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Introduction

- Assessment is an integral part of classrooms and workplaces because it provides evidence of what students and workers know.
- Authentic group assessments:** tests that students take together as a group, help the classroom be more realistic by modeling the work environment. They are important because they give students worthwhile responsibilities and measure their knowledge in realistic contexts (Wiggins, 1990).

Industry Connection

During my experience at Raytheon, assessment of projects were based on group performance. I worked with my peers to create projects, ideas, and present information. This collaboration enabled me to receive and give input on ideas while being partially evaluated based on my contributions to that collaboration. I wanted my students to experience this same idea in class.

Investigation

Location: High School in Southern Arizona
 Grade and Subject: 9-12 Honors Algebra II, 86 Students

- Problem Based Learning (PBL) unit on exponential growth and decay based on the effects of climate change on a region of the world (students' choice).
- Small collaborative groups working together towards a culminating presentation, analysis, and group assessment.

Research Questions

- How does using individual and group assessment strategies in cooperative learning contexts affect students' understanding of mathematics?
- What are my students' attitudes towards group assessment and does attitude affect engagement?

Methods

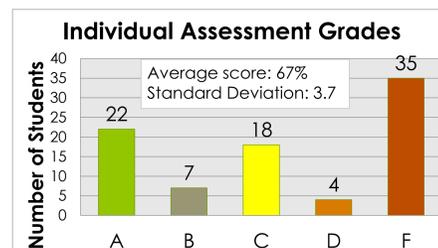
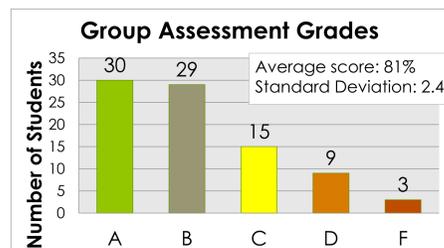
Data was collected using the following instruments:

- Group and Individual Assessments to assess content knowledge.
- Observations, Video, and Audio Recordings to determine amount of motivation shown and presence of group dynamics.
- Pre/Post Assessments to assess knowledge retention.
- Pre/Post Surveys to assess students' attitudes towards group assessment.
- Exit Surveys to assess students' perception of the contribution of their peers, themselves, and the teacher to their learning.

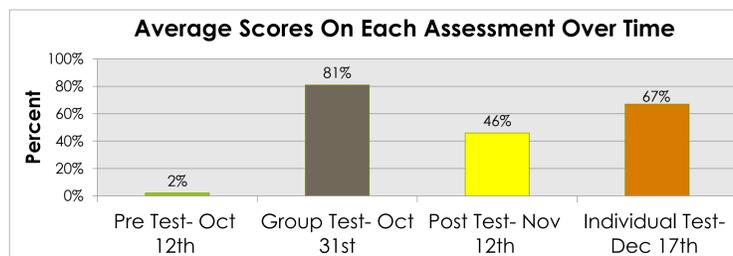
Findings

Group Assessments increased student achievement but did not increase students' knowledge retention rate to an acceptable level.

- Students were successful on group assessments



- Students showed a statistically significant improvement in their knowledge from pre to post test but overall had low knowledge retention.



"I feel that practicing with (my) peer(s) either consolidated what I knew or made apparent what I needed to practice"

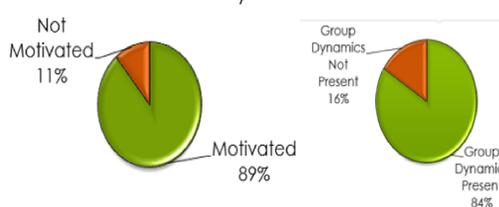
Students' attitude towards group assessment did not affect their level of motivation or their ability to work well in groups.

- Students' attitudes towards group assessments did not change from an average neutral feeling. They were still highly motivated and highly competent at working well in groups.



There were no changes pre to post on a survey that asked students if group assessments were fair and worthwhile.

Percentage of Time Motivated or Using Group Dynamics

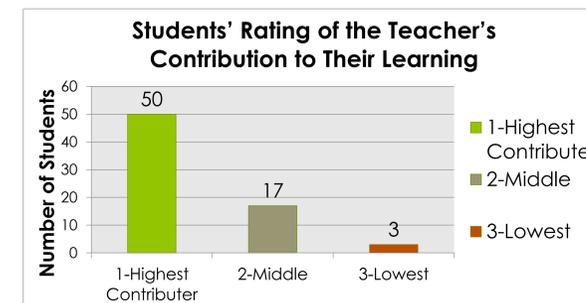


Teacher observations of student motivation and appropriate group dynamics displayed by the students

"My group was there when I needed them and it was good to have a variety to work with because they all have different methods for understanding math"

Group assessments did not change students' historic belief that the teacher is the primary contributor to their learning.

- In my experience as a teacher, the teacher as a primary contributor is a typical student belief. Over 50% of the students listed me as the number 1 contributor to their learning.



"I didn't learn anything from myself"

"I feel like it was half & half. Some (learning) came from my peers & some from you"

"You were the one with all the knowledge & experience"

Implications

- Continue group assessments as they help students now and connect to their future lives in any workplace.
- Students' attitudes do not affect their level of motivation or engagement, so I will plan assessments and group dynamics based on best practices.
- Continue cooperative group activities to model the workplace.

Future

- I will try different techniques to help increase my students' retention of content knowledge.
- I will work with my colleagues on implementing authentic group assessments into their classrooms because this is how their students will be assessed in the workplace.
- I will begin research on how students' perception of who has the greatest contribution to their learning affects how and what they learn.

References

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