**Literature Review**

This is the first summative assessment for this module and accounts for 30% of your final module mark. Submit by end of Unit 7. Word count is 2,000 words.

**Assignment Brief**

The literature review fulfils the learning outcomes where you will critically evaluate existing literature, research design and methodology for your chosen topic and so produce a literature review on this topic.

You will have selected the topic for this task from the list provided in Unit 1. You should refer to the Guide Questions provided in Unit 2 to evaluate and refine your literature review before submission, bearing in mind the key aims of a standalone literature review (with the applicable grading criterion highlighted from the grid on the Module Resources page):

* To provide an overview of current knowledge on the chosen topic. **(Knowledge and Understanding weighted at 30%)**
* To demonstrate an awareness of relevant, current literature. **(Use of Relevant sources weighted at 20%)**
* To highlight similar and contrasting views on your chosen topic. **(Criticality weighted at 30%**)
* To showcase your research and writing skills. **(Structure and Presentation weighted at 10%, Academic Integrity weighted at 10%)**

**Literature Review Outline**

**Topic: App Development to support the physically disabled**

**Research question:** **How can communication devices support people with hearing and speech impairment**

**Overview of current literature**

1. Advanced speech recognition algorithms have made it easier to implement communication devices for speech impaired people. Current state of the art Text To Speak (TTS) systems are using neural network based speech synthesis which gives synthesised speech close to human. The neural network TTSs suffer from slow speed or accuracy (i.e. some works are skipped or repeated). Explain progression from earlier methods: speech concatenative and statistical parametric approaches to neural network.

1. Several researchers have performed systematic evaluations of the efficiency of common Automated Speech Recognition (ASR) applications to be used for hearing impaired people daily communication. Challenges/enhancements for this use case include results for speech in noise, speaker identification by colour coding for example, notification of critical environmental sounds or assurance of intelligibility towards the speaker. List of current products. The results of some studies suggest that the performance of ASR in speech-in-quiet situations is close to human but is very limited in transcribing speech in noise are not close.
2. Assessment of mobile applications as a support aid for people with hearing impairment. Digital hearing aids use signal processing functions to enhance speech signals and reduce ambient noise. The processing algorithms require high computational performance and only a few are used in the market because of this limitation. Multiple research efforts are studying the feasibility of using a machine interface in the form of mobile application to configure, enhance and manage the hearing aid. List of current products.
3. Computer programs and applications specially designed for children with hearing loss help improve the success rate of their education. Studies have shown that computer-aid education allows individualization and self-improvement and increases the motivation of the children.

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| how the digital technology you are discussing will support disabled students to break down barriers to learning. |

REFERENCES

<https://ieeexplore.ieee.org/abstract/document/9061515> Implementation of web application based on Augmentative and Alternative Communication (AAC) method for People with Hearing and Speech Impairment

<https://dl.acm.org/doi/abs/10.1145/3288155.3288182> Assistive Mobile App for Children with Hearing & Speech Impairment Using Character and Speech Recognition

<https://www.researchgate.net/publication/273826018_Assessing_the_Utility_of_Mobile_Applications_with_Support_for_or_as_Replacement_of_Hearing_Aids> Assessing the Utility of Mobile Applications with Support for or as Replacement of Hearing Aids

<https://www.frontiersin.org/articles/10.3389/fdgth.2022.806076/full> Preliminary Evaluation of Automated Speech Recognition Apps for the Hearing Impaired and Deaf

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4283090/> A systematic review of speech recognition technology in health care

<https://www.isca-speech.org/archive_v0/interspeech_2015/papers/i15_1251.pdf> Personalized Synthetic Voices for Speaking Impaired: Website and App

<https://proceedings.neurips.cc/paper/2019/file/f63f65b503e22cb970527f23c9ad7db1-Paper.pdf> FastSpeech: Fast, Robust and Controllable Text to Speech

<https://humanfactors.jmir.org/2020/2/e16310/> Usability of a Mobile App for Improving Literacy in Children With Hearing Impairment: Focus Group Study

<https://www.researchgate.net/profile/Basak-Baglama/publication/327967823_Technologies_Used_in_Education_of_Hearing_Impaired_Individuals> Technologies Used in Education of Hearing Impaired Individuals

NextGen Healthcare <https://www.nextgen.com/>

Oxagile <https://www.oxagile.com/>

Macademian <https://www.macadamian.com/>

Prologue2Go <https://www.assistiveware.com/products/proloquo2go>

QuickTalk AAC <https://digitalscribbler.com/>