

INTRODUCTION AND RATIONALE

- Many medical schools teach anatomy and embryology in a combined course as an essential component of preclinical medical curriculum
- A large disparity exists between average course hours devoted to anatomy (167) versus embryology (16) (Drake, 2002)
- The course at Brody is largely taught with a course pack with few images and accompanying 2D textbook images
- Previous studies (Chekroni et al., 2020; Preece et al., 2013) have indicated that using three-dimensional models enhances student understanding and is perceived positively by students
- However, models for purchase can be cost-prohibitive for many medical schools
- This study examines how low-cost three-dimensional models can be used effectively to supplement class materials and instruction

MATERIALS AND METHODS

- Participants recruited from the first-year class at the Brody School of Medicine
- Attended a 30-minute workshop using 3D models made of modeling dough (Figs. 1 & 2) to reinforce topics learned in class
- Completed a 10-question pre- and post-quiz and an exit survey designed to gauge students' opinions of the teaching methods used

RESULTS

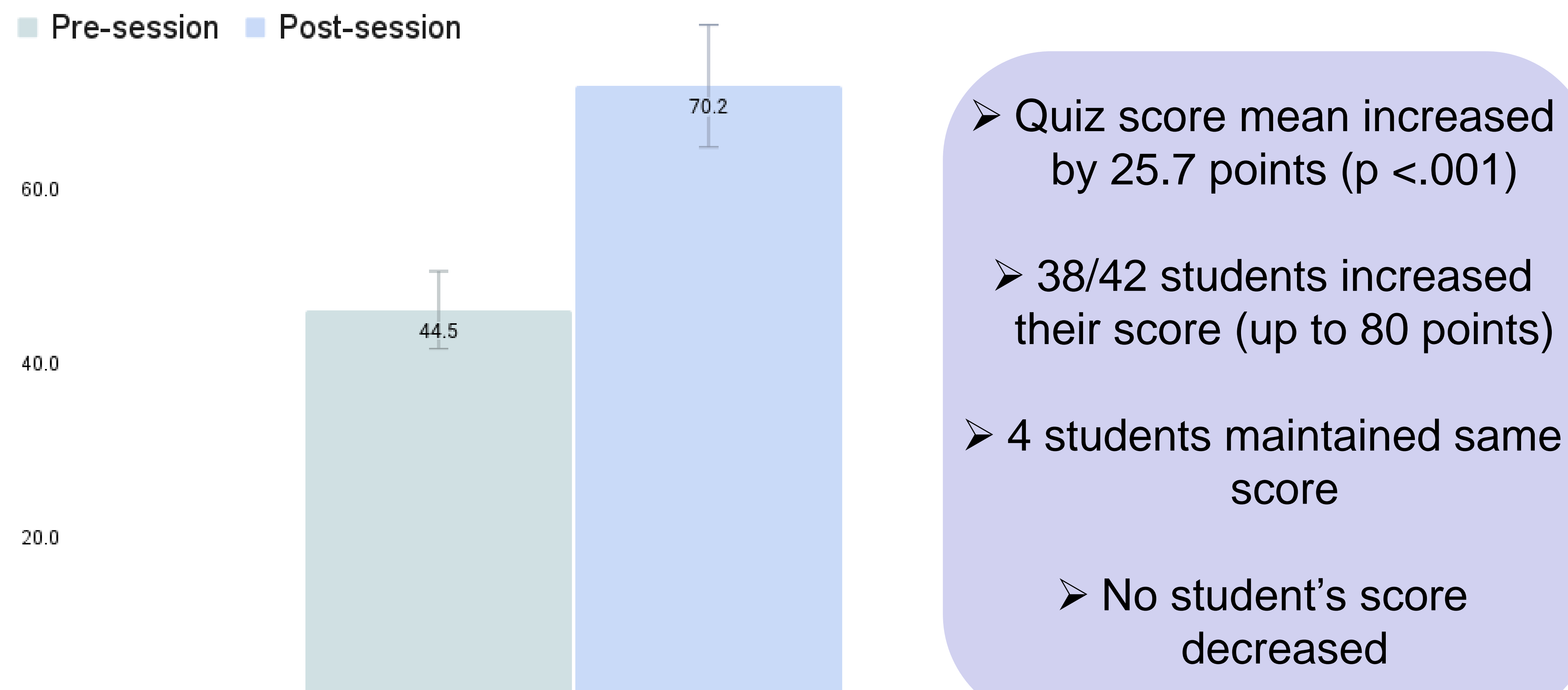


Figure 1. Pre- and Post-Session Quiz Averages

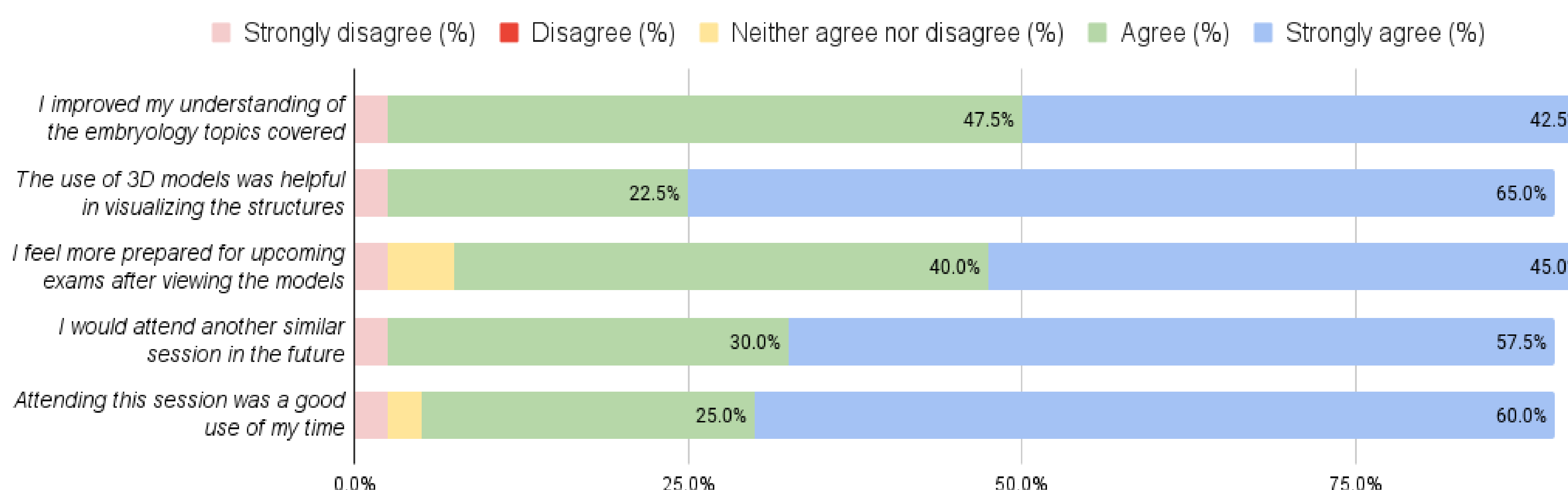


Figure 2. Exit Survey Results



Figure 3. Model of the bilaminar disc stage with amnion and primary umbilical vesicle formation



Figure 4. Model of the trilaminar disc stage with notochord, neural tube, and neural crest cell formation

DISCUSSION

- Students performed significantly better on knowledge-based questions after attending the 3D model workshop
- Participants indicated overall strongly positive attitudes toward the use of models to supplement in-class instruction
- These data corroborate previous studies highlighting the potential value of using 3D models in embryology courses
- Also indicates that homemade, economical models can be effective teaching tools
- Further research needed to assess impact of models on long-term recall and compare modeling methods (homemade versus professional varieties)

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