational system where AI technologies are increasingly employed to bridge communication boundaries. Real-time translation tools can enhance multilingual teaching and promote diversity and inclusivity, thereby lending further support to this viewpoint (Mehmood, 2024). Most existing literature focuses on English-language studies, which may exclude important research from other languages and contexts, particularly in non-Western educational environments where AI translation technologies may be applied differently (Nguyen et al., 2025). Furthermore, critics caution against the universal application of AI tools, highlighting algorithmic biases, ethical concerns, and issues related to digital access (Nonkula, 2025). However, there is a paucity of empirical studies examining the experiences of language practitioners with AI translation in the multilingual contexts of CODeL in the Global South.

AI translation is crucial for enabling scalable and multilingual communication that promotes accessibility, respects cultural contexts, and dismantles language barriers to facilitate globalisation. Machine Translation, particularly Neural Machine Translation (NMT), employs AI to translate text and is better able to manage long-range dependencies, resulting in more coherent translations across languages (Skadiņa et al., 2023; Putri et al., 2022). Language practitioners might benefit from MTs to enhance the quality and efficiency of their work. Systematic studies of English-Arabic MT post-editing have generally identified these benefits, despite ongoing concerns regarding interpretability, ethics, and trust (Omar & Salih, 2024). These reviews consistently emphasise the necessity of improving translators' proficiency in MT and digital literacy to ensure the appropriate use of AI. AI and MT tools are highly relevant in CODeL institutions, as they can improve language learning outcomes and foster the development of other academic abilities (Putri et al., 2022). Nonetheless, the need for human oversight and post-editing remains significant.

As noted, institutions of higher learning have increasingly integrated AI into teaching and learning in recent years. To fully realise the potential of AI in the translation of study materials, translators must possess a comprehensive understanding of AI within the broader context of the Fourth Industrial Revolution (4IR). Equipping these professionals with the requisite skills will enable them to better utilise AI to enhance the quality of translated learning materials. The application of AI in translation is particularly significant in CODeL, as it has the potential to expedite service requests related to the translation of educational content. Language practitioners within higher education institutions, who are engaged in the translation of study materials and official institutional documents, can leverage AI to refine their practices. However, Liu and Afzaal (2021) highlight that AI still necessitates training in natural language expression.

In light of this, the present study aimed to examine the use of AI tools for translating learning materials in CODeL institutions. The study was guided by the following research questions:

- Which AI-based translation tools are currently used or considered relevant by language practitioners for translating study materials in CODeL contexts?
- How do language practitioners interpret the adequacy of AI-generated translations of study materials within CODeL institutions?

- What challenges do language practitioners experience when using AI tools for translating study materials in CODeL institutions?

This study contributes to existing research by examining the relevance of AI use among language practitioners in translating study material at a selected CODeL institution. It specifically addresses the challenges faced by the institution in ensuring accessible and accurate multilingual content for students. Additionally, it offers a theoretical contribution by illustrating how language practitioners apply sociolinguistic theory in their translation work using AI tools. The study further provides recommendations for language services and practitioners within CODeL institutions to improve their competencies, thereby enhancing the quality of study material and supporting institutional goals of inclusive and effective learning.

2. Literature Review

AI is a broad field that focuses on how computers, particularly computer systems, can mimic human intelligence processes (Khaleel et al., 2024). The main goal of AI is to enable machines to perform tasks that typically require human intelligence, such as reasoning, learning, language comprehension, problem-solving, and environmental perception (Fazekas et al., 2022). AI comprises several subfields, including machine learning, where algorithms learn from experience, and deep learning, in which neural networks mimic the human brain to identify patterns and predict outcomes from large datasets (Zhao, 2024). These developments in AI are critical across various sectors, including education, banking, and transportation, as they enable more effective data processing and decision-making, thereby encouraging creativity and increasing productivity (Şerban & Lytras, 2020).

2.1 Traditional translation methods used by CODeL institutions

A significant challenge confronting traditional translation methods within CODeL institutions is the difficulty of handling complex grammar, which can result in low accuracy and misrepresentation of the original content. Research conducted by Sun (2023) and Huang and Xiang (2024) highlights the ambiguity and limitations of these approaches, which typically rely on linear processing and are therefore less successful in capturing the dynamic aspects of language. This challenge largely arises from the inadequacy of traditional methods to accurately interpret and convey meaning, which is essential for preserving the integrity of translated texts.

Another notable challenge associated with traditional translation methods is their limited computational efficiency. Wangchuk et al. (2023), conversely, argue that hybrid machine translation (HMT) approaches demonstrate superior performance compared to traditional methods in addressing complex language tasks. However, this enhancement introduces a discernible conflict between computational efficiency and accuracy. Although the higher computational costs associated with HMT are sometimes perceived as a drawback, this perspective may overlook the pedagogical significance of accuracy and meaning preservation in CODeL settings, where misinterpretation can substantially affect learning outcomes.

Hybrid techniques are believed to be more adept at capturing contextual subtleties, yet their implementation presents challenges related to institutional readiness, scalability, and resource requirements, which are frequently neglected in research. Li (2023) and Kruk and Kałużna (2024) support this viewpoint by emphasising that traditional approaches are insufficient for complex, real-world translation tasks, as they are not only inefficient but also fail to produce timely and contextually relevant outcomes. There are evident gaps in the evaluation of trade-offs between standard and hybrid translation models, and the research underscores the necessity for more advanced approaches that integrate technological innovations with the specific requirements of teaching and learning within CODeL contexts.

2.2 The potential of hybrid translation methods

Hybrid translation methods have emerged as a response to the limitations of traditional approaches, combining human expertise with machine efficiency to enhance translation quality and speed. However, while the concept is increasingly prevalent in the literature, it is not always clearly theorised, and questions remain about how responsibility, agency, and accuracy are allocated between human translators and machine systems. Machine translation tools, such as Google Translate and DeepL, have improved in terms of speed, usability, and linguistic accuracy (Noviarini, 2021); yet scholars caution that these tools still struggle to comprehend contextual complexity, cultural meaning, and domain-specific terminology. These ongoing limitations underscore the necessity for critical human oversight within hybrid approaches. These tools assist language practitioners in reaching a broader student base and fostering inclusivity in CODeL settings by facilitating the translation of multilingual learning materials (Bayly-Castañeda et al., 2024). Practitioners could enhance productivity and meet deadlines by integrating machine translation into their workflows (Haseeb et al., 2025). However, given that speed does not necessarily ensure quality, the combination of the cultural sensitivity and contextual accuracy of human translators with the efficiency and scalability of machine translation is essential for optimising translation processes. In addition to making the process more efficient, the integration of human skill with machine efficacy raises theoretical concerns regarding the evolving role of the translator, particularly with respect to the transition from traditional translation to post-editing and quality assurance. These conflicts suggest that, despite its potential, hybrid translation requires further conceptual clarification and a critical reading of the literature.

Challenges persist, particularly regarding complex legal terminologies and specialised linguistic structures, as underscored by Djeffal (2024) in his discussion of legal translation. These difficulties highlight broader concerns within the literature regarding the extent to which AI-driven systems can reliably manage highly technical or context-dependent language. Current research indicates that future approaches aimed at enhancing the flexibility and precision of study material translation in CODeL institutions may concentrate on techniques such as data augmentation, reinforcement learning, and the incorporation of specialised terminologies (Lan, 2024; Dinu et al., 2019). However, while these innovations present potential benefits, their implementation raises pertinent questions about resource availability, linguistic diversity, and the risk of privileging well-resourced languages over those that are low-resource. Language translation has undergone a substantial transformation since the advent of AI technologies, introducing both opportunities and challenges (Min et al., 2024). The translation process has been simplified and enhanced through machine learning and natural language processing, resulting in greater accuracy and efficiency. Nonetheless, scholars caution that these advancements may obscure persistent shortcomings in the management of pragmatic meaning and cultural nuance, areas where human judgment remains essential.

Li (2024) observes that recent progress in AI translation technologies has centred on large language models (LLMs), which employ deep learning to analyse extensive volumes of text. While older translation techniques frequently falter in these domains, AI-driven models are capable of producing translations that are both grammatically accurate and fluid (Li, 2024). Nevertheless, debates continue concerning the opacity of the decision-making processes of LLMs and the challenges associated with verifying accuracy in specialised fields. By emulating human language patterns, LLMs can translate text swiftly and precisely, and since AI can respond to diverse language needs almost instantaneously, users experience a more seamless workflow. However, such efficiency also prompts concerns regarding over-reliance on machine output and the potential deskilling of human translators. The integration of AI into translation is therefore transforming the role of language experts. In the future, human skills and AI technologies are expected to collaborate efficiently (Abu-Rayyash, 2023), combining machine speed with human insight. This hybrid approach is viewed as essential for enhancing translation quality, yet it also brings to the forefront questions about the

evolving identity and labour expectations of translators. Zaki and Ahmed (2024) illustrate how AI can assist in overcoming language barriers, resulting in improved communication and enhanced inclusivity; however, they also emphasise the necessity of critical oversight to prevent the uncritical acceptance of machine-generated translations.

2.3 The possibilities of machine translation and AI-driven tools

In recent years, there has been a growing focus on the development and effectiveness of study materials in educational settings, particularly those that utilise advanced technology. Learning Management Systems (LMSs) play a pivotal role in enhancing the educational process (Dhika et al., 2020). Oktarin et al. (2023) elaborate on this notion by asserting that LMSs are integrated platforms that provide learning resources, assessment tools, and monitoring capabilities. These systems not only facilitate the distribution of course content and study materials but also engage students through assignments, study guides, lessons, storyboards, tutorial letters, and other instructional resources. Alturise (2020) emphasises programmes designed to promote faculty utilisation of LMSs, such as Blackboard, demonstrating that these platforms frequently offer extensive resources tailored to diverse learning contexts. There is a notable deficiency in targeted research on the use of AI for translating study materials within CODeL contexts, particularly in multilingual environments such as those found in South Africa. This gap exists despite extensive research on the broader applications of AI in higher education, encompassing its administrative functions, pedagogical benefits, contributions to management efficiency, and overall impact on the learning experience.

3. Contextualisation of the Study

In South Africa, students originate from diverse linguistic backgrounds, necessitating equitable access to education and effective knowledge transfer. A substantial number of translations per module is frequently required to accommodate the country's official languages. This need for equitable access is emphasised by the understanding that language is a crucial component of epistemic access to higher education (Xulu-Gama & Hadebe, 2022). Historically, African languages have been marginalised within South Africa's intricate linguistic landscape, where English and Afrikaans have predominantly influenced higher education (Mutongoza et al., 2023; Maḓadzhe, 2019). By promoting multilingualism and integrating indigenous languages into academic settings, the nation's post-apartheid transition seeks to mitigate these inequities (Wildsmith, 2012). However, the literature also highlights ongoing conflicts between institutional realities and policy aspirations, particularly in light of the uneven development of African language resources across universities.

To uphold students' constitutional rights to receive education in their preferred languages, institutions such as the Durban University of Technology (DUT) are pursuing what has been characterised as a "radical linguistic transformation" (Xulu-Gama & Hadebe, 2022). Nonetheless, academics contend that structural issues, including inadequate funding, insufficient language infrastructure, and varying levels of institutional commitment, frequently hinder such transformation initiatives. The linguistic diversity of the student body should be taken into account in every module offered at higher education institutions. For instance, the utilisation of translation services can enhance students' understanding and engagement, potentially leading to improved academic performance and retention (Ebrahim & Julie, 2017). Generally, the complexity of a course and the number of languages spoken by students correlate with the quantity of translations required for each module. Although multilingual delivery presents educational advantages, maintaining high-quality translations at scale remains a challenge for many institutions, creating operational tension.

To ensure broader accessibility, many institutions may need to provide translations in at least three to five languages, including key indigenous languages such as isiZulu, isiXhosa, and Sesotho, in addition to English (Maḓadzhe, 2019). Institutions must, however, surmount obstacles such as

shortages of instructional materials in regional languages and the urgent demand for qualified staff who are proficient in both the subject matter and the language of instruction (Makgobole & Onwubu, 2021). Research also indicates that incorporating African languages into curricula can enhance student learning and foster a more inclusive classroom environment (Mutongoza et al., 2023; Chawaremera, 2024). Nonetheless, there remains contention regarding the adequacy of translation, with some scholars advocating for more extensive curriculum reform that transcends the mere provision of translated texts. Bridging linguistic barriers and enhancing educational outcomes in universities across the country necessitates the careful and systematic preparation of translations for each module to ensure effective implementation (Bitzer & Jager, 2018). Overall, the research underscores the need for more innovative and sustainable translation processes within CODeL environments by revealing a significant disconnect between the theoretical commitment to multilingualism and the practical mechanisms available for its implementation.

3. Theoretical Framework

Sociolinguistic theory serves as a framework for understanding the interplay between language, society, and technology within translation activities. It is conceptualised as a collection of ideas and explanations that link linguistic forms and usage to social structures, social identities, and interactional contexts (van Herk, 2012). This theory positions language as a social phenomenon, underscoring its variability and dissemination, a process influenced by communication methods and social factors. It constitutes an essential framework for comprehending the intricate interactions between language and society (Bercero Otal, 2014).

Broadly defined, sociolinguistics investigates how social variables such as age, gender, location, class, and ethnicity impact language use and variation within speech communities (Sharma, 2024). Dialects and sociolects exemplify linguistic variations that frequently mirror the identities of their speakers and their social environments. This perspective underscores that language is intricately interconnected with cultural identities and social structures, thereby transcending its role as a mere means of communication (Cong, 2023). A prominent concept in sociolinguistics is code-mixing and code-switching, which is particularly evident in contemporary settings where multiple languages coexist (Tarihoran et al., 2022). Tarihoran et al. (2022) observe that social media platforms are extensively utilised in countries such as Indonesia, with Generation Z frequently engaging in code-mixing—integrating English and Indonesian—in online interactions. Such behaviour illustrates how digital platforms not only facilitate communication but also shape language usage, thereby highlighting the fluidity of linguistic identities within specific sociocultural contexts (Conny et al., 2024).

Sociolinguistic perspectives significantly enhance the study of communicative competence, which encompasses the appropriate contextual use of language in social interactions alongside grammatical accuracy (Al-Juraywi, 2021). This includes an awareness of social dynamics and politeness conventions in communication, underscoring the proactive role of language in negotiating interpersonal relationships and cultural norms (Basis, 2024). Consequently, sociolinguistic theory provides a comprehensive framework for analysing the intricate interrelationships between language and society, offering vital insights into how language operates within diverse social contexts by considering aspects such as social identity, evolving technological communication formats, and the pedagogical implications of linguistic variation. Furthermore, sociolinguistic theory is critical to our study as it elucidates how linguistic disparities originate and persist in multilingual educational settings, inequities that are particularly pronounced in South Africa's CODeL schools. The research problem, which emphasises a lack of investigation into language practitioners' experiences with AI translation tools in multilingual contexts of the Global South, is directly associated with these inequities.

In CODeL environments, where multilingualism and cultural diversity are paramount, AI tools must incorporate sociocultural context in addition to literal translation to ensure accuracy and relevance. Cong (2023) posits that the integration of sociolinguistic concepts into language instruction enhances students' awareness of linguistic diversity, a principle that is equally crucial when employing AI translation tools. Sociolinguistic considerations are essential for ensuring inclusion and contextual accuracy in AI-driven translations, as language variation often reflects social identity (Sharma, 2024). Sociolinguistic theory, which emphasises power, identity, ideology, and context as fundamental analytical constructs, facilitates this study in assessing not only whether AI translations are grammatically accurate but also whether they preserve the sociocultural meanings intrinsic to indigenous languages that are vital for students' epistemic access. This theoretical alignment directly addresses the previously described contextual challenges, where the scope and complexity of necessary translations exceed institutional capabilities and necessitate the exploration of AI-assisted solutions.

This study operationalises sociolinguistic theory to examine AI-generated translations by assessing whether these outputs preserve or alter the sociolinguistic elements present in the original texts. Sociolinguistic concepts such as language ideology, power, and context are utilised as analytical tools in the examination of AI-generated translations. Accordingly, sociolinguistic theory in this study directly informs data interpretation, rather than merely serving as a descriptive background. This implies that the evaluation of AI translation quality encompasses sociocultural faithfulness, which is crucial in multilingual CODeL environments, in addition to grammatical accuracy.

5. Methodology

A qualitative research design, situated within an interpretivist paradigm, was employed in this study to examine language practitioners' perspectives on the utilisation of AI tools for translating study material in a context of CODeL. A qualitative approach was chosen as it facilitates a comprehensive understanding of participants' perspectives and experiences. Interpretivism acknowledges the subjective dimensions inherent in social interactions and prioritises methods that focus on understanding and interpretation, rather than solely on data collection and analysis (Özalp, 2022). This approach permitted researchers to engage closely with participants, thereby gathering information regarding their individual experiences, viewpoints, and cultural backgrounds, and ultimately gaining insight into their perspectives (Mhlongo et al., 2023; Heymans et al., 2024).

The population for the study comprised 12 language practitioners and independent contractors specialising in the translation of South African official languages within the CODeL context. The practitioners were translators of Northern Sotho (Sepedi), Sesotho, Afrikaans, IsiZulu, and IsiNdebele. A minimum of two years of translation experience was stipulated as a requirement for participation. Purposive sampling, also known as judgmental or intentional sampling, is a non-probability sampling technique whereby researchers select participants based on predefined characteristics or criteria that align with the study's objectives (Herchline, 2024). This targeted methodology is particularly appropriate for qualitative research, as it enables the inclusion of participants who can provide insights that are especially pertinent to the aims and objectives of the study. Consequently, purposive sampling involves selecting participants who are best positioned to furnish rich and relevant information regarding the phenomenon under investigation (Palinkas et al., 2013). Participants for this study were selected based on their experience in translating study material at the designated CODeL institution, which was chosen for its established open distance education programmes and extensive utilisation of multilingual study material. Recruitment was conducted transparently through departmental communication channels, and inclusion criteria were applied consistently to minimise selection bias.

Data were collected through semi-structured interviews conducted via Microsoft Teams with language practitioners at the selected CODeL institution. On average, the interviews lasted between

15 and 30 minutes. Data saturation was attained during the interviews when no new themes or insights emerged. An interview guideline was employed to ensure consistency while also providing participants with the flexibility to elaborate on their experiences. The primary topics explored during the interviews included participants' views on the utilisation of AI tools in translation processes, perceived advantages, challenges, and ethical considerations. Patterns within the data were identified through thematic analysis.

Table 1 presents the alignment between the research questions and the themes identified through the thematic analysis. To enhance analytical depth and mitigate individual researcher bias, the two researchers independently coded the entire dataset. A shared codebook was developed collaboratively, themes were refined iteratively, and initial independent coding constituted one of several steps in the coding process. Consensus meetings were used to resolve disagreements between coders by comparing, discussing, and aligning codes. As discussions continued, the researchers reviewed the underlying data and reached consensus on the most appropriate interpretation. This mapping illustrates how each theme emerged in response to specific research questions. Themes 1 and 3 primarily relate to the identification and utilisation of AI-based translation tools (RQ1), while Theme 2 pertains to perceptions of accuracy and challenges (RQ2 and RQ3). Theme 4 encompasses additional insights and recommendations that extend beyond the scope of the initial research questions.

Table 1: *Identified themes and corresponding research questions*

Research Question	Corresponding Themes
RQ1: Which AI-based translation tools are currently used or considered relevant by language practitioners for translating study materials in CODeL contexts?	• Theme 1: Identification and description of translation tools • Theme 3: Participants' usage and preferences
RQ2: How accurate are AI-generated translations of study material when compared to human-produced translations within CODeL institutions?	• Theme 2: Advantages and challenges of AI translation tools
RQ3: What challenges do language practitioners experience when using AI tools for translating study material in CODeL institutions?	• Theme 2: Advantages and challenges of AI translation tools • Theme 3: Participants' usage and preferences
This theme, while extending the discussion beyond the initial research questions, is acknowledged to have arisen from unexpected but important data yielded during the interviews. It has therefore been reframed as an emergent finding, inductively informed by participants' insights.	• Theme 4: Recommendations on the use of AI

5.1 Ethical considerations

The ethical requirements for conducting the study were adhered to in accordance with the institution's research policy. Participants were informed about the purpose, nature, and procedures of the study. They were also made aware of the confidentiality of their responses and their right to withdraw from the study at any time, as participation was entirely voluntary. All participants

provided written informed consent. Ethical clearance was obtained from the Professional Research Ethics Committee, in compliance with the Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment of the researchers' institution. Additionally, permission was obtained to interview the language practitioners within the institution (ethical clearance number: 0514_2023_PRC_REC_003_Amended).

6. Presentation of Data

A thematic analysis approach was adopted to identify key themes from the collected data (Riger & Sigurvinsdóttir, 2016). The audio-recorded interviews were transcribed verbatim to ensure accuracy and preserve the participants' original expressions. Initial codes were generated inductively from the transcribed data by reading and re-reading the transcripts to identify meaningful units of text. These codes represented recurring ideas, concepts, and patterns relevant to the research questions. The codes were then grouped into broader categories based on conceptual similarity.

Through iterative comparison and discussion among the research team, these categories were consolidated into four overarching themes: (1) the identification and description of translation tools, (2) advantages and challenges of AI translation tools, (3) participants' usage and preferences, and (4) recommendations on the use of AI. ATLAS.ti was employed to organise the data, manage codes, and cluster codes into themes. The use of ATLAS.ti facilitated systematic coding while supporting analytical transparency and methodological rigour.

As highlighted by Riger and Sigurvinsdóttir (2016), the verbatim transcription process ensured that the details of the interviews were accurately captured, enabling a thorough thematic analysis. The participants' verbatim responses informed the indicators presented in Table 2.

Table 2: *Indicators for coding data on AI tool integration and proficiency*

Indicator	Description
Identification and usage of translation tools	Practitioners actively use tools such as OmegaT, Google Translate, ChatGPT, Wordfast, Trados, DeepL and MemoQ to build translation memory, to ensure consistency and to simplify layout management.
Contextual accuracy	AI tools often struggle with translating text in context, leading to inaccuracies.
Vocabulary limitations	These tools may not provide correct equivalents for words or phrases, especially for less-resourced languages.
Grammatical forms and tone	AI tools sometimes have difficulty differentiating between grammatical forms and detecting the appropriate mood or tone.
Uniquely South African terminology	Uniquely South African terminology may be misunderstood owing to the American background of AI tools.
Consistency with house style	AI tools may not align with an organisation's preferred academic terminology.
Confidentiality concerns	Participants expressed concerns regarding the confidentiality of sensitive documents processed by AI.
Technical requirements	Some tools require an internet connection for certain functionalities.
Training and skill development	Proper training and skill development are needed to use AI tools effectively. Training helps practitioners keep abreast of developments and improve their skills.

Layout management	Some tools can disrupt document layout, requiring careful post-translation checks.
Limited free usage	Tools such as ChatGPT may limit the number of queries per day for non-paying users.
Supporting tool, not a replacement	AI is viewed as a tool to assist language practitioners by making work faster and more time-effective, rather than replacing the human role.
Human oversight and critical evaluation	Practitioners emphasise the importance of not fully relying on AI without human oversight. Translations must be checked for accuracy and context.
Understanding tool capabilities and limitations	Practitioners recommend using tools that build translation memory and ensure consistency, while exercising caution when using tools such as Google Translate and ChatGPT for direct translation.

Note. Indicators were derived from participants' verbatim responses during thematic analysis.

6.1 Theme 1: Identification and description of translation tools

The participants indicated that the main business activity within their section is the editing and translation of study material. They not only identified and described various AI translation tools, but their responses also revealed distinct patterns of use and underlying motives. OmegaT (formerly Autshumato) emerged as a preferred tool among several participants, primarily due to its ability to build translation memory and ensure consistency across documents. Participant 2 commented as follows*:*

> *"We have different translation tools that we use. We use them mainly for their memory feature. This feature means that you build the translation memory as you keep using the tool. The next time you want to translate a similar document, the system remembers and points out how you translated certain elements previously. This helps because the more you use the tool, the more you build the memory. There are quite a number of these tools. Most of them have been commercialised, meaning that you have to pay to use them. However, OmegaT, which is offered by the Department of Sport, Arts and Culture, is open source, so people are free to use it."*

Participant 2's reflection highlights not only the practical utility of OmegaT but also reveals how translation memory operates as a fundamental mechanism through which practitioners manage consistency and efficiency in multilingual CODeL environments. This aligns with findings by Yeh (2024) and Wei (2023), who demonstrate that AI-powered translation tools significantly enhance translation performance by facilitating iterative learning and enabling translators to construct robust translation memories that improve over time. In this context, OmegaT's open-source accessibility becomes particularly significant: it allows practitioners to accumulate institutional terminology and patterns without the financial constraints associated with commercial tools. Koka (2023) supports the view that AI tools can greatly assist in translation tasks, emphasising the necessity for translators in educational contexts to adopt these tools. Participant 5 remarked as follows:

> *"It breaks up sentences and paragraphs so you see them just as segments. It lets you see how far you are and how much (how many segments) you have already done and how many are left."*

Participants highlighted distinct patterns in their use of AI translation tools, particularly OmegaT and Google Translate. OmegaT was valued for its ability to segment text into manageable chunks, which participants noted helps maintain focus and motivation during translation tasks. This functionality aligns with practitioners' preference for tools that support workflow efficiency and consistency. In contrast, while Google Translate is widely used, it was approached with caution due to its limitations in contextual accuracy and vocabulary coverage for less-resourced languages.

Several participants expressed concerns about its inadequacy for African languages, particularly Sepedi. As Participant 1 observed:

> *"I have realised that the Sepedi language is lagging behind, especially when it comes to things like Google Translate. I mean, by now, I think we should already have Northern Sotho on Google Translate, and it's not there. So yeah, if this tool is to be properly developed, I don't know who will do this or who needs to feed it the Sepedi dictionaries in this case."*

This absence not only reflects a technical gap in current AI translation systems but also reinforces the marginalisation of Sepedi in the digital sphere, potentially limiting epistemic access for Sepedi-speaking students within the CODeL environment. Sepedi translations remain scarce due to online translation processes that favour dominant languages, which restricts Sepedi speakers' access to information and diminishes the language's prominence in digital contexts (Xu, 2023).

Similarly, Participant 10 described using Google Translate selectively:

> *"I use Google Translate sometimes because, when I encounter a very difficult text, I want to put it into Google Translate just to see how it will translate it. From there, I just do the corrections myself."*

These findings support Noviarini's (2021) view that while AI tools like Google Translate can improve translation speed, human editing remains necessary to ensure contextual accuracy. Additionally, Google Translate is often used for initial translations, which are then refined by human translators.

#Several participants reported using ChatGPT primarily for editing purposes rather than for translation, citing its limitations in maintaining contextual accuracy. Participants 1, 4, 6, and 8 indicated that they use ChatGPT for editing, but with caution. For example, Participant 1 explained that while ChatGPT can assist in improving text quality, it is not reliable for translation tasks:

> *"It may not help you as the translator because it may not translate well in context. I think I have tried it before, and some of the words or their equivalents do not align with the context, and it has limitations, but it can still be helpful."*

Wordfast was appreciated for creating translation memory; however, participants noted that it may sometimes disrupt document layout. Reheman et al. (2023) discuss translation memory tools similar to Wordfast and OmegaT, which can store previously translated segments. These systems support contextual coherence and improve overall translation consistency. Other tools mentioned include Trados, DeepL, and MemoQ, which are used for specific language translations and for building translation memory. Guichon (2024) reports similar concerns regarding the use of ChatGPT and other generative AI tools in educational contexts, noting that these tools can make it difficult to differentiate between human and machine-generated content, potentially undermining content originality.

6.2 Theme 2: Advantages and challenges of AI translation tools

The advantages and challenges of AI translation tools were highlighted by the participants. The advantages mentioned include ensuring consistency, increasing speed, simplifying layout management and helping build glossaries. Many participants view AI as a "*tool that assist[s] us language practitioners to do our work better or a supporting feature that will help people*". It is seen as a means to make work "*faster*" and "*more time-effective*", helping to "*minimise and to make things more modern*". The consensus is that AI should "*enhance but not replace*" the human touch, as the "*human element must remain*". Participant 4, who was initially apprehensive about using AI tools, explained:

> *"I have since learned that we will have to harness AI. We need to see how we can, at best, use artificial intelligence without it bolting away – we are running behind it. So, to me, it's now a case of harnessing what it is. It's important to be part of the change and not be scared of it, as it can improve you and uplift your skills."*

Participant 11 expressed hesitancy over using AI for translation, preferring to trust their own thought, noting as follows:

> "*AI translations were so far off the mark that the context was ignored. It almost didn't make sense. Some of what I noticed made me hesitant to use AI. I would trust my own brain more than I trust AI, as AI translations lacked context.*"

These findings align with those of Seyidov (2024), who highlights how AI can accelerate translation while cautioning against its limitations regarding cultural sensitivity. Valente (2024)further emphasises that human oversight is still necessary to minimise errors and preserve linguistic integrity.

AI tools are also time-efficient and can process large volumes of text effectively. However, challenges include translations that may be out of context, difficulties with less-resourced languages, and occasional disruptions to document formatting. Participant 1 commented as follows:

> *"The human element is very important, as the translator still has the responsibility to check that the AI tool has translated correctly and accurately, that it has communicated the message well and that the meaning has not been lost. AI tools are not 100% accurate. They often translate out of context or provide equivalents [that are not always] accurate.*"

Seyidov (2024) and J. C. L. Valente (2024) highlight the risk of losing translation memory if it is not adequately backed up. Participants expressed varied preferences and experiences with different AI translation tools. Some prefer tools like OmegaT for their consistency and translation memory capabilities. Others use Google Translate and ChatGPT with caution, primarily for initial translations or editing purposes. A few participants, in line with the findings reported in the studies by Noviarini (2021) and Bayly-Castañeda et al. (2024), avoid using AI tools altogether, opting to rely on their own skills and professional judgement.

6.3 Theme 3: Participants' usage and preferences

Participants shared their preferences and experiences regarding the use of different AI translation tools. Some participants prefer tools such as OmegaT for their consistency and memory-building capabilities, while others use Google Translate and ChatGPT, albeit with caution, primarily for initial translations or editing. Participant 10 remarked as follows:

> *"I use Google Translate sometimes because when I encounter a very difficult text, I want to put it into Google Translate just to see how it will translate it. From there, I will just do some editing and changing of sentences and things like that."*

Participant 6 stated: *"I use ChatGPT often, but it's limited to a few questions every day if you don't pay."* These findings align with the argument put forth by Liu and Afzaal (2021) that the integration of AI into translation education necessitates a strategic balance between effectiveness and quality. Additionally, Krüger (2024) underscores the significance of AI literacy among translators to optimise tool utilisation while maintaining professional standards.

Participants provided valuable insights on the future approach to AI, emphasising that it should be embraced as a supportive tool to assist language practitioners rather than serve as a replacement. While AI has the potential to enhance the speed and efficiency of work, the human element must remain prevalent. Rigorous human oversight is essential to ensure accuracy and to uphold contextual relevance, as AI tools are not fully reliable and may require human intervention. Proper training is vital for language practitioners to utilise AI tools effectively, and institutions should invest in both training and resources to facilitate meaningful AI integration. Participants also highlighted the importance of comprehensively understanding the specific capabilities and limitations of various AI tools and employing them judiciously. For instance, OmegaT is recommended for its memory-building capabilities, whereas caution is advised when using tools such as Google Translate.

6.4 Theme 4: Recommendations on the use of AI

Participants emphasised that AI should complement, rather than replace, human expertise. They advocated for institutional investment in training and resources to ensure effective integration. In support of this perspective, Abu-Rayyash (2023) highlights the benefits of human–AI collaboration in translator training. Likewise, Valente (2024) cautions against over-reliance on AI, stressing the necessity of a balanced approach.

Participants expressed concern regarding sole reliance on AI without human oversight, noting that one cannot simply process text through an AI tool and assume the output to be final. They underscored that thorough review and verification remain essential. Participant 8, who was initially hesitant about the use of AI, remarked as follows:

> "*You really can't rely completely on AI without adding a human touch. You can't just put something through an AI tool and assume the output is the final text; it still needs to be checked carefully. I think AI can definitely help with basic study materials, but when it comes to exam papers, I would be very hesitant to use it.*"

AI can make work faster and more efficient, but the human element must remain. Rigorous human oversight is necessary to ensure accuracy and contextual relevance, as AI tools are not 100% accurate and may require human intervention. Proper training is crucial for language practitioners to use AI tools effectively, and institutions should invest in training and resources to enable the meaningful integration of AI. Participants further emphasised the need to be familiar with what various AI tools can and cannot do and to select them based on their strengths and limitations. They noted that platforms like OmegaT are useful because of their robust translation memory functions, whereas tools such as Google Translate should be used more cautiously.

7. Discussion of Findings

This study provides new insights into the utilisation of AI-powered translation tools within a CODeL institution, particularly concerning how these tools are perceived by language practitioner translators. The findings reveal a cautious yet strategic approach shaped by sociolinguistic considerations and institutional readiness. While participants acknowledged the efficiency benefits of AI tools, their selective application reflects deeper concerns regarding contextual accuracy and cultural authenticity, principles central to sociolinguistic theory.

The findings underscore that translation is not merely a technical process but a socially situated practice. Participants repeatedly highlighted limitations in the ability of AI tools to capture contextual meaning and culturally specific terminology, particularly for African languages such as Sepedi (Northern Sotho). Language ideology is employed to explain AI's inability to accurately process Sepedi (Aiseng, 2022). The preference for global English in AI training data reflects long-standing linguistic hierarchies that perpetuate historical power disparities and devalue native African languages. This further strengthens our argument regarding the theoretical foundation of cultural and contextual misalignment. These challenges align with sociolinguistic principles that emphasise the inseparability of language and culture (Cong, 2023; Sharma, 2024). AI systems, predominantly trained on global English corpora, often fail to accommodate local linguistic norms, risking the erosion of sociocultural integrity in multilingual educational settings. This observation complicates assumptions in prior studies, such as that of Noviarini (2021), which have emphasised the universal applicability of AI, and instead highlights the need for culturally adaptive algorithms in educational contexts. Maintaining sociocultural authenticity is crucial in multilingual educational settings, necessitating that AI systems be employed cautiously to avoid sacrificing inclusivity and pedagogical clarity.

Participants' restrained integration of AI tools reflects Rogers' diffusion of innovations theory, whereby adoption is influenced by perceived relative advantage, compatibility, and trialability (Kee et al., 2016; Nur & Nur, 2025). While AI tools offer clear advantages in speed and consistency, their limited compatibility with local linguistic norms and institutional workflows impedes diffusion. The lack of structured training and policy support further restricts trialability, reinforcing a cautious stance. This contrasts with Abu-Rayyash (2023), who reported rapid adoption in corporate translation contexts, suggesting that educational environments impose distinct sociolinguistic and organisational constraints that complicate technology diffusion.

The findings corroborate earlier research (Noviarini, 2021) indicating that AI tools can enhance efficiency and streamline repetitive tasks, particularly through functionalities such as translation memory in OmegaT. However, contrary to studies that report minimal resistance to AI integration (Abu-Rayyash, 2023), the present research uncovers enduring scepticism rooted in cultural and contextual concerns. These divergences suggest that technology adoption in educational translation is not merely a technical issue but rather a sociolinguistic one, necessitating nuanced strategies for integration that respect cultural authenticity and pedagogical clarity.

Participants consistently underscored that AI should function as a supportive tool rather than as a replacement for human translators. This perspective reflects both practical considerations regarding accuracy and sociolinguistic imperatives aimed at preserving cultural and contextual integrity. Maintaining sociocultural authenticity in multilingual educational settings is essential, and AI systems must be deployed judiciously to avert compromising inclusivity and clarity. While AI translation technologies are capable of processing vast quantities of text rapidly, they remain inadequate in managing the delicate social conventions, politeness techniques, relational cues, and culturally entrenched meanings that human communicators instinctively navigate. These findings align with the human–AI collaboration framework, which advocates for a balanced paradigm where technology enhances rather than supplants human expertise (Abu-Rayyash, 2023; J.C.L. Valente, 2024).

The successful integration of AI translation tools will depend on institutional preparedness, encompassing structured training, policy development, and investment in culturally adaptive technologies. In the absence of these measures, adoption is likely to remain fragmented and sluggish, thereby reinforcing the necessity for a strategic approach that amalgamates technological innovation with sociolinguistic sensitivity.

8. Conclusions and Recommendations

This study investigated how AI and machine translation can support language services in Community-oriented Distance Learning (CODeL) institutions, with particular attention to their role in translation and the broader sociolinguistic implications of their use. The utilisation of AI for the translation of study materials in a CODeL institution was examined. The findings indicate that practitioners primarily employ OmegaT, Google Translate, and, to a lesser extent, ChatGPT and Wordfast. OmegaT is valued for its translation memory feature, which supports consistency and efficiency, while Google Translate is used selectively for quick checks, despite concerns regarding contextual accuracy. ChatGPT is mainly employed for editing rather than translation due to its limitations in handling nuanced meanings. Participants reported that AI-generated translations often lack contextual accuracy, struggle with grammatical forms, and fail to capture the appropriate tone. These limitations are particularly pronounced for less-resourced languages such as Sepedi and for uniquely South African terminology. Consequently, substantial human oversight and post-editing are required to ensure linguistic and cultural integrity.

Participants emphasised that AI can enhance language services in CODeL institutions when human expertise remains central and is supported by continuous learning and careful tool selection,

positioning AI as a supplementary aid rather than a replacement for translators. While AI shows potential to support the translation of study materials, further research is necessary to ensure effective educational integration. Several challenges were identified, including vocabulary limitations, inaccurate equivalents for less-resourced languages, and difficulties in distinguishing grammatical forms, tone, and mood. South African terminology and institutional academic language were often misinterpreted, reflecting the predominantly American orientation of many AI systems and necessitating human correction to maintain accuracy and consistency. These issues highlight the need for ongoing capacity-building and digital literacy development among language practitioners. Overall, participants adopted a cautious but constructive stance, aligned with sociolinguistic principles that prioritise contextual and cultural authenticity, and indicated that successful integration depends on balancing technological innovation with human judgement, supported by institutional policies and professional development.

To enhance the quality of study materials, the exploration of new and innovative translation methods within language services at CODeL institutions is recommended. Greater incorporation of AI tools into the translation of study materials is also advised, alongside investment in the development of AI translation models for under-resourced languages and the creation of open-source translation memory repositories for educational content. Furthermore, the implementation of regular training sessions for language practitioners is recommended to support continuous quality improvement.

A qualitative approach with a small sample size was employed for this study; follow-up quantitative research involving a larger sample could provide further insight. In addition, the inclusion of other institutions and countries in future studies on the use of AI tools for translation may facilitate a comparative analysis of the findings reported in this article.

9. Declarations

Author Contributions: Conceptualisation (D.M.M. & O.K.R.); Literature review (D.M.M.); methodology (D.M.M.); formal analysis (O.K.R.); validation (D.M.M. & O.K.R.); formal analysis (D.M.M. & O.K.R.); investigation (D.M.M. & O.K.R.); data curation (D.M.M. and OKR.); drafting and preparation (D.M.M.); review and editing (D.M.M. & O.K.R.); supervision (N/A); project administration (D.M.M. & O.K.R.); funding acquisition (N/A). All authors have read and approved the published version of the article.

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Data Availability: The data supporting the findings of this study are available from the corresponding authors upon reasonable request. Access will be granted to researchers who meet the criteria for data sharing established by the institutional review board/ethics committee.

AI Usage: The researchers declare the use of AI-assisted tools in the preparation of this article. SciSpace was used for identifying and screening literature sources, and Grammarly was used for spelling, punctuation and grammatical editing. The authors ensured that the intended concepts were preserved during the paraphrasing of the content and did not outsource their intellectual work to ChatGPT.

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