KMANPUB AI and Tech in Behavioral and Social Sciences Vol. 2 No. 4 (2024): 11-18

Article history:
Received 23 March 2023
Revised 30 June 2024
Accepted 12 July 2024
Published online 01 October 2024

The Role of AI in Supporting Indigenous Languages

Dilek. Soylu*[1], Ayşe. Şahin[1]

[1] Manavgat Faculty of Social and Human Sciences, Akdeniz University, Antalya, Turkey

*** Corresponding author email address**: dileksoylu@akdeniz.edu.tr

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Soylu, D., & Şahin, A. (2024). The Role of AI in Supporting Indigenous Languages. *AI and Tech in Behavioral and Social Sciences, 2*(4), 11-18.
https://doi.org/10.61838/kman.aitech.2.4.2

A B S T R A C T

This study aims to explore the role of AI in supporting indigenous languages, focusing on its impact, the challenges encountered, and the opportunities it presents for language revitalization efforts. Employing a qualitative research design, this study gathered data through semi-structured interviews with 25 participants, including indigenous language speakers, linguists, AI technologists, and cultural preservationists. Thematic analysis was used to identify and categorize the main themes and concepts arising from the interviews. Three main themes were identified: the Impact of AI on Language Preservation, Challenges, and Opportunities. AI was found to significantly support language learning tools, community engagement, accessibility, and content creation while raising ethical considerations. Challenges included technical barriers, cultural and social barriers, and financial and resource constraints. Opportunities for AI in language revitalization were identified in collaboration and partnership, innovation and adaptation, and technological advancements. AI holds substantial potential to support the preservation and revitalization of indigenous languages through tailored learning tools, enhanced accessibility, and community engagement. However, realizing this potential fully requires addressing the identified challenges through collaborative efforts, ethical considerations, and sustained investment in technological and community-based solutions.

Keywords: *Indigenous Languages, Language Revitalization, Artificial Intelligence, Cultural Preservation, Language Learning Tools, Community Engagement, Technological Barriers, Language Policy*

1. Introduction

The revitalization and preservation of indigenous languages have emerged as critical areas of concern and action within linguistics, technology, and cultural studies. In an era where globalization and technological advancement have both endangered and provided new means to safeguard linguistic diversity, the intersection of artificial intelligence (AI) and indigenous languages offers a promising frontier for exploration and action. This study examines the role of AI in supporting indigenous languages, leveraging digital tools not just as instruments of modernization but as bridges to cultural preservation and revitalization.

The importance of decolonizing speech and language technology is increasingly recognized in the scholarly community. Bird (2020) and Meighan (2021) have been

pivotal in highlighting this issue, emphasizing the need for approaches in language technology that respect and integrate indigenous knowledge systems. These perspectives challenge the prevailing paradigms within which language technologies are developed, advocating for the design and implementation of digital tools that genuinely support the vitality and transmission of indigenous languages. The essence of their argument lies in not merely adapting existing technologies for use with indigenous languages but fundamentally rethinking these technologies from the ground up, in ways that are congruent with indigenous epistemologies and sensibilities (Bird, 2020; Meighan, 2021).

Moreover, the role of community engagement and institutional support in the revitalization of indigenous languages cannot be overstated. McIvor & Ball (2019) underscore the significance of initiatives at the community level, supported by coherent policy frameworks and government backing. Their research suggests that the success of language revitalization efforts is intricately tied to the empowerment of indigenous communities to lead these endeavors, coupled with adequate resources and policy support to sustain them (McIvor & Ball, 2019).

The contribution of academic institutions in this landscape is equally critical. Bergier & Anderson (2021) delve into how these institutions shape indigenous language programming, addressing the multifaceted challenges posed by intergenerational trauma and the diverse learning needs within indigenous communities (Bergier & Anderson, 2021). This discussion is complemented by Desmoulins et al. (2019), who investigate the development of university-based language instruction programs aimed at supporting indigenous language revitalization. These efforts highlight the pivotal role that educational institutions play in not only preserving indigenous languages but also in fostering an environment where these languages can thrive and evolve (Desmoulins et al., 2019).

In the realm of technology, AI presents a novel set of tools and methodologies for language learning and preservation. Yang & Kyun (2022) provide a systematic review of the research on AI-supported language learning, indicating the vast potential AI holds in enhancing the efficacy and reach of language education. The adaptability and scalability of AI technologies make them particularly suited for customizing learning experiences to meet the unique needs of indigenous language learners, ranging from beginner to advanced levels (Yang & Kyun, 2022).

Similarly, Glasgow (2023) explores the broader impact of technology, including AI, on the preservation and promotion of Pacific languages and traditions. This work illustrates the multifaceted benefits of leveraging technology in language preservation efforts, from increasing access to learning resources to enabling the creation of digital spaces where language and culture can flourish. The positive implications of these technologies for indigenous languages are significant, offering new avenues for engagement, learning, and cultural exchange (Glasgow, 2023).

This study builds upon these foundational insights, aiming to further elucidate the role of AI in supporting indigenous languages. By focusing on qualitative research through semi-structured interviews, this study seeks to capture the nuanced perspectives of indigenous language speakers, linguists, AI technologists, and cultural preservationists. The goal is to understand the complex interplay between technology and language revitalization efforts, identifying both the opportunities and challenges presented by AI in this context.

As we navigate the possibilities offered by AI for indigenous languages, it is imperative to approach this intersection with a sense of responsibility and a commitment to respecting and honoring the linguistic and cultural sovereignty of indigenous peoples. This study endeavors to contribute to the ongoing dialogue surrounding language preservation, offering insights and recommendations that are grounded in respect, collaboration, and innovation. Through a careful examination of the potentialities and pitfalls of AI in language revitalization, we aim to chart a path forward that is inclusive, sustainable, and attuned to the voices and visions of indigenous communities worldwide.

2. Methods and Materials

2.1. Study Design and Participants

This study adopts a qualitative research approach to explore the role of artificial intelligence (AI) in supporting and revitalizing indigenous languages. Recognizing the nuanced and contextual nature of language and cultural preservation, the research design centers on semi-structured interviews. This methodological choice allows for the collection of rich, detailed insights from a diverse set of stakeholders involved in the intersection of AI technology and indigenous language preservation.

Participants were purposively selected to encompass a wide range of perspectives and experiences related to the use

AITBSS
AI and Tech in Behavioral and Social Sciences
E-ISSN: 3041-9433

of AI in supporting indigenous languages. The sample included:

Indigenous language speakers: Individuals who speak an indigenous language as their first language or have learned it as a second language.

Linguists: Experts in the study of languages, with a focus on those specializing in indigenous languages.

AI Technologists: Professionals and researchers who develop or work with AI technologies relevant to language learning, preservation, or revitalization.

Cultural Preservationists: Individuals or community leaders involved in efforts to preserve and promote indigenous culture, including language.

The study was conducted in accordance with ethical guidelines to protect the rights and confidentiality of participants. Prior to participation, all participants were informed about the study's purpose, the nature of their involvement, and their rights, including the right to withdraw at any time without consequence. Informed consent was obtained from all participants. To protect confidentiality, any identifying information was removed or altered in the presentation of the findings.

2.2. Data Collection

Data collection was conducted through semi-structured interviews, which were designed to elicit in-depth responses on the experiences, perceptions, and insights of participants regarding the use of AI in supporting indigenous languages. Each interview followed a guide with a set of core questions to ensure consistency, while also allowing for follow-up questions based on respondents' answers to explore themes more deeply. The core questions covered topics such as:

The potential and actual impact of AI on indigenous language preservation and revitalization.

Examples of AI applications currently used or in development for language support.

Challenges and opportunities in integrating AI technologies with indigenous language initiatives.

Ethical considerations and community engagement in the development and implementation of AI solutions.

Interviews were conducted in the participants' preferred language, when feasible, to ensure comfort and clarity in their responses. Each interview lasted approximately 45-60 minutes and was recorded with the consent of the participants for accuracy in data analysis.

2.3. Data Analysis

Recorded interviews were transcribed verbatim and analyzed using thematic analysis to identify recurring themes and patterns in the data. Initial coding was conducted independently by two researchers to ensure reliability, followed by a collaborative review to reach consensus on the coding framework. The analysis focused on extracting insights related to the effectiveness, challenges, and ethical considerations of applying AI technologies in the context of indigenous language preservation.

3. Findings

The study involved a diverse group of 25 participants, each bringing unique insights into the role of AI in supporting indigenous languages. The demographic breakdown of the participants is as follows: Eight participants were indigenous language speakers, offering perspectives from those who use the language in their daily lives and understand its cultural significance. Five participants specialized in the study of languages, with a focus on indigenous languages, contributing expert knowledge on linguistic challenges and opportunities. Six participants were professionals and researchers in the field of artificial intelligence, providing insights into the technical aspects of AI tools and their application to language learning and preservation. Six participants were involved in cultural preservation efforts, including community leaders and activists, highlighting the social and cultural dimensions of language revitalization.

Table 1

The Results of Qualitative Analysis

Main Themes	Subthemes	Concepts (Open Codes)
1. Impact of AI on Language Preservation	1.1 Language Learning Tools	Mobile apps, Online platforms, Voice recognition, Interactive games
	1.2 Community Engagement	Social media integration, Cultural workshops, Community portals, Feedback mechanisms
	1.3 Accessibility	Multilingual support, User-friendly interfaces, Audio-visual aids, Offline access
	1.4 Content Creation	Digital storytelling, Cultural archives, Translation tools, Automated content generation

AITBSS
AI and Tech in Behavioral and Social Sciences
E-ISSN: 3041-9433

	1.5 Ethical Considerations	Data privacy, Cultural sensitivity, Consent protocols, Bias and fairness
2. Challenges	2.1 Technical Barriers	Internet connectivity, Device availability, Software limitations, Language complexity
	2.2 Cultural and Social Barriers	Technological skepticism, Language stigma, Intergenerational gaps, Cultural misinterpretations
	2.3 Financial and Resource Constraints	Funding availability, Resource allocation, Economic sustainability, Infrastructure development
3. Opportunities	3.1 Collaboration and Partnership	Interdisciplinary teams, Community involvement, Public-private partnerships, International cooperation
	3.2 Innovation and Adaptation	AI advancements, Customized solutions, Feedback loops, Scalability challenges
	3.3 Technological Advancements	Machine learning improvements, Natural language processing, Augmented reality, Blockchain for data security

3.1. Impact of AI on Language Preservation

Our findings highlight the significant impact of artificial intelligence (AI) on the preservation of indigenous languages across several dimensions. The development of language learning tools, including mobile apps and online platforms, has been pivotal. One interviewee remarked, "Mobile apps have democratized access to our language, allowing learners from geographically dispersed areas to engage with it daily." Interactive games and voice recognition technologies were also cited as critical in enhancing language acquisition, making learning more accessible and engaging.

Community engagement, facilitated through social media integration and cultural workshops, emerges as a critical subtheme. Participants noted the power of digital platforms in building community connections and fostering a sense of belonging among language learners. "Community portals have become lifelines, where our language breathes and evolves," shared a cultural workshop organizer.

Accessibility concerns were addressed through the creation of user-friendly interfaces and multilingual support systems, ensuring that language learning tools are inclusive and accessible to all age groups. An interviewee highlighted, "Ensuring our tools are accessible to everyone, regardless of their tech-savviness, has been a priority."

Content creation tools, such as digital storytelling and cultural archives, were emphasized for their role in preserving and sharing indigenous narratives. "Translation tools and automated content generation have been game-changers in making our stories universally accessible," commented a linguist involved in the project.

Ethical considerations around data privacy, cultural sensitivity, and bias were frequently discussed. "It's essential that these technologies respect our cultural values and the integrity of our languages," a community leader expressed, underlining the need for culturally informed consent protocols.

3.2. Challenges

Interviewees identified several challenges, including technical barriers like internet connectivity and software limitations, which impact the effectiveness of AI tools in remote communities. "Our biggest hurdle has been ensuring reliable internet access for all community members," stated a technologist.

Cultural and social barriers, such as technological skepticism and intergenerational gaps, also pose significant obstacles. "Bridging the gap between our elders and technology is ongoing work," shared a language preservationist, emphasizing the importance of cultural sensitivity in technology adoption.

Financial and resource constraints were noted as critical challenges. Limited funding and resource allocation impact the sustainability of language preservation initiatives. An interviewee from a non-profit organization remarked, "Securing consistent funding remains our most significant challenge, hindering our ability to develop and maintain these essential tools."

3.3. Opportunities

Despite these challenges, the study identified several opportunities for leveraging AI in support of indigenous languages. Collaboration and partnership across disciplines and communities were highlighted as essential for the success of AI initiatives. "Working together with tech companies and indigenous communities has opened new pathways for innovation," a project manager noted.

Innovation and adaptation in AI technologies offer promising prospects for language preservation. The potential for customized solutions and scalability was frequently mentioned. "AI's adaptability means we can tailor solutions to fit the unique needs of each language community," an AI researcher explained.

AITBSS
AI and Tech in Behavioral and Social Sciences
E-ISSN: 3041-9433

4. Discussion and Conclusion

This study explored the intricate dynamics of artificial intelligence (AI) in the context of indigenous language revitalization. The research identified significant impacts of AI on language learning, including the development of accessible learning tools, community engagement through digital platforms, and the creation of content that is culturally relevant and sensitive. Challenges such as technical barriers, cultural and social obstacles, and financial constraints were highlighted, alongside opportunities for collaboration, innovation, and technological advancement. The findings underscore the potential of AI to support the preservation and revitalization of indigenous languages, provided that these efforts are inclusive, culturally sensitive, and community-led.

This study identified three main themes in the exploration of the role of artificial intelligence (AI) in supporting indigenous languages: Impact of AI on Language Preservation, Challenges, and Opportunities. Each theme is divided into categories that encapsulate specific aspects of AI's influence on language revitalization. The categories under the Impact of AI on Language Preservation include Language Learning Tools, Community Engagement, Accessibility, Content Creation, and Ethical Considerations. The Challenges theme is broken down into Technical Barriers, Cultural and Social Barriers, and Financial and Resource Constraints. Lastly, the Opportunities theme encompasses Collaboration and Partnership, Innovation and Adaptation, and Technological Advancements.

The Impact of AI on Language Preservation theme delves into how AI technologies are being utilized to support the learning and revitalization of indigenous languages. Under this theme, the category of Language Learning Tools discusses concepts such as mobile apps, online platforms, voice recognition, and interactive games, highlighting the diverse array of digital resources available for language learners. Community Engagement focuses on social media integration, cultural workshops, community portals, and feedback mechanisms, illustrating the ways in which AI fosters connections among language speakers. Accessibility covers multilingual support, user-friendly interfaces, audio-visual aids, and offline access, addressing the importance of making AI tools accessible to all users. Content Creation explores digital storytelling, cultural archives, translation tools, and automated content generation, reflecting on AI's role in producing and preserving linguistic content. Ethical Considerations discuss data privacy, cultural sensitivity, consent protocols, and bias and fairness, emphasizing the ethical dimensions of using AI in language preservation efforts.

The Challenges theme outlines the obstacles encountered in applying AI to indigenous language revitalization. Technical Barriers include internet connectivity, device availability, software limitations, and language complexity, which represent the technological hurdles that can hinder the effectiveness of AI tools. Cultural and Social Barriers comprise technological skepticism, language stigma, intergenerational gaps, and cultural misinterpretations, capturing the sociocultural factors that may resist or complicate the adoption of AI technologies. Financial and Resource Constraints highlight funding availability, resource allocation, economic sustainability, and infrastructure development as critical economic challenges to sustaining language revitalization initiatives.

The Opportunities theme identifies areas where AI can significantly contribute to the preservation and revitalization of indigenous languages. Collaboration and Partnership discuss interdisciplinary teams, community involvement, public-private partnerships, and international cooperation, underscoring the importance of collaborative efforts in leveraging AI for language revitalization. Innovation and Adaptation focus on AI advancements, customized solutions, feedback loops, and scalability challenges, highlighting the potential for technological innovation to meet the unique needs of language revitalization projects. Technological Advancements encompass machine learning improvements, natural language processing, augmented reality, and blockchain for data security, pointing to the evolving landscape of AI technologies and their applicability to language learning and preservation.

The intersection of technology, culture, and linguistics presents a fertile ground for exploring indigenous language revitalization. This discussion synthesizes the findings from our research with existing literature, emphasizing the multifaceted role of artificial intelligence (AI) in supporting indigenous languages. Our study echoes and extends the thematic concerns highlighted by May (2013), Hermes et al. (2012), and Galla (2016), focusing on the necessity of education, community engagement, and digital technologies in bolstering language revitalization efforts (Galla, 2016; Hermes et al., 2012; May, 2013).

Consistent with May (2013) and Hermes et al. (2012), our findings affirm the critical importance of culturally appropriate educational strategies and community participation in language revitalization programs (Hermes et

AITBSS
AI and Tech in Behavioral and Social Sciences
E-ISSN: 3041-9433

al., 2012; May, 2013). These elements are pivotal in creating effective and sustainable language learning environments, as also demonstrated by the positive outcomes reported in Galla (2016) regarding the use of digital technology in these endeavors. The emphasis on digital tools underlines a broader narrative within the literature on the potential of technology to bridge gaps in language learning and access (Galla, 2016).

Furthermore, the correlation between language revitalization and the well-being of Indigenous communities, as explored by Meissner (2018) and Whalen et al. (2022), finds resonance in our findings. The narratives of our participants underscore the interconnectedness of language, culture, and community resilience, suggesting that language revitalization efforts contribute significantly to the holistic health of indigenous communities (Meissner, 2018; Whalen et al., 2022). This perspective is supported by Henne-Ochoa (2022) and Misaki (2022), who delve into the socio-political dimensions of language revitalization, addressing the enduring impacts of colonialism and the central role of language in shaping identity (Henne-Ochoa, 2022; Misaki, 2022).

The challenges and opportunities of bilingualism and biliteracy in indigenous contexts, discussed by Koulidobrova & Sverrisdóttir (2021) and Bennett (2018), align with the obstacles and prospects identified in our study. The need for inclusive language policies and community-led initiatives, as they note, is critical in promoting language diversity and sustainability (Bennett, 2018; Koulidobrova & Sverrisdóttir, 2021). These aspects are crucial for understanding the broader implications of language revitalization on cultural preservation and the self-determination of indigenous communities.

The role of technology, particularly AI, in language revitalization efforts is a recurring theme in our findings and is extensively covered in the literature by Galla (2018) and Meighan (2021). These studies highlight the potential of digital tools and platforms in aiding language preservation, resonating with our observation of AI's capacity to enhance language learning experiences and accessibility (Galla, 2018; Meighan, 2021). However, as our research indicates, the integration of technology in language revitalization is not without challenges. The hurdles related to technological adoption and adaptation reflect a complex landscape where digital divides and cultural nuances intersect.

In conclusion, our study, supported by the alignment with existing literature, underscores the transformative potential of AI in indigenous language revitalization efforts. The synthesis of findings from Bird (2020), McIvor & Ball (2019), and Bergier & Anderson (2021) with our research points to a nuanced understanding of the dynamics at play (Bergier & Anderson, 2021; Bird, 2020; Meighan, 2021). It highlights the necessity of approaching language revitalization through a lens that respects and incorporates indigenous knowledge systems, prioritizes community engagement, and leverages technological advancements in a culturally sensitive manner. The collective insights from these studies advocate for a holistic approach to indigenous language revitalization, where technology serves as a tool for empowerment and sustainability, navigating the intricate relationship between language, culture, technology, and community engagement.

5. Limitations and Suggestions

This study, while insightful, is not without its limitations. The reliance on semi-structured interviews, though valuable for in-depth qualitative insights, limits the generalizability of the findings. The sample size and diversity could be expanded in future research to encompass a broader range of indigenous communities and technological initiatives. Additionally, the rapidly evolving nature of AI technology means that the findings may need continual updating to remain relevant and applicable.

Future research should aim to expand the scope of investigation to include larger and more diverse participant samples, enabling a broader understanding of the impact of AI across different indigenous language contexts. Comparative studies examining the effectiveness of various AI tools and methodologies in language learning and revitalization could offer valuable insights. Additionally, longitudinal studies could provide a deeper understanding of the long-term effects of AI-assisted language initiatives on language vitality and community engagement.

For practitioners and policymakers, this study highlights the importance of integrating AI technologies into indigenous language revitalization efforts in a manner that is respectful, inclusive, and culturally informed. Efforts should focus on developing AI tools that are accessible, adaptable, and designed in close collaboration with indigenous communities. Moreover, addressing the identified challenges requires sustained investment, policy support, and the fostering of partnerships between technology developers, indigenous communities, and educational institutions. The potential of AI to contribute to indigenous language preservation is significant, but its realization

AITBSS AI and Tech in Behavioral and Social Sciences
E-ISSN: 3041-9433

depends on a commitment to ethical practices, community engagement, and the continuous evaluation and adaptation of technological solutions.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

Bennett, J. (2018). "I Became More Maya": International Kaqchikel Maya Migration in Central America. *Universitas Psychologica*. https://doi.org/10.11144/javeriana.upsy16-5.bmmi

Bergier, A., & Anderson, K. (2021). "Step Into Learning When Ready": Towards a Strength-Based Approach to Indigenous Language Education in a University Setting. *Winhec International Journal of Indigenous Education Scholarship*. https://doi.org/10.18357/wj161202120273

Bird, S. (2020). Decolonising Speech and Language Technology. https://doi.org/10.18653/v1/2020.coling-main.313

Desmoulins, L., Oskineegish, M., & Jaggard, K. (2019). Imagining University/Community Collaborations as Third Spaces to Support Indigenous Language Revitalization. *Language and Literacy*. https://doi.org/10.20360/langandlit29463

Galla, C. K. (2016). Indigenous Language Revitalization, Promotion, and Education: Function of Digital Technology. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2016.1166137

Galla, C. K. (2018). Digital Realities of Indigenous Language Revitalization: A Look at Hawaiian Language Technology in the Modern World. *Language and Literacy*. https://doi.org/10.20360/langandlit29412

Glasgow, A. (2023). Ko toku reo ko toku ia mana: My language, my identity - The Pacific language nest: How language, culture and traditions are supported and promoted for the Pacific communities of the Cook Islands, Niue and Tokelau in Aotearoa New Zealand (Version 2). Open Access Te Herenga Waka-Victoria University of Wellington. https://doi.org/10.26686/wgtn.17135885.v1

Henne-Ochoa, R. (2022). Indigenous Language Revitalization Through Observing and Pitching in to Family and Community Endeavours: A Rationale and Description (<i>Revitalización De La Lengua Indígena Por Medio De Observar Y Acomedirse en Las Actividades De La Familia Y La Comunidad: Fundamentos Y Descripción</I>). *Journal for the Study of Education and Development*. https://doi.org/10.1080/02103702.2022.2059945

Hermes, M., Bang, M., & Marin, A. (2012). Designing Indigenous Language Revitalization. *Harvard Educational Review*. https://doi.org/10.17763/haer.82.3.q8117w861241871j

Koulidobrova, E., & Sverrisdóttir, R. (2021). How to Ensure Bilingualism/Biliteracy in an Indigenous Context: The Case of Icelandic Sign Language. *Languages*. https://doi.org/10.3390/languages6020098

May, S. (2013). Indigenous Immersion Education. *Journal of Immersion and Content-Based Language Education*. https://doi.org/10.1075/jicb.1.1.03may

McIvor, O., & Ball, J. (2019). Language-in-Education Policies and Indigenous Language Revitalization Efforts in Canada: Considerations for Non-Dominant Language Education in the Global South. *Fire Forum for International Research in Education*. https://doi.org/10.32865/fire201953174

Meighan, P. J. (2021). Decolonizing the Digital Landscape: The Role of Technology in Indigenous Language Revitalization. *Alternative an International Journal of Indigenous Peoples*. https://doi.org/10.1177/11771801211037672

Meissner, S. N. (2018). The Moral Fabric of Linguicide: Un-Weaving Trauma Narratives and Dependency Relationships in Indigenous Language Reclamation. *Journal of Global Ethics*. https://doi.org/10.1080/17449626.2018.1516691

Misaki, M. (2022). The Double Bind of "Shame": The Colonial Ramifications in Tahitian Language Revitalization. *Journal of Linguistic Anthropology*. https://doi.org/10.1111/jola.12388

Whalen, D. H., Lewis, M. E., Gillson, S., McBeath, B., Alexander, B., & Nyhan, K. (2022). Health Effects of Indigenous Language Use and Revitalization: A Realist Review. *International Journal for Equity in Health*. https://doi.org/10.1186/s12939-022-01782-6

Yang, H., & Kyun, S. (2022). The Current Research Trend of Artificial Intelligence in Language Learning: A Systematic Empirical Literature Review From an Activity Theory Perspective. *Australasian Journal of Educational Technology*. https://doi.org/10.14742/ajet.7492

AITBSS
AI and Tech in Behavioral and Social Sciences
E-ISSN: 3041-9433