Digital Technology and AI in the Survival of Regional Languages in South Asian Countries

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Digital Technology and AI in the Survival of Regional Languages in South Asian Countries

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Introduction

South Asia, consisting of countries like India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, and the Maldives, is known for its rich linguistic diversity. Within each country, there exists a wide range of regional languages alongside the official national language. These regional languages hold immense importance in terms of cultural identity, heritage, and local communication[1]. In recent times, the emergence of digital technology and online platforms has greatly influenced the preservation, promotion, and accessibility of these regional languages.

The linguistic landscape of South Asian countries is characterized by a multitude of regional languages, each representing a unique cultural identity. However, with the growing dominance of global languages such as English, Hindi, and Mandarin, many regional languages in South Asian countries are facing the risk of extinction (Cardoso, H. C. (2014). Digital technology and artificial intelligence (AI) is promoting and uplifting regional languages in South Asian countries (Chitturu, S., Lin, D. Y., Sneader, K., Tonby, O., & Woetzel, J. (2017). South Asia is a linguistically diverse region with a rich tapestry of languages, many of which are at risk of being marginalized in the face of globalized communication dominated by major languages. Digital technology and AI offer new opportunities to preserve and promote these regional languages, enabling linguistic diversity and cultural heritage to thrive in the digital age (Blanco,

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[1] https://timesofindia.indiatimes.com/blogs/voices/how-regional-language-revival-can-promote-cultural-diversity-in-todays-digital-age/?source=app&frmapp=yes

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I. L., & González, M. M. (2016). In this chapter, we will explore the role of digital technology and artificial intelligence (AI) in the preservation and survival of regional languages in South Asia. We will examine various initiatives, case studies, and examples that showcase how digital technology and AI are being leveraged to empower regional languages and ensure their continued existence and examines various initiatives, applications, and challenges in utilizing digital technology and AI for the upliftment and promotion of regional languages in South Asian countries.

In an increasingly interconnected world, digital technology has become an integral part of our daily lives(Underwood, J. D. (2009). It has revolutionized various aspects of society, including communication, education, and cultural preservation and the role of digital technology in the survival and revitalization of regional languages. We delve into the potential of digital tools, platforms, and initiatives that contribute to the preservation, promotion, and development of these linguistic treasures. However, the dominance of global languages and limited resources pose challenges to the preservation and promotion of these regional languages. Digital technology and AI present promising solutions to overcome these obstacles and ensure the upliftment of regional languages. In South Asian countries, where linguistic diversity is abundant, the role of digital technology and AI in uplifting and promoting regional languages has gained significant importance (West, D. M., & Allen, J. R. (2018). This chapter also explores the initiatives taken by concerned governments in South Asia to leverage digital technology and AI for the preservation, development, and promotion of regional languages, thereby fostering cultural diversity and linguistic inclusivity. In recent years, digital technology and online platforms have emerged as powerful tools for promoting regional languages and uplifting rural communities in South Asian countries (Ye, L., & Yang, H. (2020)).

Preserving Linguistic Diversity

Regional languages are an essential part of a nation's cultural heritage, reflecting the diversity and identity of its people. However, globalization and the dominance of major languages have posed significant challenges to the survival of regional languages. Digital technology, on the other hand, offers a unique opportunity to counteract this trend by providing platforms for linguistic preservation and dissemination.

Digital Platforms for Language Preservation

To promote regional languages, South Asian governments have encouraged the localization of digital platforms. Localization involves translating and adapting digital content, applications,

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and software to regional languages, making them more accessible to the local population. For example, the government of Bangladesh has collaborated with tech companies to develop localized versions of popular apps, such as social media platforms and e-commerce websites, in Bengali and other regional languages.

Digital technology has facilitated the preservation and documentation of regional languages in South Asian countries. Governments have initiated projects to create digital archives of endangered and lesser-known languages. These archives store linguistic data, including text, audio recordings, and videos, ensuring their accessibility for research, education, and cultural preservation purposes.

Digital technology allows for the documentation and archiving of regional languages, ensuring that they are preserved for future generations. Through digitization, old manuscripts, audio recordings, and written documents can be stored in digital formats, making them easily accessible and searchable. This not only safeguards valuable linguistic resources but also provides researchers and language enthusiasts with a wealth of data for analysis and study.

In recent years, digital platforms have emerged as powerful tools for language preservation and revitalization. Online dictionaries, language learning apps, and digital libraries are helping to document and disseminate regional languages. For example, the **"*Tulu Lexicon*[2]"** project in India aims to create an online dictionary of Tulu, a Dravidian language spoken in the coastal region of Karnataka. The digital platform enables users to contribute words, phrases, and audio recordings, thus creating a collaborative space for language enthusiasts and native speakers to interact and preserve their linguistic heritage. Several organizations and institutions are actively involved in digital language preservation initiatives in South Asia. For instance, the Indian government's "**Bhasha Sangam**[3]" project has digitized numerous regional languages, allowing people to explore and learn about their linguistic heritage. Another example is of the "Digital Dictionaries of South Asia[4]" project, hosted by the University of Chicago, aims to digitize and make accessible dictionaries of various South Asian languages, including lesser-known ones. This initiative ensures that valuable linguistic resources are preserved and available for future generations. Similarly, the "Dakshina Kannada Online[5]" project focuses on digitizing and

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[2] https://tuludictionary.in/dictionary/cgi-bin/web/frame.html
[3] https://ncert.nic.in/bs-2021.php
[4] https://dsal.uchicago.edu/dictionaries/
[5] https://dk.nic.in/

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archiving literary works in the Kannada language, enabling wider dissemination and ensuring the longevity of regional literary heritage.

The Assamese Language Revitalization[6] Project in India demonstrates the transformative impact of digital technology and AI on language survival. This project utilizes AI-powered chatbots to facilitate language learning and engagement in Assamese, a regional language spoken in the state of Assam.

Connecting Communities collaboration with a tribal community in the Chittagong Hill Tracts region of Bangladesh[7] resulted in the creation of an online repository of the Marma language (Connecting Communities, is a non-profit organization that has spearheaded a remarkable initiative to uplift and promote regional languages for rural communities in South Asian countries.). Through its innovative approach, Community Communities leverages digital technology and online platforms to empower local communities, support language preservation, and promote cultural exchange.

 They have also developed a series of language learning apps and e-learning platforms that cater specifically to regional languages spoken in rural areas. These platforms provide interactive language courses, audio lessons, and vocabulary exercises. The apps are designed to be user-friendly and accessible, even for individuals with limited digital literacy. Through these platforms, they aim to enhance language skills and create a sense of pride among rural language speakers. This repository includes audio recordings of traditional songs, stories. One of Connecting Communities crucial objectives is to document and preserve endangered regional languages. The organization collaborates with linguists, anthropologists, and local communities to create digital archives of linguistic resources, including dictionaries, grammar guides, and folklore. These digital archives ensure the preservation and accessibility of regional languages for future generations. Language Learning Apps and E-Learning Platforms: c, spoken in the Indian state of Uttarakhand, offers lessons on grammar, vocabulary, and pronunciation. The app includes audio recordings of native speakers, providing learners with an authentic learning experience. Additionally, the platform features forums where learners can interact with each other and ask questions to language experts.

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[6] https://www.iitg.ac.in/pplab/dpatd/dpatd.php
[7] The Chittagong Hill Tracts combine three hilly districts of Bangladesh: Rangamati, Khagrachhari and Bandarban districts.

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Social Media Campaigns: Connecting Community, recognizes the power of social media in reaching a wide audience and creating a sense of community. The organization actively runs social media campaigns to promote regional languages and highlight the cultural significance of linguistic diversity. These campaigns feature user-generated content, encouraging rural language speakers to share stories, poems, and songs in their native languages. As an illustration, connecting Communities, social media campaign called "My Language, My Identity" invites rural language speakers to record short videos expressing their love for their native languages. These videos are then shared across various social media platforms, garnering attention and support from a global audience. The campaign not only promotes regional languages but also boosts the self-esteem of rural language speakers.

Digital Technology and Online Platforms:

Digital technology and online platforms have revolutionized communication and information sharing worldwide. In South Asian countries, the increasing penetration of smartphones and internet connectivity has opened up new possibilities for utilizing digital platforms to promote regional languages. Online platforms, such as social media, e-learning platforms, and language-focused websites, offer avenues for sharing content, fostering linguistic communities, and providing language learning resources.

Language Learning and Education:

Digital platforms and applications have transformed language learning and education. Online language courses, interactive language-learning apps, and virtual classrooms have made it easier for individuals to learn regional languages regardless of their geographical location. These resources offer multimedia content, interactive exercises, and language exchange opportunities, fostering engagement and proficiency in regional languages.

Digital Language Learning Tools: To promote regional languages, governments have supported the development of digital language learning tools. These tools leverage AI and gamification techniques to make language learning interactive and engaging. Mobile applications and online platforms offer courses, interactive exercises, and quizzes in regional languages. The Sri Lankan government's "Helakuru[8]" app, for instance, provides a user-friendly platform for learning and practicing Sinhala, the country's official language, through AI-assisted lessons.

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[8] https://www.helakuru.lk/

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Online Language Communities:

The internet has facilitated the creation of online language communities, where speakers of regional languages can connect and interact with each other. Social media groups, forums, and language-specific websites provide a virtual space for language enthusiasts to discuss, practice, and share resources related to regional languages. These communities foster a sense of belonging and support, encouraging the continued use and development of regional languages.

Digital Media and Content Creation:

The rise of digital media platforms, such as podcasts, online radio stations, and video streaming services, has opened up new avenues for regional language content creation. These platforms provide opportunities for writers, artists, and creators to produce and distribute content in regional languages, including literature, music, films, and documentaries. Such initiatives not only entertain but also showcase the richness and uniqueness of regional languages.

Support for Digital Content Creation: Governments in South Asia have encouraged the creation of digital content in regional languages, fostering linguistic inclusivity and promoting cultural diversity. Special initiatives have been taken to incentivize content creators, such as writers, bloggers, and filmmakers, to produce digital content in regional languages. The "Digital India[9]" campaign, launched by the Government of India, has provided grants and funding for regional language content creation, resulting in an upsurge of diverse digital content across various platforms.

AI-Powered Translation and Transcription Services:

Artificial intelligence has played a crucial role in breaking down language barriers and facilitating communication across regional languages in South Asia. Governments have harnessed AI technology to develop translation and transcription services that bridge the gap between different languages. For instance, the National Institute of Electronics and Information Technology (NIELIT) in India has developed an AI-based language translation platform, which enables translation between English and several regional languages, including Hindi, Tamil, and Telugu[10].

Localization and Translation: Machine translation and localization technologies have the potential to bridge the language divide and enable communication in regional languages. For

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[9] https://csc.gov.in/digitalIndia
[10] https://www.nielit.gov.in/sites/default/files/headquarter/151109_RFP_e_Conversion.pdf

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instance, Google Translate has been instrumental in making information accessible across languages. It supports several South Asian languages, including Bengali, Tamil, and Urdu, allowing users to translate content from major languages into regional languages and vice versa. Similarly, localization of digital content, such as websites and mobile applications, ensures that regional language speakers can engage with technology in their own language, thereby fostering inclusivity and cultural preservation. Digital technology has made it easier to translate and localize content into regional languages. Machine translation tools, coupled with human expertise, facilitate the translation of websites, software, and multimedia content into regional languages, enabling wider access to information.

Voice Recognition and Natural Language Processing

Voice recognition and natural language processing technologies are transforming the way people interact with digital devices and services. These advancements have opened up new possibilities for regional language speakers to access information and services through voice commands and natural language interfaces. For instance, voice assistants like Amazon's Alexa and Google Assistant are now available in languages like Hindi, Tamil, and Bengali. This development enables users to perform tasks, search the internet, and access content in their regional language, thereby empowering them to navigate the digital world with ease.

Speech Synthesis and Text-to-Speech

Speech synthesis and text-to-speech technologies are vital for promoting regional languages and ensuring their survival. These technologies convert written text into spoken words, allowing users to listen to content in their preferred language. For example, the Indian government's Text-to-Speech synthesis initiative, known as Project ReSOUND[11], focuses on developing text-to-speech systems for several Indian languages. By providing audio content in regional languages, such initiatives facilitate access to information, education, and entertainment for those who have limited literacy skills or prefer oral communication.

Conclusion:

Digital technology and AI have brought about significant advancements in the upliftment and promotion of regional languages in South Asian countries. Through digital archives, localization, AI-powered translation services, language learning tools, and support for digital content creation, concerned governments have taken commendable initiatives to preserve and

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[11] https://projectresound.com/

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promote linguistic diversity. These efforts have not only fostered cultural inclusivity but also empowered local communities by providing them with greater access to education, information, and opportunities. However, ongoing collaborations and investments are essential to sustain these initiatives and further leverage the potential of digital technology and AI for the upliftment of regional languages in South Asia.

While digital media and AI offer valuable support in preserving linguistic diversity, it's important to consider cultural and ethical factors when using them. Indigenous communities and language speakers should have a say in how these technologies are implemented. Their knowledge systems and values need to be respected and protected during digital preservation efforts. By actively involving these communities in decision-making processes, we can create a more inclusive and sustainable approach to preserving linguistic diversity. This ensures that their voices are heard and their languages are preserved in a way that aligns with their cultural heritage and values.

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