Increasing Minority Applications to the NC School of Science and Math

Aadya Deshpande

Summary

The focus of this paper is to outline the factors that prevent minority (African-American, Hispanic and American Indian/Alaskan Native) applicants from applying to the NC School of Science and Math. Recommendations to increase applications from underrepresented students will also be provided. Five factors that inhibit applications from underrepresented students are identified: 1) lack of information about NCCSM; 2) insufficient enough parental support; 3) insufficient school support; 4) student concerns about attending school away from home; and, 5) reputation of the school with peers and perception of academic demands. Specific recommendations to address these issues include: Adding focus to the student ambassador program, adding focus to the summer programs as well as introducing a new teacher reward program. These issues are discussed below; additional information is also provided in the longer literature review written in conjunction with this brief.

Reasons for why this needs to be addressed

Recent national attention has been directed towards increasing minorities in STEM fields (Atkinson 2007, Jones 2002, Jones 2009); however, relatively little policy has looked at increasing minority applicants to Science and Math-focused boarding schools. Because these schools are important in fostering interest in science among thousands of students every year (Stephens 1998), increasing minority applications to these schools would help increase then number of minorities in Science.
Figures 1 and 2 below show the percentage of students from different racial and ethnic groups among NC tenth grades as well as at NCSSM. has done a good job of representing Hispanic and American Indian/Alaskan Native populations in recent years but isn't doing a good job in representing the African-American populations of its state (as seen from Figure 1 & 2 below).

**Figure 1. Distribution by ethnicity of 10th graders in North Carolina**

**Figure 2. Distribution of applicants to NCSSM by race for junior class of 2009-2011**

Thus, it can be seen that NCSSM needs to increase the number of African-American applicants.

**Factors**
In order to do this, factors that might prevent applications from minority populations were looked at. The following 5 factors were determined from literature and from personal correspondence with current NCSSM students and NCSSM students that have already graduated.

1. Information: This is one of the most important factors. If students are not informed about the existence of such a school or are not given enough information about the school itself, applications would be greatly reduced in these matters. Students mentioned that either their schools didn’t openly mention NCSSM or actively prevent NCSSM admissions. Some schools allowed NCSSM advertisements or focus groups with students at the school but this wasn’t extensive and was very reserved. (NCSSM Students (10), Personal Correspondence, April 20, 2012)

2. Parental Support: Both literature reviews (Smith and Hausafus 1998, Taningco and Pachon 2008) and interviews with students showed that support from parents is a big factor in applying. Three students (Personal Correspondence, April 20, 2012 and Mar 28, 2012) indicated that it was solely because of their parents that they pursued the applications. In cases where parents not only supported but also promoted applying to NCSSM, students had full conviction in applying (NCSSM Student, Personal correspondence, April 20, 2012). Jones (2002) found that parental approval is an important factor for applications to TAMS (another science and math-focused residential state-supported school in Texas), however, this factor was more significant for Asian applicants than applicants from any other
ethnicity. However, other research has suggested that even in families without college-educated parents, especially low-income and minority families, parents are one of the biggest influences in getting children to perform well academically (Cooper, Chavira and Mena 2005).

3. School Support: From personal correspondence with NCSSM students it was learned that not only are schools important in helping the student with the application process (Students require letters of recommendation from teachers) but also informing and promoting application to these schools. Several current NCSSM students reported that there teachers were either uninformed about the process of providing recommendations, ignored the student’s request because they believed that they were losing their star student to the school, or helped influence the student body to apply to NCSSM since they themselves had attended or had other students of theirs attend (in which case, their students benefited a lot). (NCSSM Students (10), Personal correspondence, April 20, 2012). Thus, school support and more specifically teacher support is a big factor in the application process.

4. Distance: Students might have difficulty travelling from school and back every break; and students who believe that moving such a distance would be difficult and being so far away from their family will be a difficulty (Jones, 2002).

5. Peer Support and Perceived Difficulty: Peer support and perceived difficulty are a double-edged sword. Both factors can either make the student apply or they can deter the student from applying. Students mentioned that if it
weren’t parents or teachers that pushed them to apply, it was because of their peers that they applied. Students mentioned that either they were applying with their friends, or their friends had intended to apply so they did too, or that their friend had taken them to a presentation by NCSSM admissions (NCSSM Students, Personal Correspondence, April 20, 2012). However, another student mentioned that his peers has deterred him from applying by saying that it was a nerdy school and that this student would not have a social life at this school (, Personal Correspondence, Mar 28, 2012). Similarly, in regards to perceived difficulty, most students applied to the school because they weren’t getting enough stimulation at their home schools and wanted a more challenging curriculum (NCSSM Students, Personal Correspondence, April 20, 2012). However, Drew (2011) mentions that some students, especially minority students, might not pursue further STEM education because they feel like they might not be qualified enough compared to their White or Asian peers.

Policy Recommendations

In order to address the barriers to increasing applications to NCSSM from underrepresented students, the following recommendations are provided.

Ambassador Program – Special Counties and Middle-School Focus

NCSSM already has a program where students go back to their home schools to talk about NCSSM. However many of the NCSSM students indicated that not many knew or saw these students who came back to talk. Nevertheless, many of them agreed that having such a program could be helpful in increasing applications to the
school from minority students. Students mentioned that it would be helpful to have African-American or Hispanic students from NCSSM or students who have graduated NCSSM to travel to middle schools to talk to graduating 8th graders and high schools to talk to incoming freshmen. Students mentioned these specific grades because they felt that their own home schools were reluctant to pass on information to their ‘star sophomore students’ in fear of losing them. Thus, they believed that focusing admissions on younger grades would help counter the problem of schools preventing admissions from coming to their schools as well as giving students an incentive to work harder in high school.

Another focus that should be added to the program is to specifically target counties from which NCSSM receives few applications from minority students despite there being a high number of minority students in the county. Based on an analysis of recent data, this would include Forsyth, Johnston, Nash, Pitt, Robeson, Wayne and Wilson County [NCES Data, 2008-2010 and NCSSM Data, 2009-2011]. If admissions efforts focused on these counties it could help increase the number of African-American applicants greatly. These counties in particular would be good targets for the Ambassador Program described above.

Summer Program – Incoming Freshman Focus

NCSSM already holds Immersive Summer Programs at different places in the state to promote student interest in science and math. However, these programs involve all students and not specifically minority students and these programs only focus on juniors and seniors. These programs could be helpful in recruiting minority students if they were offered specifically for minority students who are moving
towards freshman year. This would help not only build interest in NCSSM early on (benefits mentioned above) but also enhance students’ interest in learning science and math right before entering high school.

Teacher reward

This program is an adaptation of a program Texas Academy of Math and Science (TAMS) started that focuses on recognizing and rewarding teachers that TAMS students believed were instrumental in their attending TAMS. Jones (2010) mentions that TAMS had a problem with teachers and schools being reluctant to give up their ‘star’ students to these science and math focused institutions. To address this, TAMS began a program 13 years ago in which TAMS students have “invited hometown teachers who had been instrumental in their development to the elegant recognition ceremony” (p. 33). This lets the school appreciate teachers that already support their students so they keep doing so in the future. This also incentivizes other teachers to start opening up to the idea of letting their star students go to an institution where they will be appropriately challenged. This type of program could be supplement by providing some form of incentives for teachers to promote NCSSM to their peer teachers and discuss with other teachers the benefits of NCSSM and explain how the application process works.

Future Directions

In addition to the recommendations outlined above, it is recommended that further research be conducted that examines the following issues:

1. Identify differences between counties from which a high vs. low percentage of applications from minority students are received. Efforts were made to do
so in this project by speaking with the AIG directors in several counties. Unfortunately, repeated efforts to speak with these individuals were unsuccessful. This avenue should be pursued further as it could provide valuable information on how procedures to promote NCSSM to underrepresented students varies across NC counties.

2. Another research recommendation would be to look at a similar state supported science and math school in Alabama since this is the only school (in the consortium of 18 schools of its kind that includes NCSSM and TAMS) to fully represent its state percentages of minorities (Jones 2010). More research could be done to see what this school is doing differently than its 17 peer-schools to maintain these averages.
Citations


