Draft Problem & Purpose Statement

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Introduction

There are many factors that attribute to high numbers of low performing students on formal assessments in the K-12 schools in the United States. Educators continue to seek ways of improving the instruction of students so they are prepared for life after high school. Below are a problem statement and a purpose statement of two problems identified as obstacles in the success and achievement of students in schools throughout the United States. The purpose of this paper is to develop a qualitative and quantitative problem statement and purpose statement that address current issues of concern in educating students on the pre-college level.

Qualitative Statement of the Problem

African-American students in grades K-12, continue to perform below the proficient level on formative assessments in reading, science, technology, engineering, and math (STEM) (United States Department of Education (USDE) (2014) African-Americans only made up 5% of all engineering bachelor's degrees achieved and entering the field of engineering as of 2010 (NACME, 2012). According to Smith (2014), “4th-grade African-American students scored 16.25 percentage points lower than the proficiency level in Reading and 25 percentage points lower for Math. In addition, 8th-grade African-American students scored on average, 20 percent lower proficiency level for Reading and 16.5 percentage points lower than proficiency in Math” (p. 2). According to Russell (2005), African-American students “score disproportionally lower in science than any other group and avoid advanced science and math courses”(p. 173). Improving proficiency levels in assessments and closing the gap between African-American students'
academic performance and their non African-American peer groups is essential to leveling the opportunities for entering into STEM fields of study. This is an important step in our society and the world in preparing all of our students to achieve according to their abilities and desires, and not being hindered because of their economical status or ethnicity. Yet, educators continue to demonstrate failure in implementing an effective solution for addressing the needs of students who are failing to perform at a proficient level or higher in science and math.

This qualitative analysis study includes researched data collected from observations, questionnaires, and interviews to describe the attitudes and personal perceptions about science and math content of students and teachers in elementary schools identified as having scored below the proficient level on formative assessments. African-American students score low at a disproportionate level compared to groups of other ethnicities and carry negative sentiments towards math and science courses (Russell, 2005). If students fail to see the value in these courses, it is likely that they will continue to stay away from high-level courses in math and science that will place them in a better position for opportunities in the science, technology, engineering, and math fields (Russell, 2005). Examining data that may show shifts in the attitudes of African-American students about STEM subjects or STEM occupations is a necessary step to address issues that attribute to the integration of STEM concepts in the classroom at the elementary level.

**Purpose of the Study**

The purpose of this study is to examine the differences of attitudes and perceptions of African-American elementary and middle school students taken from a sampling school district within the United States where formative assessment scores are consistently falling below
proficient. This research will examine the STEM associated attitudes of students who are in a STEM integrated programs. This study will also examine the STEM associated attitude of students who are not in a STEM integrated programs. The National Science Foundation (NSF) (2010) reported that African-American students endure "systematic lack of opportunities and support", and "inadequate teaching, absence of both real-life, hands-on experiences with STEM materials and positive role models of STEM professionals" (p.12). The ability to compare the attitudes and perceptions of African-American students who participate in a STEM integrated program with students who do not participate in a STEM program may be a valuable tool for educators and other stakeholders to reflect upon and evaluate. Such examination would drive classroom instruction toward effective, motivating attitudes and an increase in students' understanding of science, technology, engineering, and math (STEM) content that will increase students' knowledge, interest, and ability for consideration of STEM careers. Participating students and teachers will be selected by classrooms from the recommendation of the school administrator within the selected school district.

**Quantitative Statement of the Problem**

Teachers in elementary schools struggle to teach standards to students effectively because they have to instruct 5-7 courses throughout the day (Gewertz, 2014). Elementary teacher should become more knowledgeable and specialized to teach in fewer content areas in order to fully instruct students. Under the No Child Left Behind (NCLB) Act of 2001, administrators and educators face excruciating pressure to make huge improvements in student achievement in their schools (Gewertz, 2014). Response to this pressure has led educators to rethinking how schools and classrooms are organized for instruction. A long time practice in U.S. middle and high
DRAFT PROBLEM & PURPOSE STATEMENT

schools, departmentalizing, may offer an effective solution. This model of instruction, also called "specializing or platooning" (p. 1), asks teachers to become experts in one to two content areas while student move from one classroom to another (Gewertz, 2014).

Purpose of the Study

The purpose of this quantitative study is to compare the difference between elementary classroom that follow the self-contained generalist model, a classroom where the teacher is responsible for teaching all core subjects and the elementary classroom where the teacher implements departmentalization or platooning, a classroom model where the teacher is responsible for teaching two to three core courses within the same school. The classroom model traditionally followed in most K-6 classrooms of elementary schools across the United States is the generalist model. This model has been criticized by supporters of departmentalization of classrooms citing teacher burnout, job dissatisfaction, and low student performance as a few factors attributed to the generalized classroom model and the need to specialize (Timms, Graham, & Cottrell, 2007).  

Research data from previous studies show some evidence that promotes positive effects that the departmentalization may have on students' academic performance and job satisfaction amongst elementary teachers (Perrachione, Rosser, & Peterson, 2008; Timms, Graham, & Cottrell, 2007). This study will select elementary classrooms in a school district that has demonstrated low achievement scores on standardized tests continuously and have implemented departmentalizing at the elementary level. The research hypothesis in the study is formulated to make the following assumptions:

H01 There is no significant difference in student achievement in elementary schools that departmentalize.
H02 There is no significant difference in student engagement among selected schools.
H03 There is no significant difference in teacher attitude and perception in an inclusive classroom.

**Conclusion**

Although there have been various efforts by administrators to improve instruction in the classroom, students continue to perform at a low level of proficiency on formative assessments in science and math in the United States. African-American students continue to perform at an even lower level of proficiency than students of other groups. This qualitative study seeks to examine key factors that promote or discourage African-American students to pursue studying or selecting careers in STEM fields. An examination of quantitative data will be used to derive meaningful, relative practices of teaching in the elementary classroom. Motivating students to learn is key to changing the trajectory of students’ formative assessment scores from low achieving to proficient or high achieving. Transitioning teachers from generalists to experts to specialize in fewer content areas may provide effective instruction and motivate student learning that leads to student engagement and comprehension.

[Comment [HL18]: Good conclusion to your paper.]
References


### Content and Development

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**Content and Development**

All key elements of the assignment are covered in a substantive way:

- **State the purpose that aligns with problem statement**
- **Purpose statement identifies:**
  - the appropriate research method and design
  - variables and the research focus
  - the specific population of the study and its **geographic location**
  - any ethical considerations for the study
- **Purpose statement clarifies the knowledge to be generated through the study**
- **Statements submitted to each team forum as required.**

**Additional Comments:**

Good start on your purpose statements. You should make them more concise by being more specific in the areas indicated. Clearly articulate what design you will be using in each study in addition to the method chosen. See additional comments on refining your problem statements and purpose statements.
**Readability and Style**

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- Paragraph transitions are present, logical, and maintain the flow throughout the paper.
- The tone is appropriate to the content and assignment.
- Sentences are complete, clear, and concise.
- Sentences are well constructed, with consistently strong, varied sentences.
- Sentence transitions are present and maintain the flow of thought.

**Mechanics**

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- The paper, including tables and graphs, headings, title page, and reference page, is consistent with APA guidelines and meets course-level requirements.
- Intellectual property is recognized with in-text citations and a reference page.
- The paper is laid out with effective use of headings, font styles, and white space.
- Rules of grammar, usage, and punctuation are followed.
- Sentences are complete, clear, concise, and varied.
- Spelling is correct.

**Total**

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*Overall Comments:* *Good draft of your purpose statements. See my comments on improving your work.*