Using Self-Assessment Rubrics in Science

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Background

This research was conducted at Virginia High School, a 7-12 public school, in Virginia, Minnesota. The use of self-assessments is important and needed in education. Trying to get my students to self-reflect has been a long process. The use of self-assessment rubrics allows students to demonstrate skills and use realistic approaches to solve problems. This technique allows teachers to see how students apply what they have learned about science topics by their comprehension and it shows the gaps in students' knowledge.

Methodology

- The study included 59 ninth grade students.
- The treatment took place from January 2019-March 2019
- During treatment, 6 self-assessment rubrics were used.
- During non-treatment phases standard assessments were used.
- Pre and Post assessment surveys and interviews were used on students.

Research Questions

Primary Question:

What are the effects of self-assessment rubrics on student motivation, engagement, and learning in physical science?

Secondary Question:

What are the effects of self-assessment rubrics on a student's overall at the end of each unit?

Secondary Question:

Do self-assessment rubrics promote greater self-efficacy?

Data and Analysis

Data was collected by:

1. Self-Assessment Rubrics
2. Pre and Post Treatment Surveys
3. Observer journal
4. Pre and Post treatment interviews

- Ninety one percent of students agreed or strongly agreed that they felt confident and comfortable in self-accessing after each unit
- At least 88% of students agreed or strongly agreed that they worked hard on the rubric and maintained high standards for themselves unit.
- Eighty seven percent of students boosted their confidence and comfort in the class by using the rubric.

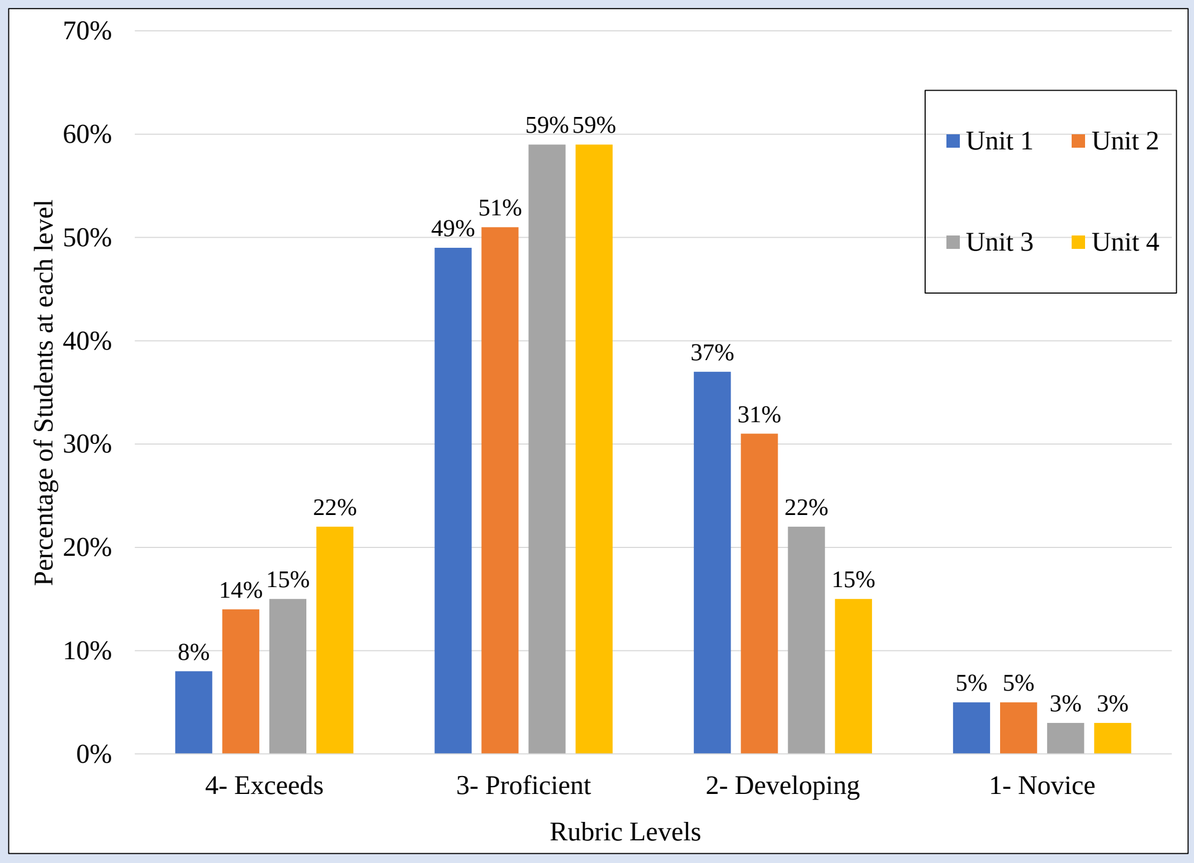

Figure 1. Student self-assessment rubric scores unit 1- 4, (*N*= 59).
Note: Rubric level scores: 4= Exceeds- I can do it without mistakes. I can help others, 3= Proficient- I can do it by myself! I make little mistakes, 2= Developing- Sometimes I need help. I am starting to understand, 1= Novice- I can't do it by myself. I don't understand yet. Unit 1- motion and force, Unit 2- waves, Unit 3- work, unit 4 distance and displacement.

Conclusion and Value

This study supported that using self-assessment rubrics will improve students' overall grade, performance, and attitude towards science. The rubrics used after each treatment unit showed growth for students in self-reflection. The rubrics helped students focus on obtaining the unit objective. The post-assessment surveys and interviews showed growth made in the confidence students had in the science classroom. Students had better reflective entries on the discussion questions towards the end of the treatment.

Future Plans

The implementation of self-assessment rubrics into my classroom was a technique that I will continue to use. My goals are to start weekly reflections so my students can express any concern they are having with the content they are learning. I want students to communicate what parts of the material really resonated with them and how this can impact their lives outside of the classroom.