

A 3D APP AS A LEARNING TOOL

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ABSTRACT

Complete Anatomy is a digital 3D anatomy platform that allows users to manipulate virtual human models. The purpose of this study was to determine whether the students perceived the app as useful, and how they made use of the app to understand anatomy and anatomical relationships. Students answered surveys, questionnaires and did an interview to determine their perceptions and uses of the app. The students were provided with customized focused models and the instructors used those models on assessments. This encouraged students to use the app, and they adapted it into their study routines. The flexibility of the app to be used when and where they wanted, and the ability to adapt the app to their current study practices were some of the app's greatest strengths according to the students.

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INTRODUCTION AND BACKGROUND

INTRODUCTION

One of the challenges of an Introductory Anatomy and Physiology (A&P) lab is the tools that students use to learn and study the human body. There are many methods to study the material including cadavers, plastic models, dissections, prosections, and more recently 3D apps available for computers, phones, tablets, and laptops (Havens, 2020).

In our lab, students have had access to plastic models, real bone models, histology slides, and dissections as the primary learning tools. With the availability of new, powerful 3D anatomy apps that are designed to help students study and understand anatomy, we have implemented the use of Complete Anatomy (CA) to augment our traditional resources.

As instructors we have found the app to be very powerful and useful, but I wanted to see if the students shared that perception. The goal of this study was to see how the students used the app, and to learn what their perceptions of the app were.

DISCUSSION

The students' perception of Complete Anatomy as a learning tool is important to understand in order to determine if we should continue to make use of it.

While the app is very complex, the tools and flexibility it provided made it a very effective learning tool. As one student pointed out, he didn't think he would be able to do the lab without having access to the app.

The app afforded the students flexibility to learn not only where and when they wanted, but also how they wanted. Complete Anatomy was a resource they could access to help them learn anatomical structures, and it allowed them to see anatomical relationships that can't readily be seen using plastic models. For some of our students, study labs were not scheduled at a time that worked for them, so the ability to access this information when they could reduced the stress of missing scheduled study labs.

Students made use of the tools Complete Anatomy provided, but also adapted the app to their study habits to make it more effective for their own learning.

FOCUS QUESTIONS

1. Do students feel the app is a useful tool for learning A&P? Was the learning curve too much for it to be useful? Was it too distracting so that students 'lost time playing' with the app versus focusing on the material being studied at a given time?
2. Do the students feel the 3D app gives them a better understanding of anatomical relationships compared to what they learn from the plastic models?
3. How do the students use the app? Do they use it as a standalone tool, or do they use it to 'see' the anatomical relationships in the models they are using?

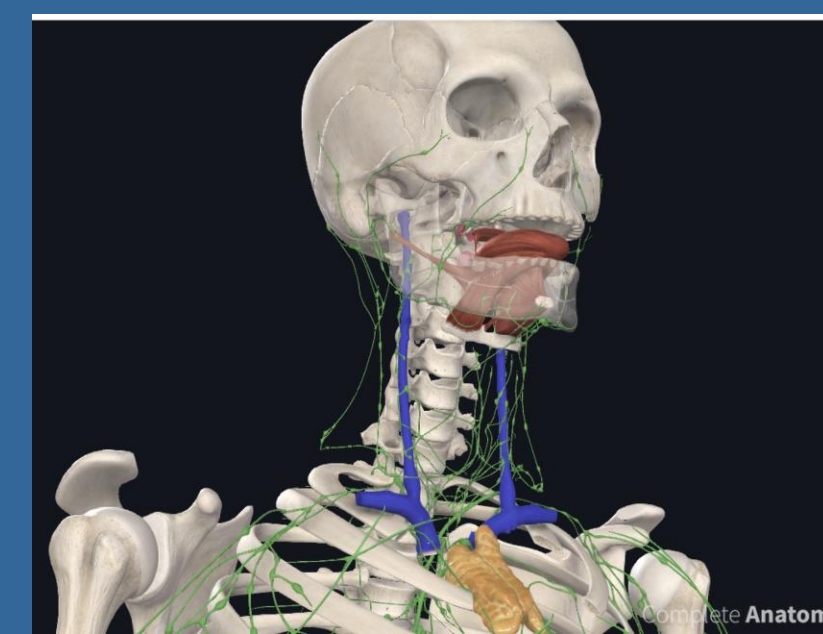


Figure 1. Complete Anatomy Image.

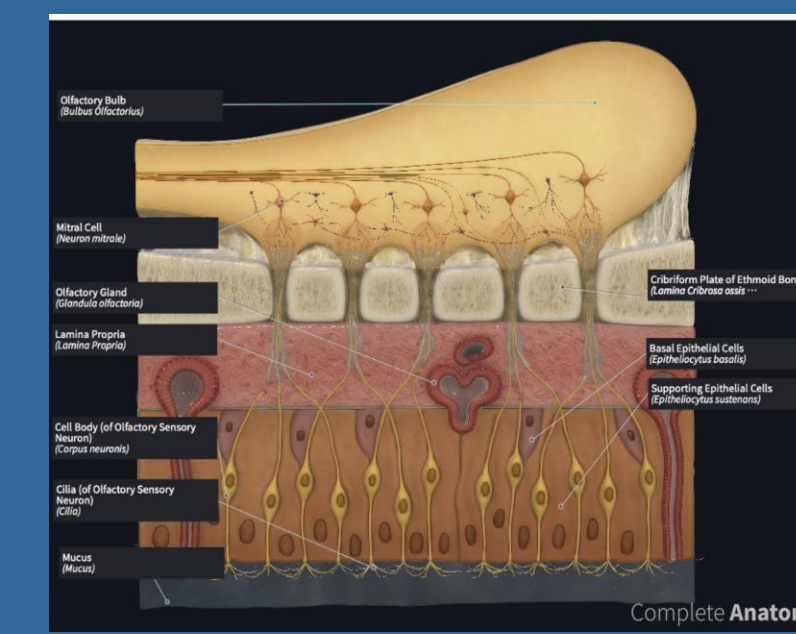
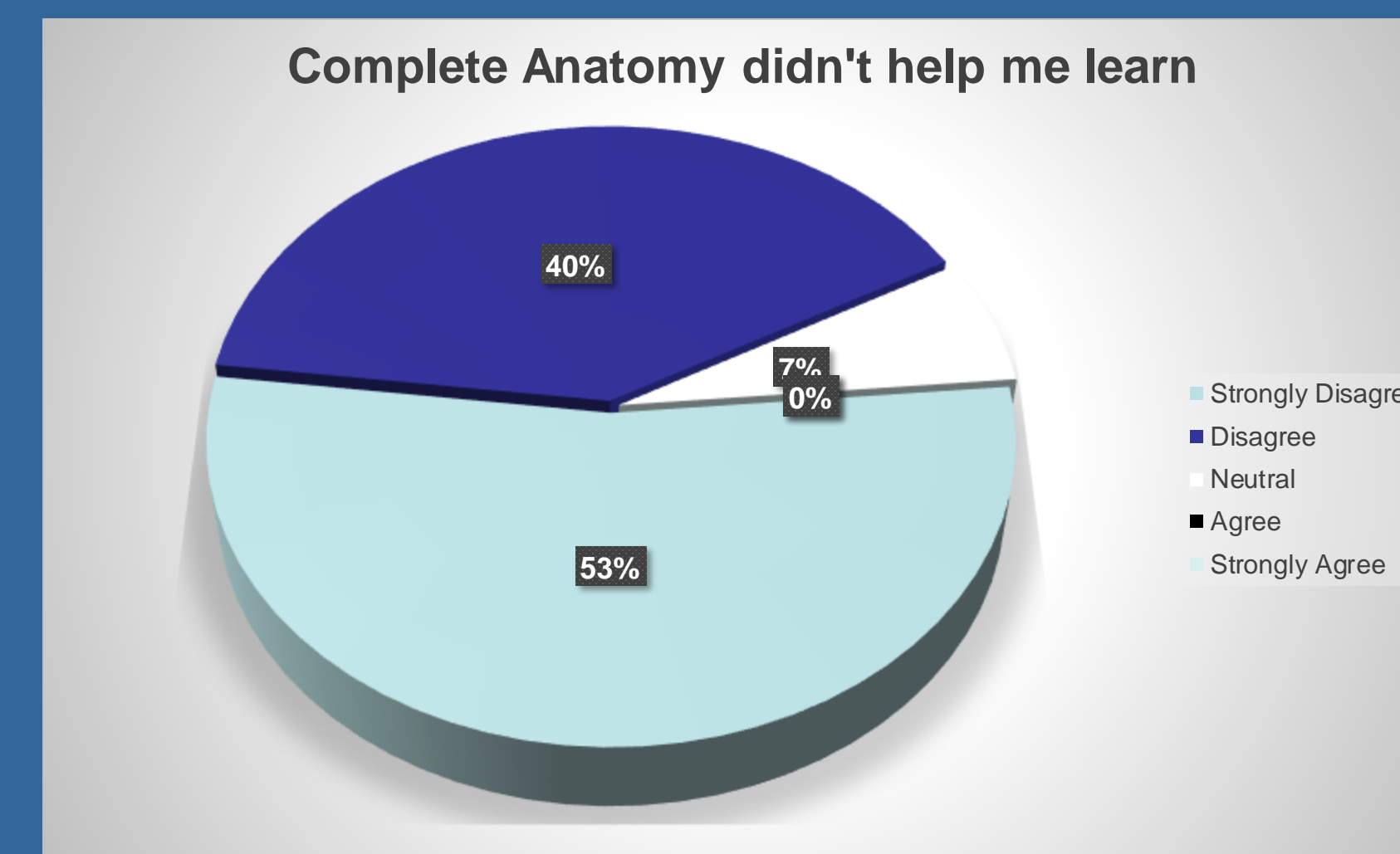
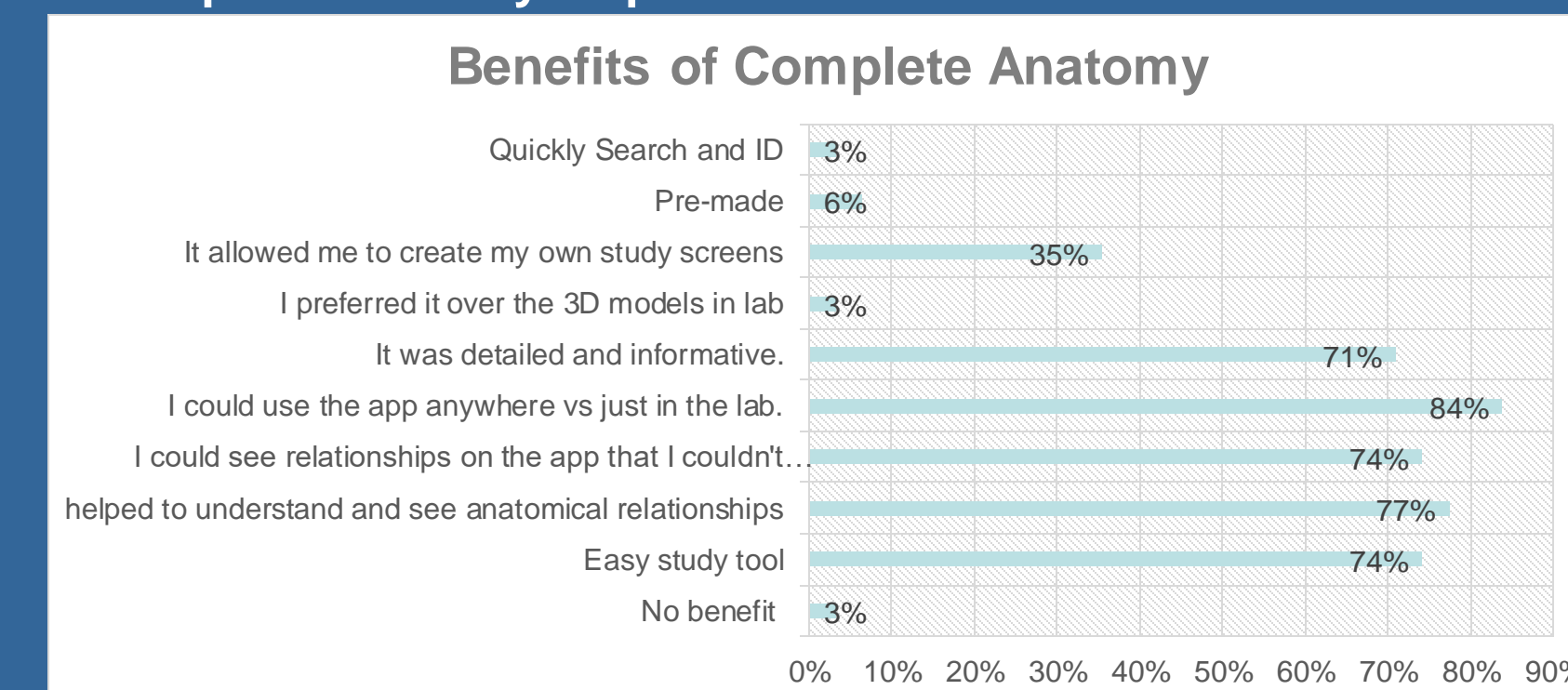


Figure 2. Complete Anatomy Image.



Complete Anatomy helped students learn.



How students used Complete Anatomy

TREATMENT AND DATA COLLECTION

- Students were given a Licensed account provided by Medicine Hat College to the Complete Anatomy App.
- Students were added to a Complete Anatomy Group run by the lab instructors that included pre-made screens.
- Students were given a lesson about the different tools available to them within the App including:
 - Study groups
 - Screen creation and saving
 - Question/Quiz creation and sharing
- Over the course of the semester the students' perceptions and use of the app was evaluated through 5 different assessments:
 - Pre and post treatment Likert type surveys
 - Pre and post treatment Questionnaires that included open ended questions
 - Post treatment interviews with several students.

CONCLUSIONS

According to Magana's T3 hierarchy of technology in the classroom, Complete Anatomy is a transformational technology. It allowed the students to learn and access information at times, places, and in ways that they could not have without it. The app provides the students the opportunity to learn anatomy and anatomical relationships that in a way that cannot be done with traditional 3D plastic models.

REFERENCES

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