



Small TLEF Project – Final Report

Report Completion Date: 2016/08/17

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	The Use of Video Glasses in Pediatric Surgical Education		
Principal Investigator:	Dr. Neil Chadha		
Project Initiation:	February 2015	Project Completion:	ongoing

1.2. Project Summary

Personal portable technologies have had impressive advancements in recent years. Google has recently introduced Glass in February 2013, a device that is worn like conventional glasses, but that combines a computerized central processing unit, hands-free ability, high definition camera, microphone, bone-conduction transducer and wireless capabilities. Glass is a promising device which has already been studied in a variety of settings and specialties for uses such as the documentation of autopsies, the assessment of airways in anesthesia and telemedicine in the ER to name a few. Although promising exploratory studies using this technology in the surgical field have begun to arise in medical literature, objective studies using Google Glass in surgical education are required in order to validate its use and make further recommendations.

Unfortunately, in 2015 Google pulled Glass of the market with no specific plans for re-release. However, there are various other similar products being introduced in the market, one of which is the Design for Vision Nano Cam and loupes. This device offers many of the features relevant to the surgical field that Glass offered including allowing a direct view of the surgeon’s field of vision while operating.

This project aims to formally study and validate the use of Design for Vision video glasses as a tool for surgical education.

The study will compare 3 procedures using both the video glasses and direct visualization in the operating room. Medical students and surgical residents will be randomized and one group will watch the feed from the video first (which the operating surgeon will be wearing during the procedure) and then move on to observing the same procedure in the operating room, while the other group will complete the visualization in the reverse order. Both groups will then complete a survey evaluating different aspects of viewing the procedure from the video glasses feed in comparison to direct observation in the operating room.

1.3. Team Members – (Please fill in the following table and include **students**, undergraduate or graduate, who participated in your project).

Name	Title/Affiliation	Responsibilities/Roles
Evie Landry	PGY-1 Otolaryngology- Head & Neck Surgery	Co-investigator, responsible for development of protocol and assisting in administering study protocol, data analysis and dissemination of results
Michael Yong	4 th year UBC Medical Student	Co-investigator, responsible for development of protocol and



		assisting in administering study protocol, data analysis and dissemination of results
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1.4. Student Impact – Please fill in the following table with ***past, current and future*** courses that have been or will be impacted by your project, including any courses not included in your original proposal. [Note: Adapt this section to the context of your project as necessary].

While this project does not relate to any specific courses it does directly impact the education of residents in the otolaryngology (ENT) training program as the study aims to improve the learning experience for surgical skills.

2. PROJECT EVALUATION

2.1. Project Outcomes – Please list the intended outcomes or ***benefits of the project*** for students, TAs and/or instructors.

Based on our preliminary findings from our study survey, residents and medical students found their overall experience, their view of the surgical field, their ability to see the anatomical structures and their ability to view the steps of the surgical procedure to be better under visualization with the video glasses than through the traditional method of teaching by direct visualization. This benefits both students in their ability to learn surgical skills as well as instructors who are better able teach these skills if students are able to see their direct point of view.

2.2. Findings – Briefly describe the methods and findings of your project evaluation effort: to what extent were intended project outcomes achieved or not achieved?

Medical students and residents are randomized to view either a tonsillectomy or adenoidectomy procedure and then they are further randomized into 1 of 2 sub-groups where one group will watches the procedure under direct visualization first and then watches the video feed from the video glasses and vice versa. Both groups then complete a survey evaluating different aspects of the video glasses feed in comparison to in-person observation in the operating room.

Thus far we have completed 50% of our data collection. As mentioned in question 2.1, results from the survey are very positive thus far with students and residents finding the video glasses feed enhances their learning experience in the operating more than direct visualization.

2.3. Dissemination – Please provide a list of scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have or intend to disseminate the outcomes of this project.

This project was presented as a poster for the TLEF showcase in 2016. It has not been presented anywhere else as data collection is only 50% complete. However we plan to present this at local meetings and events as well as submitting the study findings for presentation at an academic meeting and for publication in a peer reviewed journal.

3. TEACHING PRACTICES – Please indicate if ***your*** teaching practices or those of ***others*** have changed as a result of your project. If so, in what ways?



While this is currently only a research project, we believe that this tool for surgical teaching will affect our department in the future given the positive results reported thus far. Using the video glasses allows surgeons provide a better learning experience for students.

4. PROJECT SUSTAINMENT – *Please describe the sustainment strategy for the project components. How will your work be sustained and/or potentially expanded (e.g. over the next five years)?*

Our current project is sustainable as the equipment has been bought and can be used beyond the completion of the project. We have also started to expand and build upon this research as we are currently exploring the use of augmented reality glasses for surgical teaching and practice. We plan to apply for more grant funding to sustain these expanded projects in the near future.