Helping the Blind to Read Through Technology

The global agenda for developing information technology for the 2030's makes the resolution "leave no one behind" a critical imperative. The development and use of new technology has brought the world together, and those who had never thought it possible are now using it extensively. The affordability and accessibility of information technology have allowed it to be used all over the world for a multitude of applications. This technology is critically important for the visually impaired.

In Nepal, it has been two decades since the blind began reading with the aid of information technology, but due to the lack of software that can correctly pronounce Nepali words, visually impaired children in the early grades of school are not able to read audio books in their language. Because the development and use of accessible information systems originated in developed countries, the introduction of the technology to developing countries has required expert knowledge and presentation of texts in all local languages, a task that has proven to be difficult and challenging.

सुरेश बजाज   श्याम कृष्ण   डा. वीरेन्द्र राज पोखरेल   बन्दना घिमिरे

Most people known that the blind can read Braille books through tactile means, but few know it's possible to read books using an audio representation on computers and smart phones. Non-Visual Desktop Access (NVDA) is a voice-based computer software for the blind. It is equipped with a Text to Speech engine that uses various languages, including English, from which Unicode texts can be read aloud.

The Nepali language is written in Devanagari script, and thus can be read using a Hindi Text to Speech engine. However, this produces Hindi pronunciation of Nepali words, which young Nepali children have great difficulty understanding.

The late Him Prasad Gautam is believed to have built the first Nepali Text to Speech engine. Later, technical modifications would be needed for its installation in NVDA. Hear2Read, an organization working to develop a method that can read and pronounce languages correctly, is cooperating with Nepali Action for Disability Rights and Development to create a Nepali Text to Speech engine that can be used by NVDA.

This Hear2Read Nepali Text to Speech engine has been developed with the technical expertise of Suresh Bazaj (Founder), Shyam Krishna and Tim White. With the support of the Ministry of Women, Children and Senior Citizens of the Government of Nepal, and the facilitation of the Kathmandu Metropolitan City, Adrad (Action on Disability Rights and Development) Music Nepal studio recorded 1,328 Nepali language prompts for this Text to Speech engine. Bandana Ghimire's voice has been used to record the prompts and Prakash Kharel edited the audio.

Hear to Read organization, which has built such a text to speech engine in more than 13 Indian local languages, has provided the gift of this very important and state-of-the-art accessible information technology to Nepali language users and blind people. After the creation of any technology, it is a regular process of refining and modifying the technology from the appropriate suggestions given by its users. It is expected that Nepali speaking Visually Impaired (VI) users will contribute to refine this latest technology used by to NVDA by suggesting improvements.

The Government of Nepal has declared its support of the United Nations Convention on the Rights of Persons with Disabilities (CRPD). Article 9 of the CRPD states that the use of accessible information technology should be supported by persons with disabilities at all levels in urban and rural areas. Also, CRPD Article 24, which supports inclusive education, states that students with disabilities should be able to achieve their education through the use of accessible information technology and learning materials.

The use of accessible information technology as part of the Sustainable Development Goals has become indispensable in ensuring the right of a quality education for students with disabilities. As the global use of information technology continues to grow, this technology is facilitating activities in all facets of people's lives. Visually impaired people, and any others who are unable to read or understand printed letters, will now be able to read using this accessible technology.

With the Hear2Read Nepali Text to Speech engine, the government of Nepal will be able to provide all who have been deprived of education and employment as a result of vision impairment with a new opportunity to fully participate in their education, health, employment, and financial transactions.

- Author Pokharel is an expert on accessible contents preparation and human rights of persons with disability.