



# TRAINING STUDENTS TO DEVELOP BETTER QUESTIONS



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## Background

My capstone project was conducted during my 13<sup>th</sup> year of teaching seventh grade science at Hackensack Middle School in Hackensack, NJ. Over the course of my career with HMS, I have found that students who are good at memorizing and enter my classroom with proficient study skills perform better on assessments than students for whom studying is a work in progress. However, I have found that even those students who are academically successful in my class are weak when it comes to taking ownership of their learning and experiencing the thrill of discovery. They do not ask good, relevant questions because they do not know how to, often preferring for the information to be provided for them. I believe that, like any other ability, all students need to be taught how to ask higher order questions, and that the development of this skill will lead to improvement and strengthening of other academic skills.

## Focus Question

Will training in question generation lead to the development of better questions posed by students?

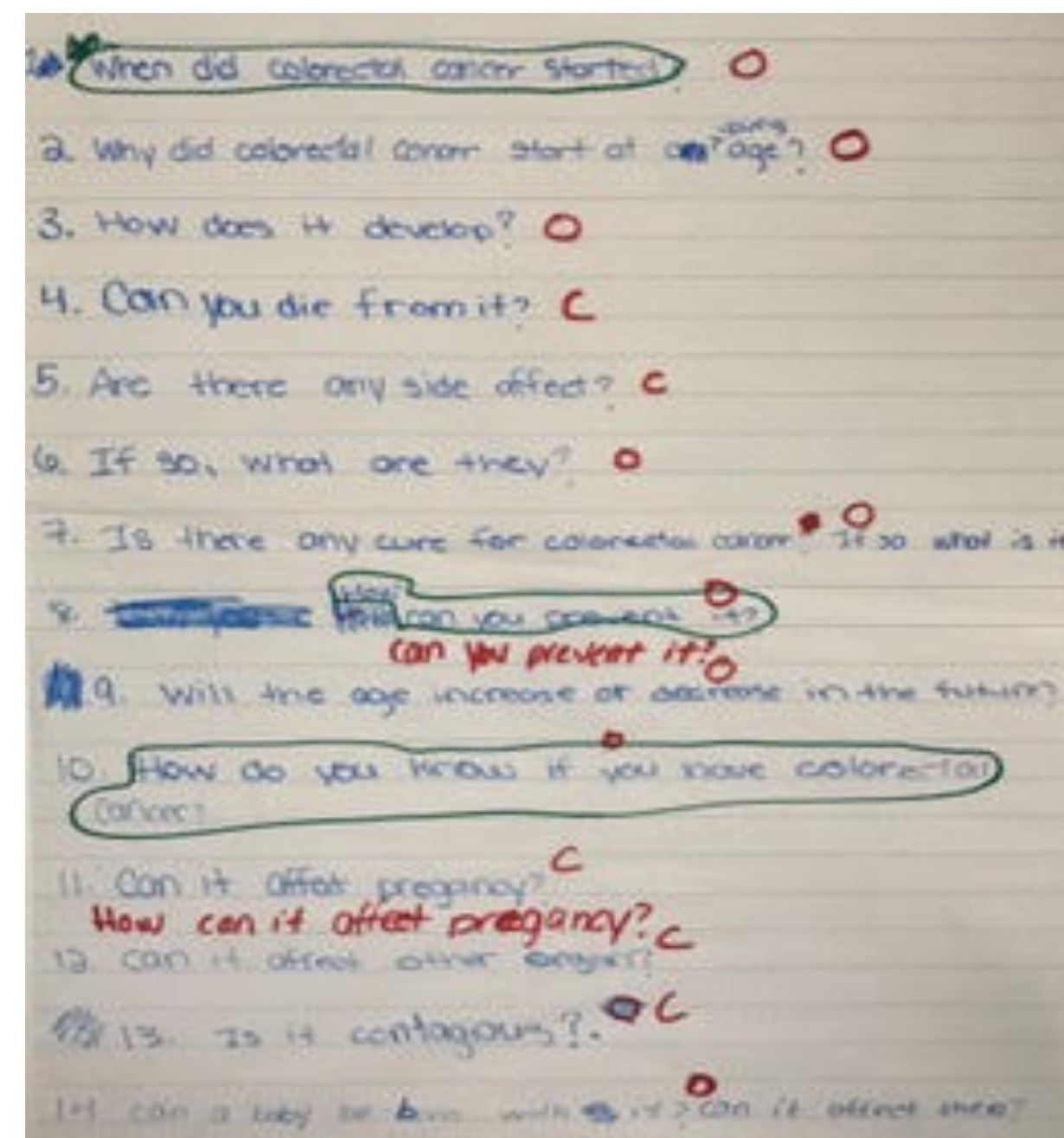
## Sub Questions

1. Will the generation of good questions improve students ability to comprehend readings?
2. Will training in question generation improve students' ability to answer open-ended response assessment questions?

## Treatment

The treatment used in this research was the implementation of Rothstein and Santana's Question Formulation Technique (QFT). The QFT directs students to strategically produce questions about a teacher-created focus, improve the questions that they produce, prioritize the questions, and then determine what their next step will be. The treatment was administered during a unit on body systems, with assessments and written assignments completed before and after implementation for both treatment and non-treatment test groups.

Sample QFT result

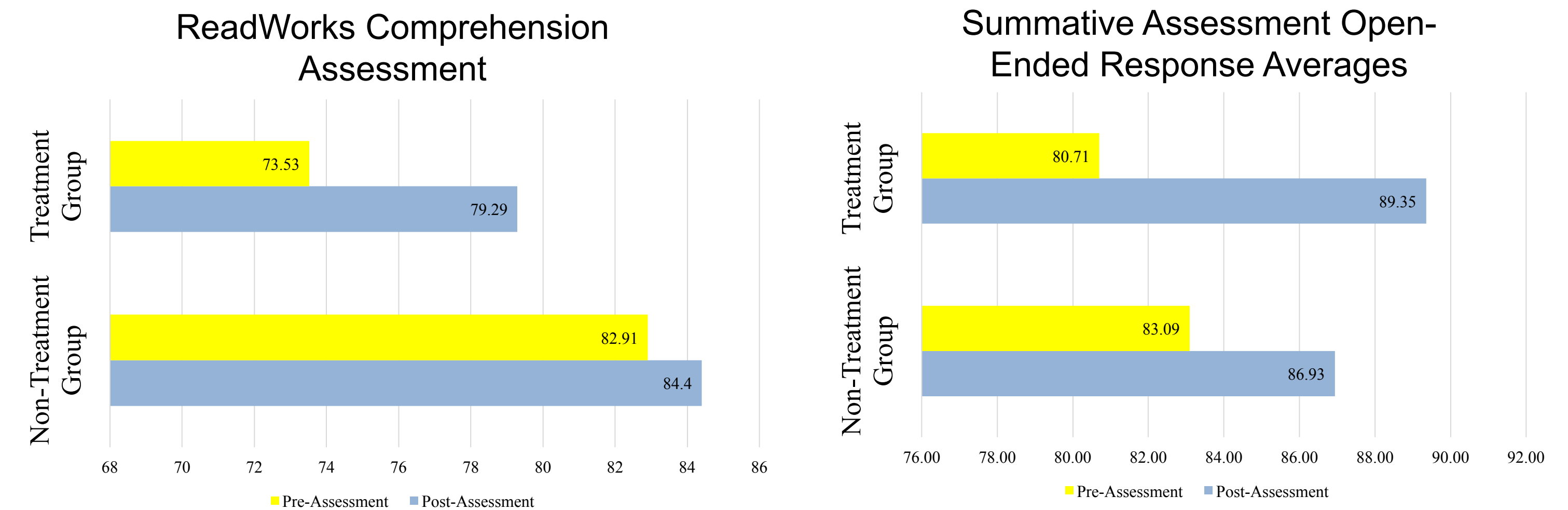


*"Answering questions formulated by the instructor demonstrates recall and understanding, but doesn't necessarily aid in long-term learning. The student generation of higher order questions may lead to long-term learning and higher cognitive development."  
Cuccio-Schirripa & Steiner, 2000*

## Data Collection/Analysis Methods

Research Questions	Data Source 1	Data Source 2	Data Source 3
Focus Question	Anecdotal and observational data	Student interviews	Student surveys
Sub Question 1	Pre- and post-assessment	Article summaries	Student surveys
Sub Question 2	Pre- and post-assessment	Written assignments	Attitude scales

## Data



## Conclusion

The data collected and analyzed provides evidence that training students to formulate better questions, specifically utilizing the Question Formulation Technique, positively affects student questioning and their development of better questions. Students included in the treatment group demonstrated greater gains in both their ability to comprehend readings and answer open-ended response assessment questions than the the students in the non-treatment group. Most notably, however, was the student attitude towards participation in the QFT and the confidence that it built in the students involved. The students really enjoyed the QFT, and of those students interviewed, most expressed an increase in confidence in asking questions in class. As a result of observing improvement in quality of student-formulated questions, comprehension skills, open-ended assessment skills, and student confidence, the QFT process is a method that I plan to continue to implement and share with my colleagues.

**References Cited:**  
Cuccio-Schirripa, S. & Steiner, H.E. (2000). Enhancement and Analysis of Science Question Level for Middle School Students. *Journal of Research in Science Teaching*, 37(2), 210-224  
Rothstein, Dan, & Santana, Luz. (2011). *Make Just One Change: Teach Students to Ask Their Own Questions*. Cambridge, MA: Harvard Education Press.