Virtual Reality Instruction of American Sign Language

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ABSTRACT

This research in progress proposes the use of Virtual Reality (VR) headsets and gloves containing movement sensors to assist in the teaching of American Sign Language (ASL) to children and college students. The technology, comprised of VR headsets and movement gloves, will allow the system to recognize the production of ASL via hand movements and provide feedback related to the interaction between the user and the VR environment. This innovative research proposes an experimental design to compare ASL learners using VR to those in a traditional face-to-face learning method for ASL. The goal of this study is to find if there is an increase in movement accuracy and retention using VR compared to traditional learning methods due to increases in a virtually mediated channel which augments movements into a digital space.

INTRODUCTION

ASL is a complex language that utilizes hand movements, facial expression, and body posture to communicate meaning. From 2009-2013, the popularity of ASL grew 19.1% and was the 3rd most common foreign language taken by students[1]. Despite it's growth, ASL is not offered in schools as frequently as other languages due to a shortage in teaching staff; however, by making independent learning more accessible and achievable, more students will be able to successfully learn this language. With the recent growth of technology, educational materials are becoming more readily available. Education is now being brought to gaming consoles- including VR. VR is an immersive simulation that allows users to interact directly with the virtual environment. Because of ASL's use of the hands and the greater need for visualization compared to spoken languages, the use of VR in the education of ASL could be very beneficial as it allows users to have one-on-one, immersive interactions that will allow them to focus on the language in a more engaging way.

METHODS

- VR headset, movement-sensing gloves
- Create software required for the VR game
- Gather participants, elementary to college-aged students looking to learn ASL
- Divide participants into the control group (traditional classroom setting) and experimental group (VR)
- Gather and compare measurements of retention and accuracy

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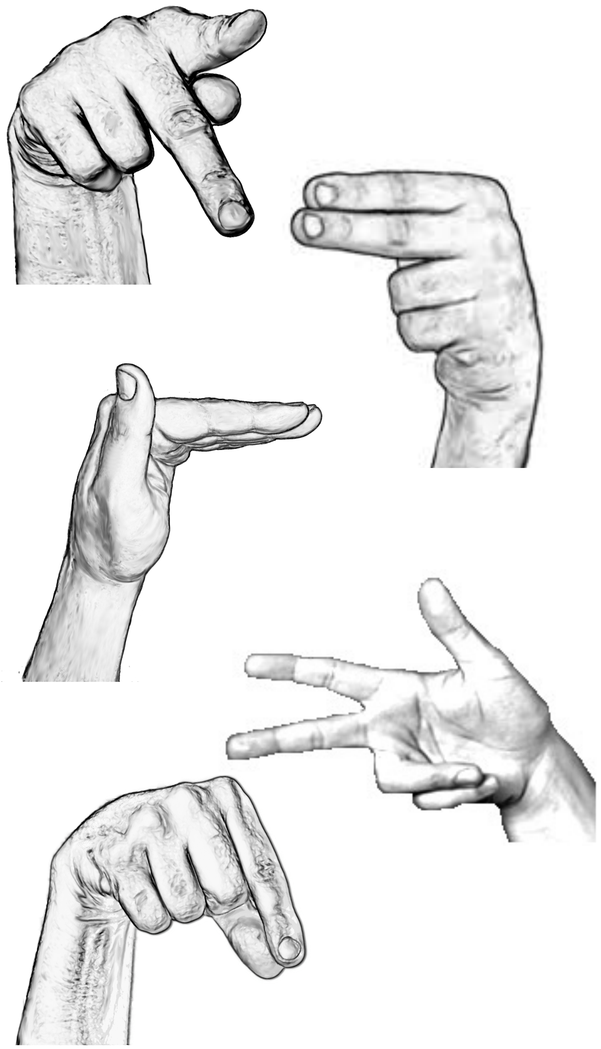

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EXPECTED CONCLUSIONS

- Increased movement accuracy
- Peaked interest in learning
- Increased vocabulary retention
- More engagement in lessons

SIGNIFICANCE

As technology advances, it is important that educational methods also advance. The more possibilities to learn that are available, the better, as students learn in various ways. Seeing if VR can be an efficacious way of learning a new language, specifically ASL, is significant because it allows new and developing technology to be used in a way that it has not been used before, thus helping learners who have not yet found their best method of learning to do so.

REFERENCES

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