



# Freeman A. Hrabowski, III

**Born: 1950, Birmingham, Alabama**

“Freeman peeled off the paper cover of his tattered second-grade textbook and discovered the original cloth cover, which was stamped with the name of the White school across town. A cast-off. A teacher told the dismayed child, don't worry about the book, just "get the knowledge and you'll be fine."

- **Were you sent to jail when you were 12 for protesting in your hometown?**  
Freeman A. Hrabowski was taken to jail along with several hundred other African American students at the age of 12 in Birmingham, Alabama for protesting segregation in the famous Children's March of 1963.
- **Did you see people of your own race spat on, bombed, burned, lynched and knocked down by the water from fire hoses?**  
Freeman Hrabowski did. He watched it happen to his own classmates and friends.
- **Do you know people who were at the civil-rights meetings and heard speeches by Rev. Martin Luther King?**  
Even as a child, Freeman's parents took him to places where he would be a part of these things. They even participated in the boycott of white-run stores and refused to buy new clothes for Easter.
- **Did you lose a schoolmate and friend to racial hate crimes?**  
When a bomb tore through the 16th Street Baptist Church in 1963, it ended the lives of four little girls attending an annual Youth Day program in their new, white Sunday dresses. One of the girls, Cynthia Wesley, was Hrabowski's classmate. He told filmmaker Spike Lee that he remembers saying good-bye to Cynthia after school that Friday. "See you on Monday," echoed in his head. He was one of the few children who attended the funeral mass that followed.

Despite the struggles of Freeman Hrabowski's childhood, he graduated at the age of 19 from Hampton Institute with highest honors in mathematics, and from the University of Illinois at Urbana-Champaign he received a Masters in Mathematics and his Ph.D. in Education and Statistics, at age 24. Since 1992, he has been the President of the University of Maryland, Baltimore County (UMBC). "He has been given very strong credit for turning around UMBC from a struggling commuter school a decade ago to what U.S. News & World Report called UMBC an educational 'powerhouse.'"

One of Hrabowski's most outstanding accomplishments has been the Meyerhoff Program, which encourages African American students to excel in mathematics and the sciences. Through strenuous course work, high expectations, and peer support, this program has produced a large number of the recent African American graduates in the sciences.

A number of articles Hrabowski has written contain statistical analysis. In one article, "Graduate School Success of Black Students from White Colleges and Black Colleges," an F-test was used when a chi-squared test ( $\chi^2$ -test) would have been more appropriate. The F-test is used to

analyze numerical data, but the data available was proportional data – meaning the data was percentages or proportions of certain categories. The results from the F-test were very similar to those of the  $\chi^2$ -test performed on the same data, however there are cases where the different statistic tests could give very different results. In the table below are the actual numbers found in his article. Calculate  $\chi^2$  for the observed values:

Retention Rates in Doctoral Programs Among Black Graduate Students by Type of College

Group	Retained	Not Retained	Total
A (Students from black colleges)	24	9	33
B (Students from white colleges)	10	2	12
Total	34	11	45

$$\chi^2 = \sum [(o_i - e_i)^2 / e_i]$$

$o_i$  = the observed value in a cell

$e_i$  = the expected value (needs to be calculated for each cell)

$$e_i = RC/n$$

R = the row total

C = the column total

n = the total number (45 in this case)

In “Enhancing the Success of African-American Student in the Sciences: Freshmen Year Outcomes,” the other article containing statistical analysis, Hrabowski used a two-sample t-test, which was an appropriate statistic test to use with the available data. These are the actual numbers used in Hrabowski’s article. Calculate the t value for the given data:

These values are for the SAT – verbal with values on the left being the values for the Meyerhoff students and the values on the right being for the comparison sample.

$$t = (x_1 - x_2) / \sqrt{\{(s_1^2 / n_1) + (s_2^2 / n_2)\}}$$

$$x_1 = 544.9$$

$$x_2 = 529.7$$

$$n_1 = 69$$

$$n_2 = 43$$

$$s_1 = 55.7$$

$$s_2 = 68.5$$

Do you think this value shows a significant difference?

## References

- Anderson, Ernest F., Hrabowski, Freeman A. “Graduate School Success of Black Students from White Colleges and Black Colleges.” Journal of Higher Education, Volume 48, Issue 3. May-June, 1977.
- Hrabowski, Freeman A., Maton, Kenneth I. “Enhancing the Success of African-American Students in the Sciences: Freshman Year Outcomes.” School Science and Mathematics, Volume 95, Issue 1. January, 1995.

[http://www.math.buffalo.edu/mad/PEEPS/hrabowski\\_freeman.html](http://www.math.buffalo.edu/mad/PEEPS/hrabowski_freeman.html)

Interview with Dr. Jill Richie.