HUMAN AND MACHINE TRANSLATION IN CONTEMPORARY TRANSLATION STUDIES

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Abstract. The evolution of translation practices in the digital age has prompted increasing attention to the roles of human and machine translation. This study examines the characteristics, advantages, and limitations of both approaches, emphasizing their complementary functions within contemporary translation workflows. Machine translation, particularly neural machine translation (NMT), offers efficiency, scalability, and rapid processing of large volumes of text, but often struggles with context, idiomatic expressions, and cultural nuance. Human translation, in contrast, provides interpretive depth, cultural sensitivity, and stylistic accuracy, particularly in specialized or creative texts. The integration of machine translation with human post-editing emerges as a practical model, combining the speed of automated systems with the precision and adaptability of human expertise. The study concludes that collaboration between human translators and technological tools represents the most effective strategy for meeting the demands of globalized communication and multilingual information exchange.

Key words: Human translation, Machine translation, Neural machine translation, Post-editing, Translation technology, Cross-cultural communication, Translation studies, Automated translation, Language processing, Translation quality

Introduction. The field of translation has undergone profound transformation in the digital era, driven largely by advancements in artificial intelligence, natural language processing, and machine learning technologies. Traditionally, human translation has been the cornerstone of cross-linguistic communication, relying on the translator's linguistic

competence, cultural knowledge, and interpretive skills to accurately convey meaning between languages. However, the advent of machine translation (MT), particularly neural machine translation (NMT), has introduced new possibilities for rapid, large-scale multilingual communication. These technological developments have prompted both scholarly and professional interest in understanding the comparative capabilities and limitations of human and machine translation.

Human translation remains indispensable in contexts that demand nuanced interpretation, cultural sensitivity, and stylistic precision, such as literary, legal, and medical translation. Translators are capable of analyzing context, recognizing implicit meanings, and adapting content to the expectations of the target audience. Conversely, machine translation excels in efficiency and scalability, providing quick solutions for high-volume content and real-time communication, yet it often struggles with ambiguity, idiomatic expressions, and culturally embedded references.

This study examines the evolving interplay between human and machine translation, highlighting their respective strengths, limitations, and practical applications. It also explores integrative approaches, such as post-editing of machine-generated translations, which combine human expertise with technological efficiency. By analyzing these developments, the paper seeks to demonstrate that the future of translation is best understood not as a competition between humans and machines, but as a collaborative system that leverages the complementary capabilities of both.

Literature review. Translation studies have traditionally emphasized human translation as the primary means of cross-linguistic communication, grounded in linguistic competence, cultural awareness, and cognitive interpretation. Early theoretical frameworks, such as those proposed by Nida (1964) and Catford (1965), focused on equivalence, examining how meaning can be accurately conveyed between languages. Nida’s concepts of formal and dynamic equivalence highlighted the tension between literal fidelity and functional communication, a tension that continues to inform contemporary

debates on human versus machine translation. Human translation has been widely recognized for its ability to interpret context, idiomatic expressions, and cultural references, thereby producing translations that are both accurate and contextually appropriate (Newmark, 1988; Munday, 2016).

The emergence of machine translation (MT) represents a significant shift in translation practice and theory. Early MT systems were rule-based and relied on deterministic linguistic algorithms, producing often rigid and error-prone translations (Hutchins, 2005). The subsequent development of statistical machine translation (SMT) marked a turning point, using probabilistic models derived from bilingual corpora to improve translation fluency. More recently, neural machine translation (NMT) has revolutionized automated translation through deep learning techniques, producing translations that are more coherent and contextually plausible (Bahdanau, Cho, & Bengio, 2015). Research indicates that while MT has improved dramatically, challenges persist in areas such as polysemy, idiomaticity, and domain-specific terminology (Koehn, 2020).

A central concern in the literature is the issue of quality and reliability. Machine translation often produces grammatically correct outputs, yet it may fail to capture pragmatic meaning, cultural nuance, or stylistic elements, leading to errors in sensitive or high-stakes contexts such as legal, medical, or literary texts (Hutchins, 2013; Garcia, 2015). Human translators, by contrast, exercise critical thinking, cultural mediation, and stylistic judgment, allowing them to produce translations that reflect both linguistic fidelity and communicative intent. Studies underscore that the cognitive processes involved in human translation—comprehension, analysis, reformulation, and adaptation—cannot be fully replicated by automated systems (Venuti, 1995; House, 2015). The literature also highlights the increasing prevalence of integrative approaches, particularly post-editing of machine-generated translations. Post-editing involves human translators reviewing and correcting MT outputs to improve accuracy, coherence, and cultural appropriateness. Research suggests that this hybrid method balances efficiency with quality, combining the speed of machine translation with the interpretive strengths of human translators (Plitt &

Masselot, 2010; O'Brien, 2012). Studies indicate that post-editing is especially effective for repetitive, high-volume content while maintaining acceptable levels of translation quality.

Furthermore, scholars have noted that the role of human translators is evolving in the context of MT and NMT technologies. Translators are increasingly required to function as supervisors, editors, and evaluators of machine-generated content, rather than solely producing translations from scratch (Gambier & van Doorslaer, 2016). This shift reflects a broader trend toward collaborative translation ecosystems, in which human expertise and technological capabilities are integrated to meet the demands of globalized communication and multilingual information dissemination.

Conclusion. The examination of human and machine translation in contemporary translation studies underscores the complementary nature of these approaches. Human translation continues to be indispensable for tasks requiring interpretive judgment, cultural sensitivity, and stylistic precision, particularly in literary, legal, and specialized technical domains. Machine translation, on the other hand, offers significant advantages in terms of efficiency, scalability, and rapid processing of large volumes of text, making it especially valuable in digital communication and high-volume translation projects.

The literature demonstrates that neither approach alone fully satisfies the demands of modern multilingual communication. Integrative strategies, such as post-editing of machine-generated translations by human translators, have emerged as effective solutions that balance productivity with quality. This hybrid model leverages the computational speed of machine translation while retaining the contextual and cultural awareness of human translators, reflecting a broader shift toward collaborative and technology-assisted translation ecosystems.

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