Data-Analysis Activity

Directions: Review and analyze the information about the eighth-grade class at High Expectations Middle School.

The following are summary statistics by text section.

	Number Included	Mean Scale Score	Partially Proficient		Proficient		Advanced Proficient	
			Number	Percent	Number	Percent	Number	Percent
Language arts	478	232.4	25	5.2	375	78.5	78	16.3
Mathematics	479	231.0	81	16.9	253	52.8	145	30.3
Science	476	236.9	27	5.7	295	62.0	154	32.4

The following are summary statistics by ethnicity for mathematics.

	Number Included	Partially Proficient		Proficient		Advanced Proficient	
		Number	Percent	Number	Percent	Number	Percent
African American	98	39	40	38	38.5	21	21.5
Caucasian	359	32	9	203	56.5	124	34.5
Hispanic	22	10	45.5	12	54.5	0	0

The following is a summary of statistics by gender for mathematics.

	Number Included	Partially Proficient		Proficient		Advanced Proficient	
		Number	Percent	Number	Percent	Number	Percent
Male	269	45	17	117	43	107	40
Female	210	36	17	136	65	38	18

Answer the following questions:

1. To what extent is achievement in mathematics consistent with literacy and science achievement?

2. What differences in achievement are evident among ethnic groups?

3. How are girls achieving in mathematics as compared to boys?

4. What are your most pressing concerns for eighth-grade mathematics achievement? For example, "We need to bridge the gap between high- and low-achievers in the class."

5. What are your recommendations for addressing these concerns?

6. What are your questions in general about the mathematics program at the middle school?

7. What additional data would be helpful in understanding the achievement of eighth-grade students at High Expectations Middle School?

Answer Sheet

1. To what extent is student achievement in mathematics consistent with literacy and science achievement?
    a. Highest percentage—Partially proficient (3 times as many in mathematics)
    b. Lowest percentage—Proficient (only 52.8 percent in mathematics)
2. What differences in achievement are evident among ethnic groups?
    a. Caucasian students significantly outperform others.
    b. Hispanic and American African students—Large percentages are scored partially proficient.
3. How are girls achieving in mathematics as compared to boys?
    a. Boys significantly outperform girls at advanced proficient level.
    b. Boys and girls have same percentage at partially proficient level.
4. What are your most pressing concerns for eighth-grade mathematics achievement?
    a. Student achievement is lower in mathematics than in language arts and science. Why is that? Is it the curriculum, the content knowledge of the teachers? Has there been appropriate differentiation?
    b. Hispanic students are achieving at a lower level than Caucasian or African American students. No Hispanic students scored at the advanced proficient level.
    c. Girls are not scoring at the level of advanced proficient relative to boys.
5. What are your recommendations for addressing these concerns?
    a. Possible recommendations for lower performance in mathematics than in language arts and science:
        - Curriculum review and revision, if appropriate
        - Examination of credentials and certification of eighth-grade mathematics teachers
        - Identification of specific areas of content concern (deeper look at data) for focused instruction
        - Professional development in mathematics pedagogy and differentiated instruction
    b. Possible recommendations for low performance of Hispanic students
        - Differentiated instruction
        - Small-group instruction
        - Tutoring opportunities
    c. Possible recommendations for lack of advanced proficiency score of girls
        - Create a mathematics club for girls (exposure to women in mathematics-related careers)
        - Consider single-gender mathematics classes
        - Identify specific skills areas where girls are scoring at a lower level

6. What are your questions in general about the mathematics program at the middle school?
    a. Are students placed in homogeneous or heterogeneous groups for instruction?
    b. Are teachers highly qualified in teaching mathematics?
    c. Has professional development for teachers focused on mathematics?
    d. Are teachers confident in the use of formative assessment strategies to track student progress ongoing and address areas of concern?
    e. Are there deliberate efforts to engage girls in higher-level activities relevant to mathematics?
7. What additional data would be helpful in understanding the achievement of eighth-grade students at High Expectations Middle School?
    a. Patterns that has presented themselves over several years
    b. Specific skill areas that are concerning over time
    c. Mathematics foundation provided prior to the eighth-grade year

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