

Efficacy of Using 3D Anatomy Software in Human Anatomy Courses for Dental Students

Brendan Tuholski¹, DDS2027; Aline Souza², PhD; Homer Asadi², DDS; Cassio Almeida-da-Silva², PhD.

¹ Doctor of Dental Surgery Program; ² Department of Biomedical Sciences, University of the Pacific, Arthur A. Dugoni School of Dentistry, San Francisco, California, USA.

INTRODUCTION

- Students in dental school have large amounts of information to learn in a short period, especially in our 3-year program.
- To work with patients, DDS students must have a comprehensive understanding of human anatomy.
- Human anatomy courses require students to learn an extremely large amount of material and its applications.
- Course directors provide different learning resources in order to reach students with different needs.

OBJECTIVES

- To increase knowledge retention and increase understanding of critical anatomical concepts at the University of the Pacific, Dugoni School of Dentistry.
- Give resources to students that give them more opportunities to engage in spacial repetition learning.
- Increase active learning strategies to be used by students.

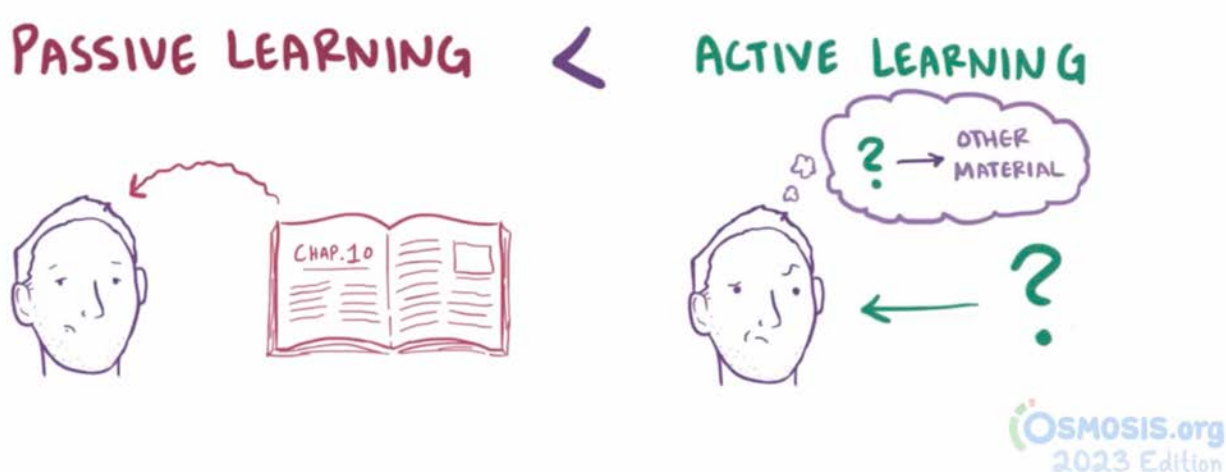


Figure 1. Picture showing how active learning enhances the retention of learning subjects (Osmosis)

METHODS

- The study was approved by the Institutional Review Board at the University of the Pacific (IRB2024-374).
- We implemented built-in exercises using the 3D Anatomy software as an active learning activity in the anatomy courses. A survey was sent via e-mail to first-year DDS2027 students (academic year of 2024-2025) at the University of the Pacific School of Dentistry to determine the effectiveness of this activity towards learning anatomy.
- The students' responses were grouped and organized as "extremely helpful", "very helpful", "somewhat helpful", and "not helpful" on how useful the method was in their anatomy learning experience.

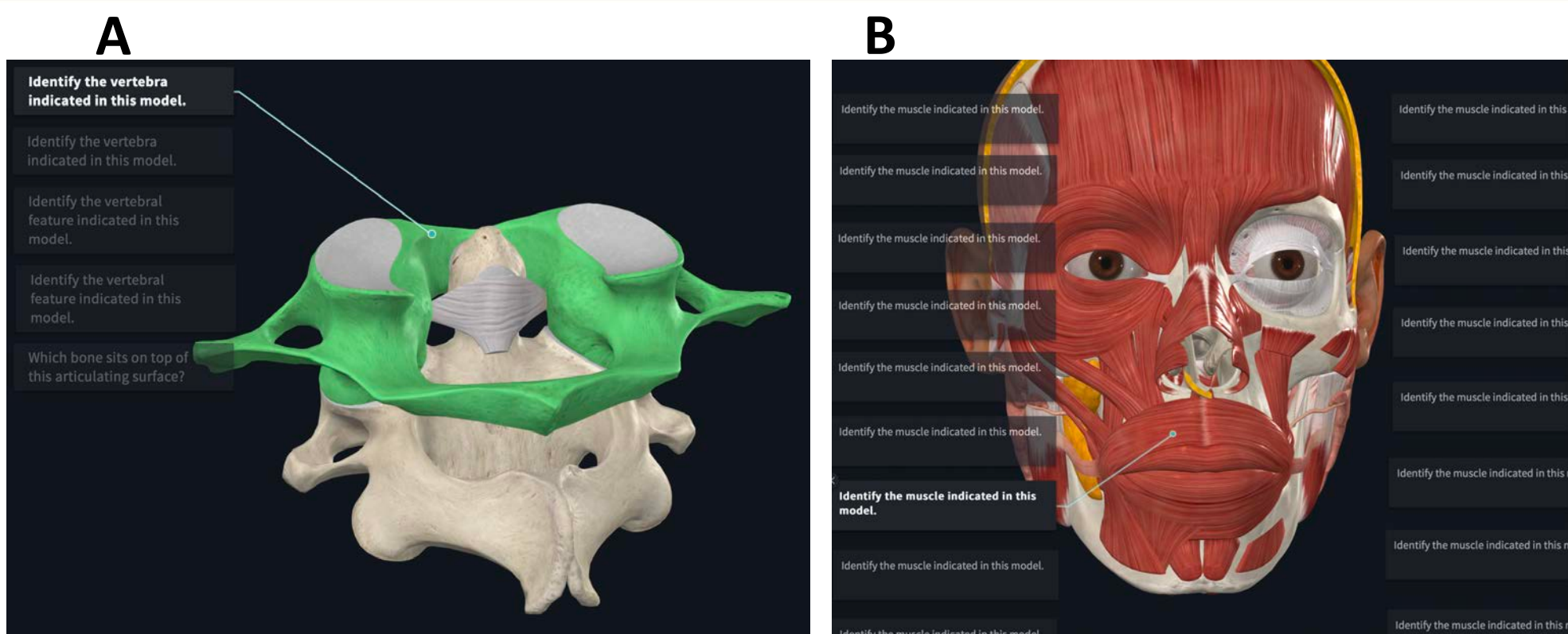


Figure 2. Example of vertebrae on self-study using 3D Anatomy software (A) and Example of muscles of facial expression exercise using 3D anatomy software (B).

RESULTS

- 114 students (out of 143) responded to our survey.
- Overall, 95% of dental students found it helpful to use 3D anatomy software during human gross anatomy lab sessions.
- 28% of students stated they learned between 75-100% of the content and 41% of students stated they learned between 50-75% after finishing the guided 3D anatomy software exercises during lab sessions (Figure 4).
- 73% of the students found it at least very helpful to have faculty present to help answer questions and guide the exercises (Figure 5).

The Use of Guided 3D Anatomy Software During Lab Sessions

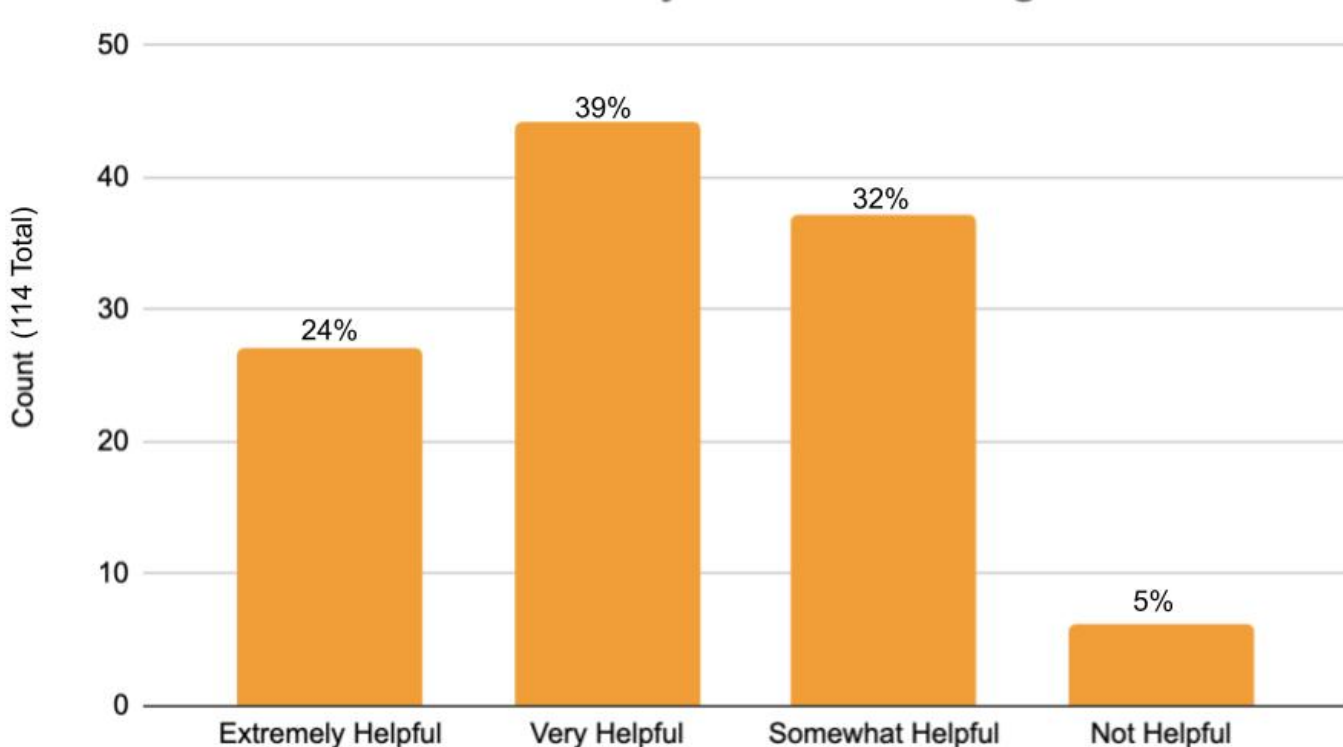


Figure 3. Total count and percentage of DDS students that rated the helpfulness of the use of guided 3D anatomy software during human gross anatomy lab sessions.

How much of the content do you feel you understand after finishing the guided 3D anatomy software exercises during lab sessions?

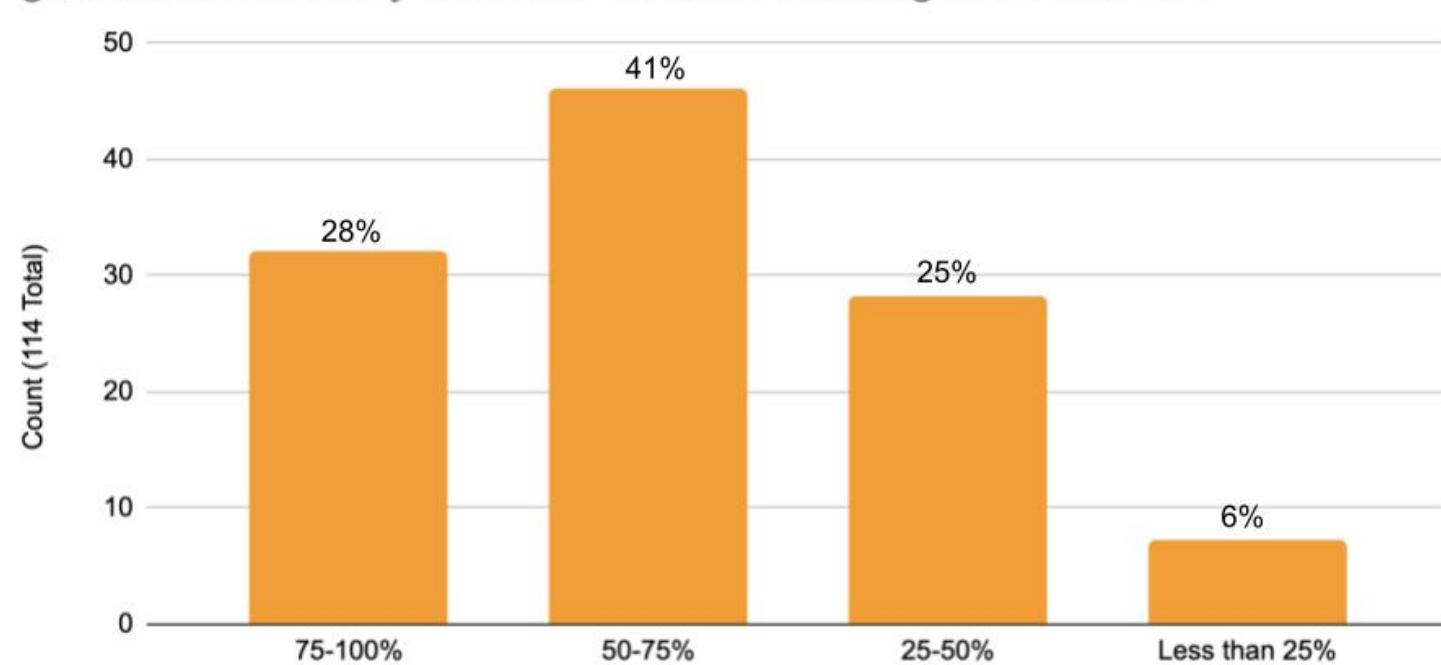


Figure 4. Total count and percentage of DDS students that rated the amount of content they learned after finishing the guided 3D anatomy software exercises during lab sessions.

How helpful was the presence of faculty in the room to answer questions and guide the exercises during lab sessions?

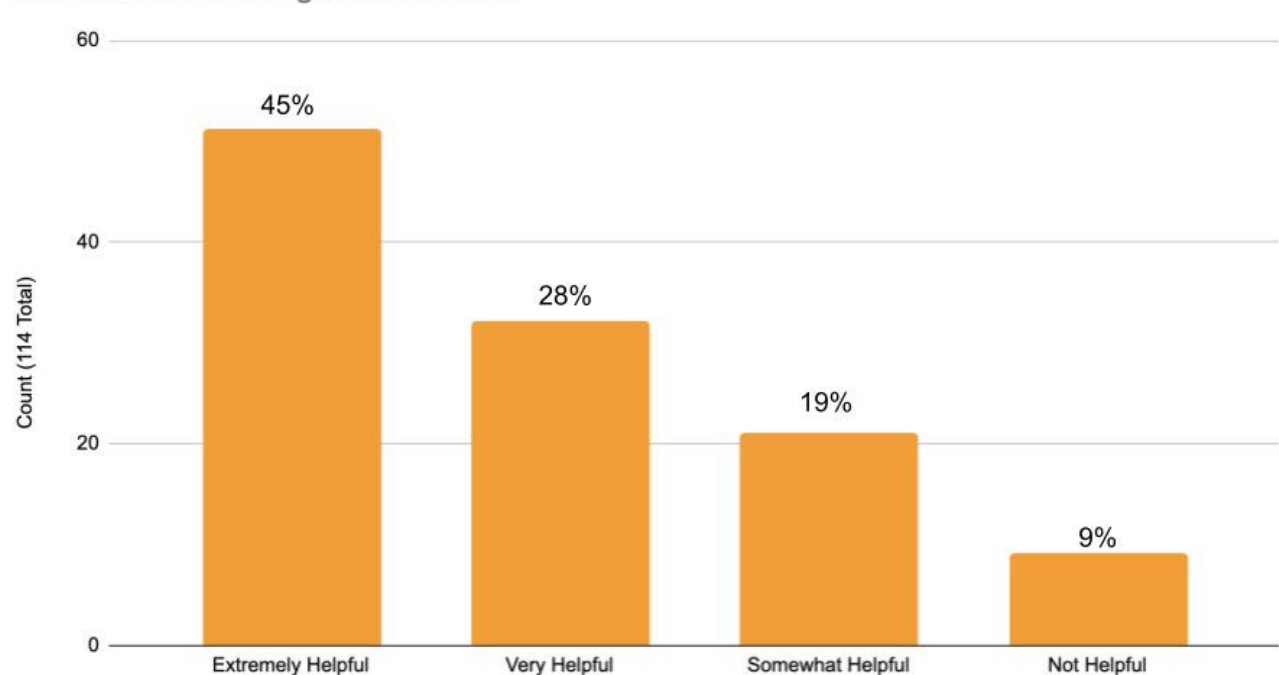


Figure 5. Percentage and count of DDS students that rated the helpfulness of having faculty present in the room to help answer questions and guide the exercises.

CONCLUSION

- Most students found the 3D software a helpful resource to help them learn large amounts of content.
- It is important for faculty to continue engaging with the students, as many students find faculty support extremely helpful.
- Faculty engagement also helps engage active learning among the students.

ACKNOWLEDGEMENTS

Thank you, Dr. Silva, Dr. Souza, and Dr. Asadi for your support and guidance throughout this research project. Thank you [osmosis.com](https://www.osmosis.com) for your image on active vs. passive learning.

OKU Sutro Excellence Day Project Cover Sheet

Project Title

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Project Category

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