CULTURAL NUANCES LOST IN TRANSLATION: THE IRREPLACEABLE ROLE of HUMAN TRANSLATORS IN THE AI ERA - A STUDY of MOULOUD FERAOUN'S LE FILS DU PAUVRE;

ضياع الفروق الدلالية الثقافية في الترجمة: الدور الذي لا يُستبدل للمترجم البشري في عصر الذكاء الاصطناعي - دراسة في رواية مولود فرعون "ابن الفقير"

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Abstract:

This research examines the complex relationship between language systems and cultural diversity, and their tangible impact on translation choices in the era of artificial intelligence (AI). To this end, drawing on Mouloud Feraoun's seminal work Le Fils du Pauvre (1950), this paper compares human translation approaches with current AI translation tools, namely Google Translate, DeepL, ChatGPT-4, and DeepSeek. The study reveals significant disparities in how human translators and AI systems handle cultural elements and Kabyle linguistic markers. The findings indicate that human translators employ sophisticated cultural bridging strategies, contextual adaptation, and preservation techniques for indigenous linguistic elements. However, AI systems tend towards literal translation, which often results in cultural erasure. This research contributes to translation studies by

providing empirical evidence of the limitations of AI in cross-cultural literary translation. Furthermore, it emphasizes the continued necessity of human expertise to preserve the source text's cultural authenticity

Key words: translator choices; artificial intelligence; postcolonial literature; cultural diversity, cultural authenticity

ملخص باللغة العربية:

يتناول هذا البحث العلاقةَ المعقدةَ بين الأنظمة اللغوية والتنوع الثقافي، وأثرهما الملموس في خيارات الترجمة في عصر الذكاء الاصطناعي. وتحقيقاً لهذه الغاية، انطلاقاً من الرواية الأساسية لمولود فرعون "ابن الفقير" (1950)، تُقارن هذه الورقة البحثية المقاربات الإنسانية في الترجمة بأدوات الذكاء الاصطناعي. وتكشف الدراسة عن تفاوتات جوهرية في طريقة تعامل المترجمين البشريين والأنظمة الذكية مع العناصر الثقافية والعلامات اللغوية القبائلية. وتُشير النتائج إلى أن المترجمين البشريين يوظّفون استراتيجيات متطورة للتجسير الثقافي، والتكيّف السياقي، وتقنيات الحفاظ على العناصر اللغوية الأصيلة. في المقابل، تميل أنظمة الذكاء الاصطناعي نحو الترجمة الحرفية، مما يُفضي في الغالب إلى محو ثقافي. ويُسهم هذا البحث في حقل دراسات الترجمة بتقديم أدلة تجريبية على قصور الذكاء الاصطناعي في الترجمة الأدبية بين الثقافات. فضلاً عن ذلك، يُؤكد البحث على ضرورة الاعتماد للخبرة الإنسانية في الحفاظ على الأصالة الثقافية للنص المصدر.

الكلمات المفتاحية: الذكاء الاصطناعي؛ خيارات الترجمة؛ الأدب ما بعد الكولونيالي؛ التنوع الثقافي؛ الأصالة الثقافية

Introduction

The intersection of language use and cultural frameworks presents one of the most complex challenges in contemporary translation studies, particularly as artificial intelligence innovative digital technologies increasingly reshape and influence traditional translation practices (Gao et al., 2024). In the same vein, the emergence of Neural Machine Translation (NMT) and natural language processing (NLP) that have revolutionized the speed and accessibility of translators' works(Panesar, 2025) . Yet, fundamental and essential questions remain concerning their capacity and ability to navigate the intricate ties between cultural and linguistic divergences clearly present in postcolonial literary works.

Mouloud Feraoun's "Le Fils du Pauvre" (1950) serves as compelling example of postcolonial literature that embodies the linguistic and cultural tensions that are inherent in colonial and postcolonial contexts (Boudersa, 2014) . Written in French by a well-known Algerian Kabyle author, the novel encapsulates the complex negotiation between dominant colonial language at that time and Algerian indigenous cultural expressions (Boukhelou, 2012). Consequently, this work provides an ideal case study for examining how different translation approaches, human versus artificial intelligence, handle the preservation of cultural authenticity and linguistic nuance.

- ## The Significance of the Study

The significance of this research extends beyond academic inquiry into the practical implications of AI adoption in literary translation. As NMT systems become increasingly prevalent in educational, commercial, and cultural contexts, understanding their limitations in preserving cultural dimensions becomes critical for maintaining the integrity of cross-cultural communication and literary heritage.

- ## The Aim of the Study

This paper aims to investigate the divergences between linguistic and cultural systems as they manifest in translation choices, specifically

examining how human translators and AI systems approach the complex task of rendering postcolonial literature across linguistic boundaries. Through detailed comparative analysis of Lucy R. McNair's human translation and contemporary AI translations of selected passages from "Le Fils du Pauvre," this study seeks to illuminate the strengths and limitations of each approach in preserving cultural authenticity and linguistic complexity.

1. The Literature Review

The study of linguistic and cultural divergences in translation has evolved significantly since the emergence of postcolonial translation studies in the late twentieth century. Venuti & Lawrence, (1995) established foundational frameworks for understanding how translation functions as both a cultural practice and a site of power negotiation, particularly in postcolonial contexts where linguistic hierarchies reflect historical power structures.

Venuti & Lawrence,(1995) work on translation visibility highlighted the tendency of dominant translation practices to render foreign texts familiar to target audiences, often at the expense of cultural specificity. This domestication versus foreignization debate becomes particularly relevant when examining AI translation systems, which typically prioritize comprehensibility over cultural preservation.

Research on postcolonial translation has consistently emphasized the importance of preserving indigenous linguistic elements and cultural markers. Tymoczko(1999) argues that postcolonial translators face unique challenges in maintaining the political and cultural significance of source texts while making them accessible to target audiences. This challenge becomes amplified when examining AI systems' capacity to recognize and preserve such cultural markers.

Recent studies in Neural Machine Translation have demonstrated significant advances in linguistic accuracy and fluency. Bahdanau et al., (2015) and subsequent researchers have shown that attention mechanisms in NMT systems can achieve near- human performance in certain language pairs and text types. However, Koehn & Knowles,(2017) identify specific challenges that NMT systems face with low-resource languages, domain-specific terminology, and cultural references—all of which are prevalent in postcolonial literature.

In fact, Zabus, (2007) seminal work on the African Palimpsest provides a comprehensive understanding and solid theoretical grounding for clear comprehension on how indigenous languages include themselves within colonial languages in literary works. For instance, concept of "relexification" and "cushioning" are techniques employed by African writers offers a framework for analyzing how human translators and AI systems handle these linguistic strategies.

Additionally, Cronin, (2012) highlights another area about the impact of digital technologies on translation practices, and he advocates that computational translation systems may indirectly lead to linguistic homogenization and cultural loss. In the same line of thought, this concern is primarily pertinent when examining the translation of works like Feraoun's, in which he explicitly negotiates different layers of languages and cultures systems

Despite the extensive research in both postcolonial translation studies and AI translation technologies, there remains a significant gap in conducting comparative analysis to examine how these different approaches handle the preservation of cultural authenticity in literary translation. Ultimately, this study aims to address this gap through detailed empirical analysis of translation strategies applied to a specific postcolonial text.

2. The Theoretical Framework

Essentially, this research operates within a framework that integrates postcolonial translation theory with nowadays contemporary computational linguistics approaches. In that, the theoretical foundation draws primarily on Bhabha's (2012)concept of "cultural hybridity " and Spivak's (2021) notion of "translation as transformation" to understand how language system and cultural divergences manifest in translated texts. Further, Central to this framework is the concept of "linguistic divergence," defined as the systematic differences between language systems that extend beyond mere vocabulary or syntactic variations to encompass cultural conceptual frameworks, pragmatic, and ideological orientations. On the other hand, Cultural divergence, conversely, refers to the differences in worldviews, social practices, and meaning-making systems that influence how linguistic expressions carry cultural significance.

Additionally, the study employs Zabus's, (2007) theoretical model to examine how postcolonial authors embed indigenous spoken language and cultural elements within colonial language widely used at that time, and how translators approach the preservation of these elements. That is, this includes analysis of the concept "relexification", the semantic shift of colonial language words to carry indigenous meanings, and "cushioning" ,the contextual support provided to help readers understand cultural references.

3. Methodology

This study employs a mixed-methods research design mainly by combining qualitative textual data with quantitative comparative data. Furthermore, the research methodology involves a thorough systematic selection and analysis of rich passages from Feraoun's that contain significant cultural nuances and linguistic markers characteristic of postcolonial literature.

The selected texts focused on passages the includes clear:

- Kabyle linguistic elements embedded within the original French text,
- cultural references specific to Algerian/Berber traditions,
- colonial context markers, and

Through this paper two representative passages were carefully selected from the original novel based on their richness of cultural content and their representativeness of the broader work's linguistic strategies.

Additionally, For human translation, the researcher opts for Lucy R. McNair, translation of "Le Fils du Pauvre" into English.

For AI translation analysis, three contemporary systems were employed:

- Google Translate
- Deep L
- ChatGPT-4

These selected AI digital translators represent different approaches that simulate human translation based on neural machine translation.

Comparative analysis employed both macro-level assessment that can be explained as overall cultural preservation and readability.

On the other hand, micro-level that stands as linguistic analysis specific lexical choices and cultural adaptation strategies.

Each type of translation was analyzed and evaluated across five criteria:

- Linguistic accuracy
- Cultural authenticity
- Literary style preservation
- Accessibility to target readers
- Preservation of postcolonial elements

4. Case Study: Mouloud Feraoun's "Le Fils du Pauvre" Background and Context

Mouloud Feraoun's "Le Fils du Pauvre" (1950) stands out as a foundational work of Algerian francophone literature that was written during the height of French colonial rule in Algeria (Belkhis, 2007).

The novel demonstrates the autobiographical narrative of Fouroulou, a young Kabyle boy navigating between his indigenous Berber culture and the imposed French educational system (Mc Nair, 2011). The work is significant for its sophisticated negotiation between French linguistic expression and Kabyle cultural content that can be an ideal text for examining translation challenges.

The novel's linguistic complexity and originality stems from Feraoun's strategic embedding of Kabyle cultural concepts, social structures, and worldviews within French prose.

Hence, this creates what Zabus (2007) terms an "ethno text", which is a literary work that carries the cultural DNA of one linguistic community while being expressed in the language of another. For translators, this presents the challenge of preserving not only the surface meaning but also the cultural depths that give the text its authentic voice.

5. Comparative Translation Analysis

The following analysis examines passages from "Le Fils du Pauvre," comparing Lucy R. Mc Nair's (2011) human translation with AI-generated

translations. Each passage was selected for its concentration of cultural and linguistic challenges typical of postcolonial literature.

Passage 1: cultural identity and educational conflict

"Fouroulou était un petit Kabyle de Tizi-Hibel, un village perché sur un mamelon pierreux, au coeur de la Grande Kabylie. Comme tous les enfants de son âge, il gardait les chèvres et rêvait de devenir instituteur français"(Feraoun, 1950, p.55).

Table1: AI VS Human translation, passage1

Translation tool	**English Translation**	**Adapted Strategy**
Human by McNair	"Fouroulou was a young Kabyle boy from Tizi- Hibel, a village perched on a rocky hill in the heart of Greater Kabylia. Like all children his age, he herded goats and dreamed of becoming a French school master."	-Preservation of cultural geography; -contextual explanation in footnotes
AI by(Google Translate)	"Fouroulou was a little Kabyle from Tizi-Hibel,a village perched on a stony hillock, in the heart of Greater Kabylia. Like all children his age, he kept goats and dreamed of becoming a French teacher."	- Direct translation without cultural context
AI by (Deep Seek)	"Fouroulou was a small Kabyle from Tizi-Hibel,a village perched on a rocky mound in the heart of Great Kabylia. Like all children of his age, he tended goats and dreamed of becoming a French school teacher."	Literal rendering with slight stylistic variation

AI by (ChatGPT)	"Fouroulou was a young Kabyle boy from Tizi- Hibel, a village situated on a rocky hill in the heart of Greater Kabylia. Like all children his age, he herded goats and aspired to become a French instructor."	Basic translation with minor stylistic improvements

Source: Prepared by the Researcher

Passage 2: Kabyle Social Structures and Family Relationships

La djemaa du village s'était réunie sous le grand chêne centenaire. Les anciens discutaient gravement du sort de la fontaine sacrée, tandis que les femmes, voilées de leurs haïks blancs, attendaient respectueusement à distance"(Feraoun, 1950, p.87).

Table2 AI VS Human Translation, Passage 2

Translation tool	English Translation	Adapted Strategy
Human by McNair	"The village *djemaa* had gathered beneath the ancient oak tree. The elders gravely discussed the fate of the sacred fountain, while the women, veiled in their white *haïks,* waited respectfully at a distance."	-Preserves Kabyle terms with italicization. -provides glossary
AI by(Google Translate)	"The village assembly had gathered under the hundred-year-old oak tree. The elders were seriously discussing the fate of the sacred fountain, while the women, veiled in their white haiks, waited respectfully at a distance."	-Translates 'djemaa' to 'assembly' -loses cultural specificity
AI by (Deep Seek)	"The village djemaa had gathered under the centenary oak tree. The elders were gravely discussing the fate of the sacred fountain, while the women, veiled in their white haiks, waited respectfully in the distance."	Retains 'djemaa' but without explanation or context
AI by	"The village council had assembled beneath	Translates

(ChatGPT-4)	the century-old oak. The elders seriously debated the fate of the sacred fountain, while women, cloaked in white haiks, waited respectfully at a distance."	'djemaa' as council';

Source: Prepared by the Researcher

6. Detailed Linguistic Analysis

Undoubtedly, the comparative analysis of both **Table 1** and **Table 2** evidently reveals systematic differences in how human and AI translators' approach cultural and linguistic challenges. In that, McNair's human translation consistently employs what can be labeled "cultural bridging strategies techniques that; in fact, preserve foreign cultural elements while providing sufficient context for target language readers.

On the contrary, most of AI systems that have been used demonstrate strength in basic linguistic conversion. However, it shows significant limitations when it comes to cultural interpretation. The analysis identifies many recurring patterns in AI translation approaches:

- The tendency toward simplifying of foreign cultural concepts.
- Inconsistent handling of culturally specific terminology.
- Loss of stylistic nuance that carries cultural meaning.

7. Finding

The comparative analysis of human versus AI translation of Feraoun's "Le Fils du Pauvre" reveals significant differences in approach and effectiveness in general and cultural authenticity and preservation of postcolonial literary elements particular. Besides, the findings uncover that AI Google Translate, DeepL, ChatGPT-4, and DeepSeek, achieve acceptable levels of basic linguistic conversion, but they consistently fail to preserve the cultural elements that differentiate the work's historical significance.

As a matter of fact, Human translation employs sophisticated cultural preservation methods including:

- The use of selective retention of culturally significant terminology with appropriate contextualization

- Stylistic choices that preserve the author's negotiation between linguistic systems,
- paratextual tools like footnotes and glossaries that bridge cultural knowledge gaps
- Conversely, AI translation systems demonstrate several consistent limitations:
- Significant inability to recognize when literal translation produces cultural distortion
- The tendency to domesticate foreign cultural elements rather than preserve them
- Inconsistent handling of culturally specific terminology within the same text

8. Discussion

Unquestionably, the findings of this study could have significant implications for understanding the current limitations and pave the way for more future sophisticated development of AI translation technologies, particularly in the context of culturally rich literary texts. Plus, the pattern of cultural loss in the AI tools selected for this study raises essential questions about the role of automated systems in cross- cultural communication.

Even the tested AI translators are faster than human translation, the latter is ought to be superior in preserving cultural authenticity and can be attributed to several factors that current AI systems lack (Arjmandpour & Bahri, 2026). For instance, the sensitivity acquired through education and experience, the awareness of the political and historical contexts, and ability to make nuanced decisions (Zaki & Ahmed, 2024).

9. Conclusion

In a nutshell, through this study the researcher demonstrates that Google Translate, DeepL, ChatGPT-4, and DeepSeek, face series problem to handle the complex challenge that exists between language system and cultural nuances that characterize human writing.

Through detailed analysis of Mouloud Feraoun's "Le Fils du Pauvre," the study reveals that although the examined AI tools achieve technical proficiency in linguistic conversion, they apparently fail to preserve the cultural authenticity and postcolonial literary

The comparative analysis between Lucy R. McNair's human translation and contemporary AI systems, mainly Google Translate, DeepL, ChatGPT-4, and DeepSeek, illustrates that; admittedly, effective translation of culturally rich literary works requires more than the language system as it requires cultural sensitivity in addition to historical awareness, and literary understanding. Moreover, Human translators employ sophisticated strategies for cultural preservation that enable target language readers to access both the semantic content and cultural significance of source texts.

Further, the findings also suggest that the foundation future of literary translation lies not in the replacement of human expertise with AI Chat bots, but in the development of new approaches that use both, or what is called, hybrid methodologies that combine the benefits or the strengths of both approaches. As such, this would enhance and foster things that went wrong with AI capabilities.

As AI translation technologies continue to evolve, it becomes crucial to maintain awareness of their limitations, particularly in contexts where cultural preservation and cross-cultural understanding are paramount. The systematic cultural loss identified in AI translation of postcolonial literature represents not merely a technical challenge but a threat to the preservation of cultural diversity and literary heritage in an increasingly connected world.

Last but not least, Future research can shed more light on development of more AI translation systems. Only through such continued committed investigation, we ensure that technological advancement serves to enhance human translation meaningfully and reduce the drawbacks of AI translation tools accordingly.

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