

A QUALITATIVE ASSESSMENT OF **TEACHER** AND SCHOOL INFLUENCES ON AFRICAN AMERICAN ENROLLMENTS IN SECONDARY AGRICULTURAL SCIENCE COURSES

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Abstract

The purpose of this study was to determine factors related to enrollment of African Americans in secondary agricultural science programs. Eleven agricultural science programs in Mississippi, North Carolina, and Virginia were studied during site visits. Also, one agricultural science teacher in each of the high schools was interviewed. Based on the observations and other data that were collected, the researchers found that agricultural science teachers' attitudes toward teaching and students had a significant impact on African American enrollments in agricultural science courses. Those teachers who could relate well to all students and were enthusiastic about their programs had the highest number of African American students in their courses. In addition, programs that had high technology, science-based curricula enrolled more African American students than traditional production oriented programs. Also, schools with an African American agricultural science teacher had higher percentages of African American students in the agricultural science program.

African Americans have been and continue to be underrepresented in most areas of the agricultural sciences. Many link this underrepresentation to perceptions about low salaries, unpleasant working conditions, and slavery conditions that most African Americans faced over 130 years ago. Until recently, however, such perceptions apparently had limited impact on enrollments. For example, before the NFA-FFA merger in 1965, there were considerably more African American students, teachers, supervisors, and professionals (Bowen, 1994). But, in the 1960s and 1970s, federally mandated desegregation and state compliance efforts ended the infrastructure that maintained substantial numbers of African Americans in the agricultural sciences (Bell, Powers, & Rogers, 1987; Bowen & Moore, in press). Once African American teachers and supervisors vanished, key school and community leadership roles were not sustained by white teachers (Bowen, 1994). This occurred even though minority agriculturalists are key role models

who can help minority students overcome stereotypes about the agricultural sciences (Larke & Barr, 1987). Also, minority professionals have career paths and attitudes that create positive goal reinforcement for aspiring professionals (Wrightsmen & Keaux, 1981; Larke & Barr, 1987; Sheng, Hall, & Rojewski, 1996).

From an instructional perspective, many authors have begun to stress the importance of cultural sensitivity in the classroom (Cazden & Leggett, 1981; Erickson & Mohatt, 1982; Jordan, 1985; Irvine, 1990; Cochran-Smith, 1995; Ladson-Billings, 1995). In addition, as editor of *The Agricultural Education Magazine*, Osborne (1994) urged agricultural educators to become strong supporters of ethnic diversity. This quest for diversity, however, faces two key challenges. First, agricultural science teachers, most of whom are white males, have not been adequately prepared to educate students who bring multicultural

backgrounds to the classroom (Jones & Black, 1995). Second, in 1995 only 335 of 9,512 agricultural science teachers were African Americans (Camp, 1995). These two challenges are formidable given recent findings that only parents exceed agricultural science teachers in influencing students to enroll (Reis & Kahler, 1997).

Given the apparent importance of role models, several researchers have examined how minority professionals impact achievement. For example, Ehrenberg, Goldhaber, and Brewer (1994) analyzed how a teacher's race, gender, and ethnicity influenced students of the same race, gender, and ethnic group and students from other groups. Two subject matter areas were studied from among English/reading, mathematics, science, and history/social studies. The researchers found that teacher characteristics had no major influence on how much students learned between the 8th and 10th grades. They concluded, however, that teacher characteristics sometimes positively or negatively influenced 10th grade teachers' subjective evaluations of their students. In a related study, Evans (1992) examined the effects of classroom role models on the development of economic literacy through high school economics courses. No gender-based role model effect was found, but an effect was identified for African American students, especially those whose mothers had not graduated from college. Also, male and female African American teachers had the same effect on the development of economic literacy.

From a recruitment perspective, some authors suggest that a teacher's race does not influence enrollment as much as the quality of the teacher and program. For example, teachers who relate well to all students and make learning enjoyable serve as an indirect recruitment strategy (Ladson-Billings, 1994). In total, however, the research base about African Americans in the agricultural sciences is limited because most literature on this population is found in popular articles and editorials. Thus, the problem this study addressed was, "What factors explain African American enrollments in secondary

agricultural science courses?"

Purpose and Objectives

This study examined teacher and school factors to better understand enrollments in agricultural science courses offered by racially balanced high schools with significant numbers of African Americans. Qualitative procedures were the primary approaches used to explore two questions: (1) How do programs with one or more African American agricultural science teachers compare with programs that have no African American teachers on selected enrollment related variables? (2) How do programs with low and high African American enrollments compare on variables that may explain enrollment differences?

Methods and Procedures

A list of public schools in Mississippi, North Carolina, and Virginia that had agricultural science programs and enrolled significant numbers of African American students (40-60% for racial balance) was constructed with assistance from agricultural education faculty at Mississippi State University, North Carolina State University, and Virginia Polytechnic Institute and State University. From this list, 12 schools were targeted for participation. Six schools were to have one or more African American agricultural science teachers and six schools no African American teachers. Also, six of the schools were to have a high percentage (25% or higher) of African American students in the agricultural science program and six schools a low percentage (< 25%). Twenty-five percent was considered an appropriate criterion because few African Americans enroll in most agricultural science programs. The National FFA Organization (1993) indicates that slightly over 4% of its membership is African American, which reflects agricultural science enrollment to a degree. Further, if the researchers used a higher percentage as a selection criterion, it would have been difficult to identify schools to participate in the study.

By studying racially balanced schools that offer elective agricultural science courses to a critical mass of African American students, the researchers could make qualitative comparisons among four categories: African American teachers with a high percentage of African American students, African American teachers with a low percentage of African American students, non-African American teachers with a high percentage of African American students, and non-African American teachers with a low percentage of African American students.

However, only 11 schools could be identified that came close to matching the criteria established for the study. When the researchers contacted the agricultural science teachers in the selected schools to confirm the percentages of African Americans in the programs, actual enrollment data were not consistent with those reported previously. North Carolina was the only state with a school in the four categories. Virginia had two schools with an African American teacher and a high percentage of African Americans enrolled. One Virginia school had a non-African American teacher with a high percentage of African American students and another had a non-African American teacher with a low percentage of African American students. Mississippi's three schools included one with an African American agricultural science teacher and a high percentage of African Americans and two with no African American teacher with high percentages of African American students. Mississippi did not have a school with a low percentage of African Americans and an African American teacher because the state's public schools are predominantly African American (G.B. Jackson, personal communication, February 23, 1997). Purposive sampling used in the study resulted in five schools with one or more African American teachers and six with no African American teacher. Also, eight schools had high and three had low African American enrollments (see Table 1).

Only agricultural science teachers who had a minimum of two years of teaching experience and who were at least five years from retirement were

included in the study. The researchers concluded that first-year teachers were not established with their students and therefore could not provide accurate reasons why students enrolled or did not enroll. Further, if teachers were close to retirement, they might not be as enthusiastic about teaching as their younger counterparts and perhaps could be more "laid back" and not willing to be as creative with their instructional methods. Also, students who enrolled may have done so because such teachers might have been considered easy or boring.

Instrumentation

The researchers used qualitative procedures (observations) to compare schools with low and high African American enrollments to isolate factors that might influence enrollments of African Americans in agricultural science programs. One researcher spent a day in each of the 11 schools to observe and rate the teachers' attitudes, the school and agricultural facilities, and the agricultural curriculum. Five scales were used to rate selected variables (teacher attitude and image: 1-2=very negative, 3-5=negative, 6-8=positive, 9-10=very positive; facilities and agricultural curriculum: 1-2=poor, 3-5=fair, 6-8=good, 9-10=excellent). To collect data from the teachers about other variables, questions were prepared and asked during short interviews. All instruments were reviewed for content and face validity by a panel of agricultural and extension education faculty at The Pennsylvania State University.

Data Collection and Analysis

The data were collected on a schedule as follows: North Carolina (February 10-14); Virginia (February 17-21); and Mississippi (February 24-28). The researchers contacted the 11 teachers and explained the objectives of the study. After securing their commitment, a data collection schedule, a sample letter of agreement to be signed by a school administrator, and teacher consent forms were mailed (January 20, 1997) to each participating teacher. One teacher was interviewed in each of the

Table 1. Categorization of Schools by Race of Teachers and Percentage of African American Enrollment in the School and Agricultural Science Program

<u>IIGH (African American Teacher)</u>	<u>HIGH (No African American Teacher)</u>
<p><i>School #1</i> School Population 51% African American Ag. Dept. 45% African American</p> <p><i>School #2</i> School Population 46% African American Ag. Dept. 59% African American</p> <p><i>School #3</i> School Population 42% African American Ag. Dept. 40% African American</p> <p><i>School #4^a</i> School Population 67% African American Ag. Dept. 79% African American</p>	<p><i>School #1</i> School Population 56% African American Ag. Dept. 29% African American</p> <p><i>School #2</i> School Population 48% African American Ag. Dept. 35% African American</p> <p><i>School #3</i> School Population 54% African American Ag. Dept. 44% African American</p> <p><i>School #4</i> School Population 55% African American Ag. Dept. 37% African American</p>
<u>LOW (African American Teacher)</u>	<u>LOW (No African American Teacher)</u>
<p><i>School #1^a</i> School Population 28% African American Ag. Dept. 15% African American</p>	<p><i>School #1^a</i> School Population 38% African American Ag. Dept. 0% African American</p> <p><i>School #2</i> School Population 49% African American Ag. Dept. 4% African American</p>

NOTE. High enrollment: African American enrollment in agricultural science program. Low enrollment: <25% African American enrollment in agricultural science program. ^a“School population differs slightly from the 40-60% African American enrollment criterion the researchers established for the study.

11 schools to analyze recruitment practices, teachers’ attitudes toward teaching and students, barriers to African American enrollment, and the overall agricultural program. Descriptive statistics appropriate for qualitative research were used to analyze the data. Also, for confidentiality purposes, all schools were assigned code numbers.

Findings

Profile of Teachers

All 11 schools were observed for one day by the same researcher who also interviewed one teacher in each program. Six schools were located in rural areas, four in towns with populations of less than 5,000, and one in an urban area of 75,000. Ten of the teachers were males. All teachers had farm

backgrounds and six were teaching in their home counties. The teachers had taught in their current schools from two to 22 years, while the total years of teaching for the 11 teachers ranged from two to 32 years. Five of the schools had multiple teacher programs and the average teaching experience in these programs ranged from seven to 21 years. The teachers provided data on the following variables: the teacher's background in the agricultural sciences, years of teaching experience, and number of years in the current school; total years of teaching experience for all teachers in the program; characteristics of "good agricultural science students"; the teacher's favorite class to teach; whether or not the teachers felt agricultural science courses were dumping grounds for low caliber students; students' attitudes toward the agricultural sciences; whether or not there was a need to recruit more students into their programs; and strategies that would attract more African Americans to agricultural science courses.

Four teachers indicated that a "good agricultural science student" has a farm background. Also, four teachers agreed that interest in the agricultural sciences, a strong work ethic, and a willingness to learn were primary qualities of a "good agricultural science student." The teachers' favorite classes varied from those with only freshmen who tended to be enthusiastic in learning about the agricultural sciences to classes that combined multiple agricultural science areas. Five teachers considered agricultural science classes to be a dumping ground for low caliber students. However, only two teachers stressed the importance of students having strong academic backgrounds. All teachers agreed that most of their students had positive attitudes toward the agricultural sciences. Also, while eight teachers expressed a need to recruit more students, three teachers believed that they had enough students because too many students would detract from the overall quality of their programs.

The teachers also identified several strategies that could be used to attract more African Americans to agricultural science programs: have

African American students already enrolled get other students interested; communicate with parents to let them know what the agricultural sciences offer; recruit at the junior high level; provide enjoyable activities; determine what students are interested in and show them how it ties into agriculture; and show students the achievements of other African Americans in the agricultural sciences.

Teacher Race and High/Low Enrollments

The 11 schools were grouped into four categories: four schools with high percentages of African Americans in the agricultural science program and one or more African American teachers, four programs with high percentages of African Americans and no African American teacher, one program with a low percentage of African Americans and an African American teacher, and two programs with low percentages and no African American teacher (see Table 2).

Comparison of Teachers by Race

The researchers compared the five programs with one or more African American teachers to the six programs with no African American teachers to isolate racial-oriented factors that might impact enrollment. In addition, the researchers used the high and low enrollment criterion to isolate within group factors that impact enrollment.

African American Teacher With High Enrollments. Three of the four teachers in this category exhibited positive attitudes toward teaching. However, even though all teachers agreed that there were some hard working students in the program, teachers in two programs responded that there were a number of students who were placed in agricultural science courses by guidance counselors and did not desire to be in the agricultural sciences. All four teachers and their students (African American and white) seemed to get along well. These four schools were located in rural areas and the agricultural science curriculum matched community needs. The schools ranged from 25% to

Table 2 Rating of Selected School, Program, and Teacher Characteristics by Race of Teacher and African American Agricultural Science Enrollment

Ag Enrollment	African American Ag Science Teacher(s)	No African American Ag Science Teacher(s)								
High Enrollment (25% or higher African American)	<i>4 Schools</i>				<i>4 Schools</i>					
	Characteristic	#1	#2	#3	#4	Characteristic	#1	#2	#3	#4
	School Facilities ^a	10	7	5	4	School Facilities ^a	10	9	3	1
	Ag Science Facilities ^a	9	7	7	5	Ag Science Facilities ^a	10	10	7	6
	Ag Curriculum Current	Yes	Yes	Yes	Yes	Ag Curriculum Current	Yes	Yes	Yes	Yes
	Ag Curriculum Quality ^a	10	7	7	4	Ag Curriculum Quality ^a	10	9	7	8
	FFA Chapter Active	Yes	Yes	Yes	Yes	FFA Chapter Active	Yes	Yes	Yes	Yes
	Teacher Attitude ^b	9	6	5	8	Teacher Attitude ^b	10	5	6	5
Teacher Image ^b	8	7	10	8	Teacher Image ^b	8	8	7	5	
Low Enrollment (<25% African American)	<i>1 School</i>				<i>2 Schools</i>					
	Characteristic	#1				Characteristic	#1	#2		
	School Facilities ^a	10				School Facilities ^a	10	7		
	Ag Science Facilities ^a	10				Ag Science Facilities ^a	7	2		
	Ag Curriculum Current	Yes				Ag Curriculum Current	No	Yes		
	Ag Curriculum Quality ^a	10				Ag Curriculum Quality ^a	9	3		
	FFA Chapter Active	Yes				FFA Chapter Active	Yes	Yes		
	Teacher Attitude ^b	7				Teacher Attitude ^b	1	6		
Teacher Image ^b	8				Teacher Image ^b	3	6			

^a- Facilities and Curriculum Quality Scales: poor (1-2), **fair** (3-5), good (6-8), excellent (9-10). ^b- Attitude and Image Scales: v. negative (1-2), negative (3-5), positive (6-8), v. positive (9-10).

68% of the class of 1996 attending a two or four-year college. Three schools had African American male teachers who had an average of 26 years of teaching experience. The students knew the teachers well, which made the teachers favorites. The other school contained an African American female with two years of experience. The female teacher related well to all students, perhaps because of age proximity. However, she had limited teaching experience and because she was not a strong disciplinarian, the students appeared to take advantage of this situation.

African American Teacher With Low Enrollment. This school had a two-teacher program (one African American and one white teacher) and excellent agriculture and school facilities. The curriculum provided students with skills that prepared them to be competitive in the county's multi-million dollar horticulture industry. The area where the school is located is very dependent on the agricultural science program to prepare employees for the horticulture industry. Also, a low percentage of students in the school (29% in 1996) pursued post-secondary education. The African American teacher, whose attitude was positive toward teaching, taught horticulture and landscape design while the white teacher taught agricultural mechanics. Further, the African American teacher taught all of the African American students who enrolled in the program while the white teacher taught no African American students.

No African American Teacher With High Enrollments. There were four schools with high percentages of African Americans in the agricultural science program and all had white agricultural science teachers. Two of the teachers exhibited positive attitudes toward all students and made a point to get African Americans involved. The teacher in one school was exceptionally dynamic and effective. He had African American FFA officers and made sure all students participated in learning activities. Three of the schools had high

academic standards as evident by 61%-78% of the class of 1996 attending a two or four-year college. All schools had active FFA chapters with one being exceptionally active with many recent awards and state officers. All schools in this category had "good" to "excellent" agricultural facilities.

No African American Teacher With Low Enrollments. Two schools had a white teacher with low percentages of African Americans enrolled in the agricultural science program. One school was located in a rural area with students coming from mostly rural backgrounds. Despite this school's excellent facilities, the agricultural facilities were in poor condition and the program was not very strong. Few students in this school (< 25%) attended college after graduating in 1996. The teacher was very negative toward teaching and so was his appearance. He stated that he had taught only two African American students since the school was built eight years ago. His attitude toward recruiting more African Americans was neither positive nor enthusiastic and he geared the interview toward his plans to retire.

The second school was located in a small town and had an energetic teacher. Even with a strong FFA chapter, his efforts to recruit and retain African Americans were minimal. Three African American students were enrolled in agricultural science courses for 9th-12th graders. However, many African American 8th graders were placed in the program by counselors to fill students' schedules and the teacher said he "works them hard so they know what is expected of them." Many of the 8th graders did not return after the first year. Also, this teacher said he recruits his students from the gifted and talented population. The school's graduating class of 1996 reflected high academic standards with 80% enrolling in two or four-year colleges. The visiting researcher did not obtain a list of his gifted and talented students and did not know the racial breakdown of his students. However, from observing this teacher's classes, most of his students were white females.

Comparison of Schools With Low and High African American Enrollments

To fulfill objective #2, the researchers compared the eight schools with high African American enrollments and the three with low enrollments to isolate enrollment factors irrespective of the race of the teachers (See Table 2).

Schools With High African American Enrollments. The eight schools in the high category included four schools with at least one African American teacher and four with no African American (only white) teachers. The schools ranged from 29%-76% African American enrollment in the agricultural science programs. Four schools had well-liked teachers that the students could relate to easily which seemed to encourage enrollment. Six schools had programs that offered contemporary instruction such as greenhouse production and aquaculture. Another factor that played a role in increasing the number of African Americans was that in only one school did guidance counselors assign many low caliber students to the program. In this school, despite having many activities for students, the African American teacher was very lenient - a behavior many students felt made it easy to take advantage of this teacher.

A factor discouraging enrollment in five of the eight schools was the fact that students had misconceptions about the agricultural sciences. Interviews with teachers in these schools revealed that many students viewed agriculture as only farming with limited career options. Also, two schools contained many college-bound students who felt agriculture was a waste of time. This resulted in the agricultural science program having more low caliber students. Another discourager of enrollment in these two schools was the fact that teachers did not make major efforts to recruit students. One teacher said that there were too many students in the program and he did not need to recruit more. The other teacher indicated that he "made an effort to expose junior high school students to agriculture"

by visiting the local middle school, but no recruitment approaches were observed that were geared toward high school students.

Schools With Low African American Enrollments. The two schools with white teachers exhibited no apparent factors to encourage African Americans to enroll. Meanwhile, the African American teacher in the other low enrollment school worked well with students and all students seemed to enjoy his teaching methods. This teacher was also one of his school's few African American teachers (17 of 85) and most students knew him. Ironically, the African American teacher taught all of the few African American students and the white teacher taught none.

Both schools with white teachers had production-oriented programs which perhaps discouraged African American students to enroll. Also, in one of these schools, the teacher was very negative toward teaching, while the other teacher was not enthusiastic about showing students the more enjoyable aspects of the agricultural sciences. Reasons why more African American students did not enroll in the agricultural sciences in the school with an African American teacher may be because African American students did not like horticulture, which was the subject the African American teacher taught. Also, African Americans in this school may have wanted to take agricultural mechanics, but could not relate to the white teacher. Regardless, all students in the program were segregated based on the race of the teacher.

Discussion and Conclusions

The researchers found that the agricultural science teachers made significant contributions to students' decisions to enroll or not enroll. Students were enthusiastic when an energetic teacher was present. Also, by meeting with the teachers and holding conversations about the agricultural science program, the visiting researcher was able to interpret how the teachers felt about their students and teaching as a profession. Most teachers stated

that their students were positive toward the agricultural sciences. However, some teachers responded to the interview in ways that supported empirical evidence about many students being placed in agricultural science courses by counselors (Talbert & Larke, 1995).

Several observations may explain why students enrolled or did not enroll in agricultural science courses. One teacher had difficulty “opening-up” to the visiting researcher (an African American) and probably had similar problems dealing with African American students. This type of behavior would tend to make students feel “unwelcome” in an agricultural science class. Another teacher spoke about how he “puts students to work” when they first enroll in agricultural science courses. The visiting researcher observed that none of this teacher’s classes worked outside of the classroom during the site visit even though a spacious laboratory was present. A video was shown followed by a class exercise from an agricultural mechanics textbook. If students are not exposed to the many opportunities the agricultural sciences offer, they will more than likely become disillusioned with the courses and not enroll again. Further, some students may take a course to learn topics such as greenhouse production or aquaculture. However, if such students do not acquire substantive experiences, that course will perhaps be viewed as obsolete with limited benefits. Other researchers have made similar observations about students needing relevant, positive learning experiences (Knight, 1987; Osborne, 1994).

African Americans enrolled primarily in courses that offered a number of interesting agriculturally related areas. Six of the eight schools in the high category had more diverse, contemporary courses than those in the low category. Floral design was also a major attraction for females. Those schools with viable horticulture programs had a higher percentage of female students, which in turn, encouraged them to participate in FFA contests and activities.

Another issue in this study involved comparisons of schools with high and low percentages of African Americans in the agricultural science program. This categorization allowed an examination of the impact of teachers’ race on students enrolling in agricultural science courses. In total, schools in the high category tended to be similar and the race of the teacher appeared to have minimal impact on African American enrollments. However, in the low category, there were notable differences. In the two schools where there were no African American teachers, the agricultural science program had few or no African American students and the teachers were not supportive of African American students. Also, in the one school where there was an African American teacher along with a white teacher, race again appeared to matter. All African Americans enrolled in courses under the African American teacher while no African Americans enrolled in classes instructed by the white teacher.

Recommendations

Based on the study’s findings, the following recommendations are made:

1. Supervisors, teacher educators, and teacher organizations should conduct more activities that motivate teachers with low African American enrollments to recruit and effectively educate more African American students especially in schools such as those included in this study.
2. To recruit more African American students, teachers should enhance communication with parents, involve currently enrolled minority students as recruiters, use minority professionals as role models, and use techniques that link students’ interests to agricultural science careers.
3. Teacher educators should use approaches and experiences that enable current and future teachers to educate all students effectively, especially those with multicultural backgrounds.

4. More research is needed to generate solutions to the complex African American enrollment problem. For example, in schools with significant African American enrollments, what strategies will yield similar representation in agricultural science courses and the FFA?

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