Preparing the Next Generation of Dentists through Assessment

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1. Introduction

- **Why is this important?**
  - Group &/or corporate dental practices becoming more prevalent
  - Intra/inter professional collaboration requires teamwork skills

- **Can we double dip?**—Is there a way to foster collaboration AND enhance student performance?
  - Collaboration in dental education = train in teamwork and enhance performance
  - Collaboration increases performance via critical thinking and higher level of cognition

- **So we know collaboration in learning is beneficial, but can this be extended to assessment?**
  - Collaborative group testing (CGT) = one or more partners for all or part of an assessment
  - Collaborative two-stage testing — administering test to individuals independently followed by administering same test to partners

- **Has it been done before?**
  - Success demonstrated in nursing, veterinary education, math, theatre, undergrad science, etc.
  - Currently, two studies on CGT in dental education: dental hygiene and pediatric residency
  - No research on CGT in pre-doctoral dental education

2. Purpose

The primary objective of this study was to determine if collaborative group testing is an effective assessment method for pre-doctoral dental students.

**Specific questions were:**

1. **Do student scores improve with the addition of collaboration on exams?**
2. **Is the implementation of collaborative testing beneficial to the students’ learning process?**

3. Methods

First-year dental students (N=76) were assessed utilizing a two-stage collaborative group test consisting of three quizzes and a final examination.

- **Partner assigned at beginning of course**
- **Short answer and identification questions**
- **10 minutes to complete quizzes individually (30 minutes for final)**
- **Individual assessments turned in**
- **Identical copy of assessment distributed**
  - Students worked with assigned partner to discuss answers
  - Students could change/modify previous responses or keep original answer
  - 10 minutes to collaborate
  - Each student turned in own paper for collaborative assessment
  - Grades averaged between individual and collaborative assessments

A Likert-style questionnaire along with open-ended questions was administered at the conclusion of the course to ascertain student perspectives on the testing methodology.

4. Results

| Results from different assessments, overall results, and retention of information |
|-------------------------------|-------------------|-------------------|
|                               | Standard          | Standard          |
|                               | Mean % | Deviation | Mean % | Deviation | p-value* |
| Quiz 2 (N=76)                 | 79.30  | 1.33      | 78.00  | 0.86      | < 0.001 |
| Quiz 3 (N=76)                 | 76.20  | 1.77      | 72.00  | 0.88      | < 0.001 |
| Final (N=76)                  | 87.77  | 3.28      | 93.93  | 1.60      | < 0.001 |
| Overall results (N=227)       | 81.12  | 14.33     | 91.00  | 7.75      | < 0.001 |

Overall results – Individual Quizzes & Individual Final

![In a Nutshell...](Image)

**What the Students Say...**

- **Collaboration may improve assessment outcomes**
- **Collaboration may enhance material retention**

- First-year dental students take collaborative portion of final exam.

5. Conclusions

- **Results show promise to enhance learning and material retention.**
- Other potential benefits include: increased team-working skills, increased communicative abilities, and increased comradery amongst classmates.
- Broader reaching future research is recommended to determine generalizability applicability in dental education.

6. References

- JR, Dodge WW, Findley JS, et al. Will Large DSO Managed Group Practices Will Be the Setting in Which the Majority of Oral Health Care Is Deli... Managed Group Practices Will Be Offset by Models Allowing Dentists to Retain the Independ...
- First-year dental students take collaborative portion of final exam.
- Gilbert questions modified from validated tool by Giuliodori, et al. from study on CGT in veterinary physiology course.
- Open-response questions modified from validated tool by Keselyak, et al. in study on CGT in first-year dental hygiene course.