EMPOWERING MODERATELY HEARING- IMPAIRED YOUTH IN ICT LITERACY SKILLS

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INTRODUCTION

When a person is not able to hear, with a hearing threshold of 20dB or more in both ears, s/he is said to have hearing loss (World Health Organization, 2022). Hearing impairment can vary from mild, moderate, sever to profound. Unaddressed hearing loss impacts many aspects of life - including inadequate education, high unemployment ratio and lower grades of employment. This paper presents ongoing research work on the applicability of e-learning and acquiring ICT literacy skills to empower moderately hearing-impaired youth.

LITRATURE REVIEW

Mpofu and Chimhenga (2013) engaged in research as a case study in King George VI Memorial School in Zimbabwe, with the purpose of finding the Challenges faced by hearing impaired pupils, in learning: The researcher used a descriptive case study method to extract information from students with hearing impairment and discussed the challenges the teachers grappled with, when teaching pupils with hearing loss. Eighteen secondary school teachers and hearing- impaired pupils were selected for the study. The findings of the research show that a sign language interpreter is required for the schools; staff development courses are required for the teachers to learn sign language. The teachers should provide course outlines, lecture notes and handouts to interpreters who help the hearing-impaired students to go through the information in advance.

Mengdi(2013) conducted a study on Personalized HCI in Singapore with the participation of 60 anonymous hearing impaired users. The research was designed to avoid knowledge accumulation by repeatedly playing a video. All the participants were randomly divided into 3 groups (each group had 20 participants). Each group was allowed to merely evaluate one of the three paradigms for each video Clip No Caption (NC), Static Caption (SC) Dynamic Caption (DC). Research findings revealed that dynamic caption remarkably outperforms static captioning in terms of enjoyment.

Alodail(2014) carried out research in Saudi Arabia with the purpose of instructing educators in the Use of Assistive Technology Listening Devices in the classroom. The researcher presented the Kemp's design in the classroom setting, using various instructional methods to teach students with hearing aids in the school, focusing on the instruction of English to America. The students were evaluated for the use of hearing aids and the quality of sounds received by the audio devices based on recall and comprehension. Based on Kemp's model the researcher found FM systems and hearing aids enhance and enable students with hearing impairments. These devices used with a sound learning model, maximize students' learning by giving opportunities to access information in learning Environments. Kemp's model can be adapted across cultures in various educational settings. Kemp's model is more comprehensive than ADDIE and the four component instructional design model. The model allows individualized student thinking. Kemp's model recognizes talented or gifted students, as observed by the teacher.

Cruces (2015) conducted research in New Mexico with the purpose of an Interactive System for Deaf and Hearing-Impaired Children. The research findings revealed that the developed human computer interactive 3D system was helpful for deaf and hearing-impaired children to learn and understand geographic terminology and a language system for developing and expressing thoughts.

Francois et al. (2015) conducted research in France on the topic of Schooling of hearing-impaired children and benefit of early diagnosis. Findings of the research reveal that moderate-to-severe congenital bilateral hearing loss has an impact on the child's schooling with grade retention. Education can be provided for children with moderate bilateral hearing loss fitted with a hearing aid in a regular school.

Abuzinadah et al.(2017) conducted research in Saudi Arabia on the topic of Towards Empowering Hearing Impaired Students' Skills in Computing and Technology with the participation of 47 deaf students. Research findings reveal that the majority of both males and females use computers in moderation, while very small percentages do not use computers at all. High percentage of the participants had little knowledge about the word processing package - indicating a relatively high level of computer illiteracy. The number of internet users seems to be quite high, with over 96% of the people responding positively to the use of the internet. The number of persons who use the internet for studying purposes was very negligible and most of the samples used the internet for social media. Most of the participants in the study expressed interest in continuing their higher education. The majority of the participants in the survey were willing to pursue education in computer science. A good percentage of participants showed their willingness to attend and continue with higher education in the universities. However, the number of participants willing to undertake educational programmes through a virtual environment was very low.

Hadi & Özdemir (2017) conducted the research in Turkey with the purpose of Development of Learning Software for the Deaf: The scope was limited to the development of a web portal software that can work in various devices to support education of deaf children in terms of acquiring skills. Findings of the research showed that the proposed sample e-Learning mechanism was a good proof of the concept which can be improved to have a fully fledged e-Learning portal for deaf children. The developed web-based application could be used in all devices. The proposed software had a learning material for deaf children which had been created with the purpose of having an impact on them when learning language basics.

Alnajdi (2018) conducted research in Saudi Arabia to find out the Effectiveness of Designing and Using a Practical Interactive Lesson based on ADDIE Model to Enhance Students' Learning
Performances in the University of Tabuk. An interactive lesson was designed based on the ADDIE Model. The lesson had been built on two elements. The first one was the theoretical element, which was based on the ADDIE model and the second one was based on Adobe Captivate, the practical element to build interactive multimedia to enhance students' learning performance. Students were divided into two groups; a control group and an experimental group. Each group had 36 students to evaluate the effectiveness of using the interactive lesson and its role in enhancing students' Learning Performance. Based on the results of the study, the researcher concluded that using different methods of teaching were useful, but adopting practical interactive teaching methods will promote students' knowledge and performances and increase them to be more active and cooperate with their peers.

Baglama et al. (2018) conducted research in Turkey to find out the Technologies Used in Education of Hearing-Impaired Individuals. Findings of the research reveal primary and secondary school teachers preferred to use information and communication technologies as the main teaching tools in the teaching process of hearing-impaired students. Teachers also stated that Information and Communication Technologies facilitated the presentation of lessons and increased the motivation of the students.The results obtained in the research will contribute to the informed use of information and communication technologies in the education of the hearing impaired.

Krasavina et al. (2019) conducted the research in Russia with the purpose of Research-Based Teaching of Hearing-Impaired Students. The research findings gave recommendations to be followed when organizing training for deaf and hearing-impaired students. The researcher concluded that Deafness acts as a limiting factor of self-cognition and self-knowing of the world, but if there are factors in the child's environment that help overcome this limitation, they contribute to his development considerably.

METHODOLOGY

Interactive e-learning material was prepared to provide ICT literacy for the moderately hearing- impaired youth. The quantitative data were collected using a pre-tested questionnaire. The qualitative data was collected using the interviews. The participants were selected using the random sampling technique. The developed interactive e-learning material was tested using hearing impaired youth learners. Manly observations were used to identify learner characteristics. The sample participants were allowed to interact with the developed interactive e-learning material.

RESULTS AND DISCUSSION

The participant feedback on their interactive e-learning experience was collected through a questionnaire. The data collected through the questionnaire was analyzed using a statistical package. The collected qualitative data will be analyzed using free open-source qualitative tool.

CONCLUSIONS/RECOMMENDATIONS

Based on the findings of the research it can be decided that e-learning can be used to provide ICT literacy skills for moderate hearing-impaired youth to empower them in the society.

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ACKNOWLEDGMENTS

I would like to offer my deepest appreciation to the administration of the National Vocational Training Authority at Narahenpita and the deaf and blind school of Ratmalana for providing me the opportunity, support and guidance in carrying out this research.