



Leveraging Artificial Intelligence for International Accessibility to Moroccan Linguistic Heritage

Karima Bouziane

Chouaib Doukkali University, Morocco



كلية الآداب والعلوم الإنسانية بالجمعة
+05211011 | +0 31211 1 +000011 +3111111
Faculté des Lettres et des Sciences Humaines d'El-Jadida





Outline

- Background
- Past Studies
- Research Gap
- Objectives
- Procedure
- Demonstration
- Evaluation
- ChatGPT's Efficacy
- Recommendations

Background

- Cultural heritage, including linguistic heritage, serve as a vital link to the past, shaping identities, facilitating connections, and enriching societies.
- However, in today's globalized world, preserving and promoting cultural heritage, especially that which is linguistically diverse and indigenous, presents complex challenges.
- In this context, the integration of artificial intelligence (AI) offers interesting possibilities for revitalizing, valorizing, and disseminating cultural riches to wider audiences.

Past studies: AI in Cultural Heritage Preservation

- Pasikowska-Schnass & Lim (2023): Explores AI integration in EU cultural heritage, highlighting digitization's importance and addressing infrastructure and copyright challenges to enhance cultural experiences.
- Abbasi et al. (2024): Focus on AI's role in preserving Pakistan's cultural heritage, demonstrating its effectiveness in documenting artifacts and enhancing public engagement through technologies like virtual reality.
- Díaz-Rodríguez & Pisoni (2020): Stress the need for inclusivity in AI, advocating for minority involvement in Explainable AI to enhance accessibility in cultural heritage.
- Sanusi (2023): Highlights AI's potential in preserving endangered languages, advocating for resource prioritization and community collaboration to maintain cultural integrity.

- Khoshafah (2023): Assesses ChatGPT's translation accuracy, recommending human intervention for complex texts while acknowledging its utility for simpler content.
- Ermolova et al. (2024): Discuss AI's potential in preserving linguistic diversity, despite challenges like data scarcity and bias, and confirm its promise in supporting endangered languages.
- Trichopoulos (2023): Investigates GPT's role in museums as interactive storytelling tools, emphasizing ethical considerations for preserving cultural integrity.
- Hutson et al. (2023): Propose a model using AI to document cultural artifacts and languages, promoting appreciation for diverse identities.
- Stap & Araabi (2023): Identify challenges in translating indigenous languages with AI, stressing the need for improved models tailored to low-resource contexts.
- Pipplet Team (2023): Discuss AI's potential in revitalizing endangered languages through education and documentation, while recognizing biases and data accessibility challenges.

Research Gap

- Despite diverse applications, existing studies lack focus on translating and promoting indigenous linguistic heritage, particularly in the Moroccan context.
- Our proposed study aims to evaluate ChatGPT's effectiveness in translating ancient proverbs from Morocco's Doukkala region, ensuring cultural messages are preserved.

Objectives

- Integrate AI (ChatGPT) to preserve Moroccan linguistic heritage.
- Focus on ancient proverbs and idioms from the Doukkala region.
- Evaluate ChatGPT3's effectiveness in translating Moroccan Arabic to English.
- Enhance global access to local linguistic specifics.
- Provide recommendations for using AI in cultural heritage preservation.

Procedure

Selection of Proverbs:

- Cultural Relevance: Focus on proverbs reflecting local wisdom and values from the culturally rich Doukkala region.
- Personal Connection: Authors' familiarity with local culture enhances authenticity.
- Cultural Specificity: Proverbs chosen from Mrabet 's book (1999) address key aspects of Doukkala life.

ChatGPT3 Translation:

- Translated selected proverbs from Moroccan Arabic to English using prompts for direct translation and explanation.
- Documented linguistic challenges during the translation for analysis.

Evaluation:

- Conducted by authors with native proficiency in Moroccan Arabic.
- Compared translations with originals, assessing accuracy in cultural context and idiomatic expressions.
- Evaluated ChatGPT3's ability to capture the intended meaning of local expressions.

Demonstration (samples)

Proverb 1: مَنْ نَهَارَ وُلِدَتْ وُلَادِي مَا شَرِبْتُ مَائًا صَافِيًا مَا كَلْتُ عَافِيًا وَافِيًا

ChatGPT 3.5 ▾

Translate this proverb into English : مَنْ نَهَارَ وُلِدَتْ وُلَادِي مَا شَرِبْتُ مَائًا صَافِيًا مَا كَلْتُ عَافِيًا وَافِيًا



ChatGPT

The proverb you provided translates to: "From the day my child was born, I have not drunk pure water nor eaten my fill."



You

Explain the Translated proverb



ChatGPT

This proverb conveys a sense of self-sacrifice and devotion, particularly in the context of parental care. It suggests that since the birth of their child, the speaker has prioritized the well-being of their offspring over their own needs. The imagery of not drinking pure water and not eating their fill symbolizes the sacrifices made by the speaker, indicating that they have been neglecting their own comfort or desires in order to provide for their child. It highlights the unconditional love and dedication that parents often have towards their children, willing to endure hardships and put their needs second to ensure the welfare of their offspring.



Proverb 2: وَجَهَ الشَّارِفَةَ مَا يُخْفَى، وَلَوْ تَحَكُّ بِالْحَلْفَةِ

ChatGPT 3.5 ▾



You

Translate this proverb into English: وَجَهَ الشَّارِفَةَ مَا يُخْفَى، وَلَوْ تَحَكُّ بِالْحَلْفَةِ



ChatGPT

The face of nobility doesn't hide, even if you cover it with a veil.



You

Explain the translated proverb



ChatGPT

This proverb essentially emphasizes the idea that true nobility and honorable qualities cannot be concealed or hidden, regardless of attempts to do so. It suggests that genuine dignity and integrity are inherently visible and apparent, even if someone tries to obscure or mask them. In other words, noble character traits are inherently transparent and cannot be disguised or disguised effectively. The phrase "even if you cover it with a veil" underscores the idea that attempts to conceal such qualities are futile because they will inevitably shine through.



Proverb 3: إِيْلَا صَبَّتْ الشُّتَا فِي الصَّمَايْمِ، يَبِيعُ الزُّرْعَ وَشُرِي الْبُهَائِمِ

ChatGPT 3.5 ▾



You

Translate this proverb into English: إِيْلَا صَبَّتْ الشُّتَا فِي الصَّمَايْمِ، يَبِيعُ الزُّرْعَ وَشُرِي الْبُهَائِمِ



ChatGPT

"When winter falls in Al-Sama'im, sell the crops and buy the livestock."



You

Explain the translated proverb



ChatGPT

The translated proverb, "When winter falls in Al-Sama'im, sell the crops and buy the livestock," suggests a strategic approach to agricultural and livestock management based on seasonal conditions.

- 1. Selling Crops:** Winter's arrival in Al-Sama'im likely signifies the end of the growing season or a change in weather conditions that may affect crop yields or quality. Therefore, it advises farmers to sell their crops at this time, presumably when demand might be higher due to factors like scarcity or improved quality resulting from the seasonal changes.

Proverb 4: **اللَّهُ يَنْجِيكَ مِنْ جَرَادٍ مَارِسٍ وَرَعْدٍ بُرَيْلٍ**

ChatGPT 3.5 ▾



You

Translate this proverb into English: **اللَّهُ يَنْجِيكَ مِنْ جَرَادٍ مَارِسٍ وَرَعْدٍ بُرَيْلٍ**



ChatGPT

The proverb "**اللَّهُ يَنْجِيكَ مِنْ جَرَادٍ مَارِسٍ وَرَعْدٍ بُرَيْلٍ**" translates to "God save you from March locusts and April thunderstorms."



You

Explain the translated proverb



ChatGPT

This proverb suggests the hope for protection or deliverance from difficulties that may arise during specific months of the year. It refers to the challenges associated with March and April, such as locust swarms in March and thunderstorms in April. Locust swarms can devastate crops and livelihoods, while thunderstorms can bring destruction through lightning, heavy rain, and strong winds. Therefore, the proverb implies a wish for divine intervention to shield someone from these adversities during these months. It reflects the cultural understanding of the challenges posed by nature at certain times of the year and the desire for divine protection from such hardships.

Evaluation

- Proverb 1: Successfully emphasizes the deep commitment and sacrifice parents make for their children.
- Proverb 2: Transforms a gender-specific message into a more universal and dignified expression, preserving the essence of aging and respect.
- Proverb 3: Accurately conveys agricultural advice while maintaining the cultural relevance of the term "Al-Sama'im," offering valuable practical reasoning.
- Proverb 4: Effectively communicates a desire for divine protection, keeping both emotional depth and cultural significance intact.

ChatGPT's Efficacy

Accuracy of Translation:

- Effectively translates general messages of ancient proverbs, improving global accessibility.

Cultural Context Preservation:

- Essential to maintain historical references and social customs in translations.

Accessibility and Global Understanding:

- Enhances access to linguistic heritage for non-native speakers, promoting cross-cultural communication.
- Fosters appreciation of diverse linguistic traditions.

AI-Heritage Recommendations

- AI developers and researchers should invest in more tailored AI models for specific languages and dialects.
- Linguists and cultural heritage organizations should create linguistic heritage datasets (of ancient texts, folklore, and literature, etc).
- Community leaders and cultural institutions should involve local communities and organizations in preservation efforts.

References

- Abbasi, M. U. R., Abbasi, S., Ali, S., Qureshi, A. U. R., Kataria, J. R., & Falak, N. (2024). Role of Artificial Intelligence (AI) in Preservation of Cultural and Religious Heritage: Analytical Discourse of Pakistan. *Qualitative Research*, 24(1).
- Bouziane, A., & Echchaou, H. (2024). Leveraging artificial intelligence for international accessibility to Moroccan linguistic heritage. *International Arab Journal of English for Specific Purposes*, 7(1), 1-15.
- Díaz-Rodríguez, N., & Pisoni, G. (2020). Accessible Cultural Heritage through Explainable Artificial Intelligence. In *UMAP '20 Adjunct: Adjunct Publication of the 28th ACM Conference on User Modeling, Adaptation and Personalization*. pp.317-324. <https://doi.org/10.1145/3386392.3399276>
- Ermolova, T. V., Savitskaya, N. V., Dedova, O. V., & Guzova, A. V. (2024). The Potential of Artificial Intelligence in Preserving Linguistic Diversity for Future Generations. *Science for Education Today*, 14(1), 184-198. <http://dx.doi.org/10.15293/2658-6762.2401.09>
- Hutson, J., Ellsworth, P., & Ellsworth, M. (2023). Preserving Linguistic Diversity in the Digital Age: A Scalable Model for Cultural Heritage Continuity. *Journal of Contemporary Language Research*, 3(1). Retrieved from <http://jclr.rovedar.com/>
- Kavitha, R., et al. (2023). AI: A Catalyst for Language Preservation in the Digital Era. *Shanlax International Journal of English*, 12(S1), 102-106. <https://doi.org/10.34293/rtdh.v12iS1-Dec.39>
- Pasikowska-Schnass, M., & Lim, Y.-S. (2023). Artificial intelligence in the context of cultural heritage and museums. *European Parliamentary Research Service*, PE 747.120.
- Sanusi, T. (2023, August 17). Reviving Lost Tongues: How AI Battles Language Extinction. Retrieved from <https://deepgram.com/learn/language-ai-cultural-preservation>
- Stap, D., & Araabi, A. (2023). ChatGPT is not a good indigenous translator. *Proceedings of the Workshop on Natural Language Processing for Indigenous Languages of the Americas (AmericasNLP)*.
- Trichopoulos, G. (2023). Large Language Models for Cultural Heritage. In *CHIGREECE '23: Proceedings of the 2nd International Conference of the ACM Greek SIGCHI Chapter*(pp. 1-5, Article No. 33). DOI: 10.1145/3609987.3610018

- 
- Thank you