

Virtual Experiences for Dyslexia Awareness



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Introduction

Dyslexia is a learning disability characterized by difficulties with accurate and fluent word recognition and by poor spelling and decoding abilities. These traits typically result from a lack of phonological processing, which is the ability to break down a word into its discrete sounds. This project focuses on training a Specialist Dyslexia Teachers (SDT) to give news of the dyslexia diagnosis of their child to the caregiver. A Virtual Human (VH) portrays the parent and the user takes the role of the SDT, talking to the VH through chat dialogue.

Relevance

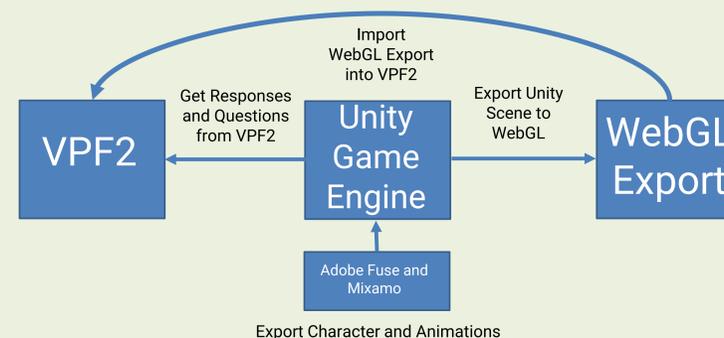
It is estimated that 5-10% of the population has some form of dyslexia, and research shows that 74% of children who have reading problems in elementary will remain poor readers without early intervention. Studies show that 95% of children with dyslexia who received early intervention kept pace with their peers. Caregivers have a huge decision-making process in the education of their child. This simulation aims to prepare the first point of contact regarding the child's diagnosis to properly convey the information needed to ensure the academic and emotional success of the child.

Objectives

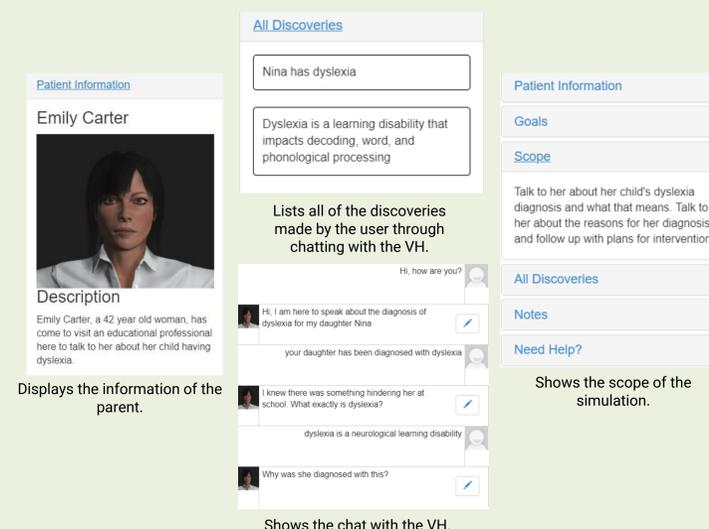
- Train SDTs to effectively communicate with the caregiver of the child with dyslexia.
- Positively affect the outcome of the academic and emotional support system of the child.
- Raise awareness of dyslexia in communities and schools not previously exposed to this and other learning disabilities.
- Provide an environment for SDTs to continuously practice their communication skills.
- Offer a report to the SDTs to help them identify their weaknesses when talking to caregivers and help them overcome those barriers.
- Encourage more VHs and virtual patient training within the medical and educational fields.

Methodology

This project was created using the Virtual People Factory 2 (VPF2) framework. The next stage of the project involves importing the model and animations from Adobe Fuse and Mixamo to the Unity game engine and adding an environment. The project will then be exported as a WebGL to be used in VPF2.



The framework includes a chat-box to speak to the VH and elicit a pre-written response. It also contains topics of discussion, which have discoveries that are learned via chat with the VH. After the user completes the simulation, a report is given to show how well they did in the simulation and rate communication skills.



Discussion

One major limitation of this research project is that this simulation is still under development. An animated 3D model of the sample caregiver will be included in the appropriate environment in Unity. More possible questions and answers will be added to the simulation to increase realism. Audio will be integrated into the VH character that will be played when a user says a particular phrase. A report will also be appended to give the SDT a better idea of how they are performing in terms of communication skills. The project will then be ported into Virtual Reality to increase the presence of the user in the simulation. Other possible limitations of this research include not having enough SDTs to try out the simulation, and not having a completely accurate representation of how the conversation would flow in reality.

Future Work

This work can lay the groundworks for a multitude of projects centered around dyslexia using the immersive medium of Virtual Reality. A VH that has learned phrases via machine learning can provide a more realistic experience for the SDT, giving them a more accurate representation of the scenario. This framework can then be used to simulate a variety of learning disabilities.

References

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