MAINTAINING THE ENVIRONMENT USING AI IN DEATH LANGUAGE ERA

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Abstract

Local language cultures that are rich in natural knowledge are becoming extinct. The extinction of these languages certainly increases the threat to the ecosystem. As a language model, AI can create new language trends that support language extinction. However, the author also provides a series of concrete steps to use AI as a language digitization effort. With an ecolinguistic-ecodigital approach and through computational studies of language, AI is expected to contribute to language rescue. With these language revitalization steps, human-human language interactions in the community, humans with nature are better facilitated. The interactional relationship is considered to ensure environmental sustainability.

Keywords*:* artificial intelligence, ecodigital, ecolinguistic, language revitalization

Abstrak

Budaya bahasa lokal yang kaya akan pengetahuan alam mulai punah. Kepunahan bahasa-bahasa ini tentu meningkatkan ancaman terhadap ekosistem. Sebagai sebuah model bahasa, AI dapat menciptakan tren bahasa baru yang mendukung kepunahan bahasa. Namun, penulis juga memberikan serangkaian langkah konkret untuk menggunakan AI sebagai upaya digitalisasi bahasa. Dengan pendekatan ekolinguistik-ekodigital dan melalui studi komputasi bahasa, AI diharapkan dapat berkontribusi dalam penyelamatan bahasa. Dengan langkah-langkah revitalisasi bahasa tersebut, interaksi bahasa manusia-manusia di masyarakat, manusia dengan alam menjadi lebih terfasilitasi. Hubungan interaksional tersebut dianggap dapat menjamin kelestarian lingkungan.

Kata Kunci*: kecerdasan buatan, ekodigital, ekolinguistik, revitalisasi bahasa, linguistik komputasi*

1. Introduction

The emergence of technology has an impact that has been predicted by many philosophers. One philosopher and historian, Lewis Mumfor once predicted the impact of technology on ecology. Mumford introduced a concept called megamachine. Megamachine is a social and cultural system that is centrally controlled by a large-scale hierarchical organizational system. This system of governmental control utilizes the power of technology to achieve its goals. Mumford argues that megamachines are responsible for the development of large-scale societies and civilizations. This megamachine civilization has a dark side. Megamachine civilizations can create necropolis.

Nekropolis is a dead city that is no longer livable. Its viability is lost due to a combination of destruction of nature and dehumanization. Where the water and air are polluted and human life is degraded. This broken civilization is the result of a megamachine character that focuses only on efficiency, productivity, and control. This character focus inevitably leads to the destruction of the natural environment and the suppression of individual freedom and creativity. Some of the characteristics of humanity caused by megamachines include:

1. Alienation: Megamachines create a sense of alienation among individuals, as they are disconnected from nature and each other. The focus on efficiency and productivity leads to the dehumanization of work and a loss of connection to the creative and meaningful aspects of life.
2. Conformity: Megamachines promote conformity among individuals, as they are expected to adhere to the rules and regulations of the system. This can stifle creativity and individuality, as people are discouraged from expressing their unique perspectives and ideas.
3. Exploitation: Megamachines create systems of exploitation, where some individuals or groups are privileged over others. This can lead to social and economic inequality, as some people are denied access to basic resources and opportunities.
4. Dehumanization: Megamachines can lead to dehumanization of individuals, as they are reduced to cogs in the system. This can lead to a loss of empathy and compassion towards others, as people become focused on their own needs and goals.
5. Environmental destruction: Megamachines often lead to the destruction of the natural environment, as they prioritize productivity and efficiency over sustainability and preservation. This may lead to loss of biodiversity, degradation of ecosystems, and the destruction of the natural environment.

In this way, Mumford has explained the effect of technology on human beings. human character is only concerned with control and efficiency, resulting in the death of civilization. Besides Mumford, there is another philosopher who has explained the influence of technology on human consciousness. French philosopher Jean Baudrillard explains the concept of simulacra in postmodern society. Postmodern civilization, characterized by the development of digital and virtual technologies, has played an important role in the evolution of simulacra. Where people have been trapped in a world that is no longer able to distinguish between the original and the replica. This situation is called hyperreality. Hyperreality refers to the replication of something until it becomes more real than the original.

Furthermore, even hyperreality in the era of technological development can have a significant impact on human consciousness, such as postruth. Nevertheless, it also has an effect on ecological damage. Simulacra can create distorted perceptions of nature by presenting representations of nature that are detached from the actual environment For example, the use of VR technology to represent natural environments may create a sense of separation from the representative nature and the real nature. The resulting simulacra effect could contribute to a lack of attention to ecological damage and a lack of action to address environmental issues. This can lead to disconnecting with nature. The disconnection between humans and nature will result in a lack of understanding of the impact of human activities on the environment.

The author agrees with Beever's analysis of Baudrillard's thought. He considers that Baudrillard seems to want to emphasize that modern people pay attention to the linguistic aspect, namely ecosemiotics. Baudrillard expressed his sympathy and critically explained the condition of semiotic postmodernity. Consequently, the inevitable danger of the rise of simulacra can be understood. When simulacra in the future is able to separate us from the real ecology. The first step Baudrillard shows us to avoid ecological simulation is the ecosemiotic approach. An approach leading us to understand ecological signs linguistically.

The combined effect of simulacra and megamachines on humanity is the rise of consumerism. However, among the many issues of AI's emergence on the environment and the energy crisis, as revealed by Walia, the author focuses on the environmental impact which is caused by the death of language by AI. Following up on Baudrillard's proposal, the author develops discussion questions, such as whether as a language model, AI now has a causal relationship to ecological damage. Then, how can it be prevented? Can AI contribute in environmental salvation?

2. AI Causing Language Death

Language death is a popular term in applied linguistics. There are various other terminologies such as language extinction, lost languages, including a new term promoted by Fostar(Fostar, 2021), called "phasing language." However, regardless of these diverse terms, language death can be understood as the disappearance of a language from everyday usage. There are approximately 6,500 languages recorded in the world.(Turin, 2012) This can be caused by various factors such as lifestyle, changes, technology, and globalization. With the globalizing influence of AI consumption and the eventual dissemination of popular lifestyles, AI can gradually replace traditional ways of life and, in turn, diminish local cultures. This is where AI as a technology can become a cause of language death.

AI technology has the ability to process information quickly and accurately, but like any other technology, this capability can lead to the simulacra effect. The simulacra effect occurs when digital data no longer reflects reality, resulting in confusion between reality and replica. This confusion is manifested in the human consciousness that craves a consumeristic lifestyle, driven by a desire for efficiency and complete control, while disregarding the subsequent long-term impacts.

One of the subsequent impacts is the reduction of native language usage and the emergence of different languages generated by AI. Although AI does not directly pose a threat to language death, some of its features could potentially contribute to the marginalization of local languages. These impacts occur gradually and over the long term.

Some AI features that can potentially create simulacra effects and contribute to language death encompassing:

1. Voice assistants and chatbots: As voice assistants and chatbots become more sophisticated and widely used, they can replace human-to-human interactions and reduce the usage of local languages. This can lead to the loss of language proficiency and diminish our awareness of the cultural richness present in minority languages.
2. Machine translation: While machine translation has facilitated cross-language communication, it can also lead to the loss of language skills and cultural significance. Machine translations make it easier to rely on dominant languages, resulting in a decline in the usage of local languages and cultures.
3. Language modeling and generation: Language modeling and generation systems can produce text and speech that mimic human language. These programmed systems may inadvertently erase the nuances and cultural significance of local languages, leading to the loss of language proficiency and cultural interest.
4. Sentiment analysis and natural language processing: Advanced AI features such as sentiment analysis and natural language processing can analyze and understand human language, although they may not yet fully capture the cultural nuances and significance

of local languages. However, these capabilities still have the potential to erode cultural understanding and the importance of regional languages.

3. Impact of Language Death on Ecology

The methodological relationship between linguistics and ecology is actually very close(Hodge & Goico, 2022). Many ecolinguistics experts believe that language death has an impact on ecology. When a language dies, the culture and local knowledge embedded within that language also perish. This can threaten environmental sustainability and ecological balance. Language, terminology, and vocabulary related to traditional practices such as agriculture, herbal medicine, and other local knowledge may vanish along with the death of the language. As a result, humans will lose the heritage of knowledge about how to interact with nature and their surrounding environment.

Not to mention in the current era of digitization, many languages are overshadowed by English or other international languages. These languages become less popular because they are rarely used in social media and other digital technologies. This can lead to the death of local languages that are deemed less relevant to current needs. Furthermore, technology also makes English more accessible compared to local languages. This makes local languages less desirable and eventually leads to their demise. Now, what about AI technology?

AI technology can indeed transform the way we interact with the world. Our lifestyles can be altered due to the features provided by AI. Now, these features can contribute to language death in terms of voice and text recognition technology. With these features, we tend to prefer speaking or writing in certain languages, such as English available in Google Translate.

Other AI features like virtual assistants such as Siri or Alexa can replace the need to speak in a particular language as they can understand and respond to commands in English or other popular languages. These features can reduce the need and interest for humans to use other languages. This tendency, in turn, can contribute to language death.

4. Efforts of Language Salvation with AI to Protect the Ecology

From the series of negative impacts of AI mentioned earlier, it turns out that AI can also be utilized to prevent language death. To achieve this, several concrete steps need to be taken. One of them is developing language revitalization methods using an ecodigital approach and ecolinguistic approach.

The ecodigital approach is an approach that integrates digital technology and environmental preservation. On the other hand, the ecolinguistic approach is an approach that examines linguistic aspects for environmental purposes. By combining these two approaches, AI technology can be used as a supportive tool in revitalizing endangered local/minority languages

Here are some concrete ways in which AI can be used to revitalize local languages and support biodiversity:

1. Language documentation: AI can be used to create digital archives of local languages (both in written and spoken form)(De Graaf, 2011), which can be used to preserve and share linguistic and cultural knowledge. The ecolinguistic approach can ensure that language documentation is conducted in a way that respects the environment and the communities involved. For example, drones equipped with AI-powered image recognition technology

can be used to identify and map important natural resources, such as medicinal plants or sacred sites, and record their local names and uses in the documented language.

2. Language learning: AI can be used to develop language learning tools tailored to the needs of specific language communities. For instance, speech recognition technology can be used to develop language learning applications that provide feedback on pronunciation and intonation. The ecodigital approach can ensure that language learning materials align with the local context and incorporate environmental knowledge and practices. For example, a language learning app for a community whose livelihood depends on fishing can incorporate information about sustainable fishing practices and local fish species' names.
3. Community building: AI can facilitate communication and collaboration among language communities, helping strengthen cultural bonds and promote knowledge and resource sharing Social media platforms and chatbots equipped with natural language processing technology can be used to create online communities where language learners and native speakers can connect and share information. The ecolinguistic approach can ensure that communication platforms respect the local environment and cultural norms. For example, chatbots can be programmed to use inclusive language and avoid gender or culturally insensitive language. These are some of the concrete steps above that can support language revitalization efforts. Other efforts that can be done by leveraging AI technology include:
4. Natural Language Processing (NLP) for language analysis. NLP is a subfield of AI that deals with the interaction between computers and human language. NLP techniques can be used to analyze local languages and identify specific linguistic patterns for particular domains, such as ecology, agriculture, or traditional medicine. This can help identify the most relevant terms and expressions for specific contexts and facilitate the development of language learning materials tailored to community needs.
5. Machine Translation (MT). Machine translation is another AI field that deals with automatic translation from one language to another. MT can be used to facilitate cross-cultural communication and help bridge language barriers between different communities. The ecolinguistic approach can ensure that machine translation systems respect the cultural and environmental contexts of both the source and target languages. For example, MT systems can be trained to prioritize translating terms related to conservation and environmental preservation.
6. The last one is Gamification for language learning. Gamification is the application of game design principles in non-game contexts, such as education. In the context of language education, games like "the Werewolf game" can be used to enhance language comprehension(Shibata et al., 2023). Gamification can be utilized to make language learning more engaging and motivate students. The ecodigital approach can be employed to ensure that gamification elements are aligned with the local context and promote environmental awareness and conservation. For example, language learning games can involve tasks such as identifying local plants and animals or learning about traditional ecological knowledge and practices.

All the efforts mentioned above generally fall under the category of language digitalization. Language digitalization can be used to revitalize languages and prevent language death. Based on the proposed concrete steps above, one study of language revitalization utilizing AI is computational linguistics. Programmers have developed various algorithms that can be utilized for

language preservation. However, in the field of computation, the author has encountered many studies revealing challenges beyond the programming process itself.

5. Other Supporting Efforts in the Use of AI

The efforts of language digitalization also need to be accompanied by tangible efforts to preserve and develop local culture and indigenous knowledge related to the language. This can be done through the teaching of local languages and the promotion of local culture, as well as through the development of environmental conservation and biodiversity projects. These two endeavors are mutually dependent and influence each other's success. The research conducted by Mirza and Sundaram concludes that language preservation efforts using digital technology also need to be carried out with community awareness.(Mirza & Sundaram, 2017) By utilizing collaborative methods, such as those implemented in Save Lingo and Learn Lingo, communities can work together to preserve their language and culture.

Furthermore, their research indicates that the proposed framework and models can be applied to various languages, including those that do not use the Latin script. This suggests that the proposed approach has the potential to be beneficial for diverse communities and languages. Additionally, sustainable conservation projects and measures to prevent language death indeed need to be a concern for multiple parties. In line with Lane et al.'s conclusion,(Lane et al., 2022) the data collection process in future projects of this nature should involve not only the academic community but also minority communities..

Another effort that needs to be made is the standardization of methodologies in documenting language corpora. In simpler terms, utilizing old written records from the pre-digital era can greatly assist researchers in gaining further insights into the language and the communities that use it. With new technologies like AI today, it is easy to convert these old records into digital data that can be used for research. However, to utilize this data correctly, further processing is required using other technologies. The goal is to create a standardized legacy data format that can be used and compared. According to Blokland et al., (Blokland et al., 2019) there is currently no fully organized standardized format available.

Indeed, the issue of language revitalization carries personal and highly political nuances. For instance, Low et al.(Low et al., 2022) have explained that language death, often caused by politically dominant languages rooted in colonialism or neocolonialism, results in the loss of socio-political and socio-ecological implications. It represents a point of stagnation in the evolution of cultural systems, biology, knowledge, and expression. Language death erases traditions, lineages, and renders languages and knowledge systems considered undesirable by colonial or neocolonial powers marginalized. In their article, they present a case study on the Māori language and culture in Aotearoa (New Zealand) to demonstrate the importance of anti-colonialism and adaptation to the current context, particularly through digital technology and AI, in combating language erosion.

Finally, when we strongly intend to adopt AI technology to revitalize local languages, we must ensure several things. Firstly, we must ensure that the AI technology used can preserve and promote the distinctive features of the local language. Secondly, we should pay attention to security and data privacy issues in the development of AI technology, as it is intertwined with personal and political nuances. Lastly, we should ensure that AI technology is used as a tool to facilitate and enhance human-to-human interactions in revitalizing local languages, rather than as a substitute for human interaction.

6. Conclusions and Recommendations

Technological development has a significant impact on humans and the environment. The character of the mega-machine, which emphasizes control, efficiency, and productivity, can lead to alienation, exploitation, dehumanization, and environmental damage. Moreover, the concept of hyper-reality as an extension of simulacra can further exacerbate ecological damage by disconnecting humans from nature and ecosystems. One of the long-term effects is the erosion of local culture and language. In facing the danger of local language extinction, artificial intelligence (AI) can be utilized as a tool to revitalize local languages that are closely connected to natural environments. The ecodigital and echolinguistic approaches can be employed in its development, including language documentation, language learning, and community building. AI can also be used for language analysis, machine translation, and gamification for language learning. In this way, we can strengthen cultural ties and promote the sharing of knowledge and resources to advocate for the sustainability of local languages and cultures. However, it is important to ensure that AI language tools serve as tools and not as replacements for human-to-human interactions, emphasizing their role in facilitating and enhancing human-to-human interactions in the revitalization of local languages

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