TEST ANXIETY INTERVENTIONS IMPLEMENTED BEFORE SUMMATIVE SCIENCE ASSESSMENTS
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Research Questions

Primary
What are the effects of anti-anxiety strategies on student performance during summative assessments?

Secondary
What are the effects of interventions on student experiences during summative assessments?

Secondary
Are students at different age levels impacted differently?

Secondary
Would students utilize test anxiety interventions on future assessments?

Introduction

Anxiety impacts most students. The American College Health Association found 62% of undergraduates reporting overwhelming anxiety (Tate, 2017). One trigger for anxiety is testing situations. Test anxiety can be defined as “an unpleasant feeling or emotional state that has physiological and behavioral concomitants, and that is experienced in formal testing or other evaluative situations” (Hill & Wigfield, 1984). An estimated 10% - 40% of students show test anxiety (Embse & Hasson, 2012). Students who score high on test anxiety assessments often score lower on tests (Hurren, Rutledge, & Garvin, 2006).

This Action Research (AR) took place at an independent high school in the San Francisco Bay Area, Marin Academy (MA). I have taught life science at MA for the past eighteen years and recently noticed test anxiety becoming a more prevalent issue. Test anxiety can impede performance, as well as negatively affect student experience. Through this AR project, I explored tools to offer students for test anxiety when facing summative assessments.

Methodology

Sample:
- 9th-grade biology students (45 students)
- 11th and 12th-grade anatomy and physiology (13 students)

Treatment Introduction: students were introduced to the following test anxiety interventions prior to 3 quizzes
- Calming Counts (Figure 9)
- Expressive Writing (Figure 10)
- Visualize Joy (Figure 11)

Treatment Implementation: students were given the option to implement one of the interventions prior to the semester final exam

Data Collection: interviews, Likert surveys, assessment scores. p-values below 0.05 are assumed to indicate significant differences between means compared

Assessment Performance:

Figure 2: Boxplot of biology quiz scores following test anxiety interventions, (N=44).
Figure 3: Boxplot of Biology final exam scores, (N=44).
Figure 5: Post-Final Survey responses from students in biology and A&P that participated in the intervention related to students’ ratings of their test anxiety at the start of the final exam, (N=47).
Figure 6: Likert responses on the Post-Final Survey from students that participated in the intervention related to students’ experience with the intervention on the final exam in (a) biology, (N=30) and (b) A&P, (N=8).

Student Experience:

Figure 4: Boxplot of A&P quiz scores following test anxiety interventions, (N=10).
Figure 7: Ratings of test anxiety from students in (a) biology and (b) A&P on the Post-Final Survey.
Figure 8: Post-Quiz Survey responses related to students’ ratings of “I would consider using this intervention on my own for future assessments” in (a) biology, (N=44) and (b) A&P, (N=13).

Conclusion

- Study did not convincingly show statistical evidence of improved performance due to the intervention (p≥0.32)
- Students in biology and A&P showed similar levels of test anxiety.
- Majority of students enjoyed the intervention, thought it positively impacted their experience, and would consider using it again on their own.

Works Cited

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