Minority Student Perceptions of the Impact of Mentoring to Enhance Academic Performance in STEM Disciplines

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Abstract

The Benjamin Banneker Scholars Program (BBSP) was designed at an HBCU to increase the academic performance, retention, and graduation of minority students in science, technology, engineering and mathematics (STEM). At the end of each academic year, students completed a BBSP Post-Program Satisfaction Survey. Each year Mentoring was consistently rated as having the largest impact on their academic performance. This repeated result led to the hiring of an external STEM program evaluator to assess students' perceptions of the mentoring component of the BBSP. This paper discusses the mentoring model, the positive impact students felt mentoring had on their academic performance, supporting data, faculty mentors' perceptions of mentoring, and the evaluator's survey results of the program's mentoring component.

Introduction

A National Science Foundation study on science and engineering performance indicators (NSF, 2010a) revealed that the number of undergraduate degrees awarded in STEM to African Americans slowly increased from 7.7 percent in 1997 to 8.3 percent in 2006. However, this number remained constant, between 8.3-8.4 percent annually, from 2000-2006, suggesting that there is a strong need for better recruitment and retention programs, particularly for minorities, that address the academic, social and psychological needs of the student.

From 2002-2008, the 6-year completion rate for Caucasians at 4-year institutions was 60.2 percent, while for African Americans, it was 40.1 percent. Of the STEM bachelor degrees awarded to African Americans from 2005 to 2008, approximately 22 percent, 21.4 percent, 21.2 percent, and 20.3 percent, respectively, were earned at Historically Black Colleges and Universities (HBCU) (NSF, 2011). Further, the National Science Foundation Science and Engineering Indicators Report (2010b) stated that

> *"HBCUs are important baccalaureate-origin institutions of black Science and Engineering (S&E) doctorate recipients. In 2006, about one-third of black S&E doctorate recipients received their baccalaureate degrees from HBCUs. When the data were adjusted for the number of bachelor's degrees awarded, HBCUs as a group yielded about as many future S&E doctorates per thousand bachelor's degrees awarded as non-HBCU institutions."*

Much of this success was attributed to the unique cultural envronment that supported the academic and personal growth of its students. (See later discussion of "Institutional Environment").

HBCUs play a significant role in increasing the number of African American students earning a bachelor's degrees in STEM. The characteristics of academic and social environments created at HBCUs should be studied further and disseminated to the academic community for widespread adoption. In 2009, Central State University (CSU), an HBCU open access institution, served 2,400 students. Over 95 percent of the student population was African-American, and more than 59 percent lived below the poverty level. At the time of this study, only 12 percent of CSU freshmen were enrolled in STEM programs (Ali, 2010). Because enrollment and graduation rates fell below national averages, CSU embarked on targeted recruitment and retention strategies that led to the development of several STEM programs. One of the most successful of these was the Benjamin Banneker Scholars Program (BBSP) (Kendricks & Arment, 2011). This paper will discuss the impacts the BBSP had on STEM students.

Program Background

CSU designed the Benjamin Banneker Scholars Program (BBSP) with the following goals: to increase the number of high performing students and to increase the retention and graduation rates of students in STEM. The program started in the spring of 2009 with seven undergraduate sophomores (one male; six female) and grew in the fall of 2009 to 20 students (five males; 15 females), ranked freshman to junior. To participate, each scholar was required to have a cumulative 3.0 GPA and to major in a STEM discipline. For their participation, scholars received a stipend in the amount of $7,500 to cover tuition, room, and board.

The program was led by a Principal Investigator (who was also a STEM faculty member), five STEM faculty and one administrative assistant. Each faculty mentor was assigned three to four scholars majoring in the faculty member's area of expertise. Program activities included: *An Academic Learning Community* – scholars were required to take at least two courses, preferably STEM courses, with fellow scholars, *A Living Learning Community* – scholars were required to live together in the Honors Dormitory, *Mandatory Mentoring Meetings* – scholars were required to attend monthly program meetings with his/her mentor, *Participation in the Honors Program* – if qualified (3.2 GPA required), *Professional Development Workshops & Graduate School Visits* – scholars were required to attend a minimum of two of each per year; and *Undergraduate Research* – all scholars were required to apply to a minimum of one STEM internship on or off campus, and were strongly encouraged to conduct research on or off campus each year.

Each year, the scholars also completed a pre- and post-program satisfaction survey evaluating the above activities, with the following results:

Over 90 percent of the scholars annually ranked mentoring as having the largest impact on their academic performance on the BBSP Post- Satisfaction Survey. While it was clear that students perceived other program activities as also contributing to their success, mentoring stood out to students as the program attribute that had the most impact on their success.

Structured Mentoring

Previous research has shown that mentoring increases minority student academic achievement, as well as enrollment and retention (Wilson et. al., 2010;

Students indicated the impact of each activity using a scale of highly effective, moderately effective, slightly effective, not effective, and not applicable. A sum total of votes for each category of scale was recorded. The categories of scale were weighted so that the activities could be ranked. Below is the ranking of activities; some activities had tied rankings.

BBSP Activities	Spring 2009		2009-2010	
	Pre	Post	Pre	Post
Learning Communities	3	4	3	4
Academic Advising	2	2	2	2
Mandatory Mentoring	3	1	2	1
Honors Program	4	4	3	7
Professional Development Workshops & Graduate School visits	4	4	6	5
Undergraduate Research	4	4	5	5
Other (departmental tutoring, campus facilities, student organizations, etc.)	1	3	1	3

Table 1. Students pre- and post- satisfaction survey results ranking BBSP activities that impacted their academic performance.

Yeager, 2000; Terenzini & Wright, 1987; Van Eps et. al., 2006; Abriam-Yago, 2002; Tinto, 1993; DeFour & Hirsch, 1990). Slaughter et. al. (2006) of the Black Caucus of the Society for Research in Child Development stated that the needs and requirements for mentoring African American students included: (a) culturally appropriate and diverse instruction, (b) suitable role models from similar cultural backgrounds who were knowledgeable about academic content in their areas, (c) institutional forms of support, including financial assistance and infrastructures supportive of student life styles and goals as well as student visibility and participation, and (d) continued development of institutional norms for selection and retention, relative to the academic performance(s) of such students. These criteria were created in BBSP through the institutional environment, the program environment, "othermothering" (caring and tending to the needs of "children" other than one's own.), and advising, all described below:

The Institutional Environment

HBCUs have historically provided more inclusive and nurturing environments for students compared to other institutions (Harper & Antonio, 2008; Fleming, 1984; Allen, 1992). HBCUs provided a strong sense of belonging through a family/community atmosphere, and similar cultural experiences. Such environments facilitated the development of a student's self-concept, self-efficacy, and self-esteem, thereby validating a student's presence and purpose at the institution, and life in general (Davis, 1994). Davis (2007) also added that these environments addressed the social and psychological challenges of campus-life by providing students with the appropriate skills and strategies to cope with various stressors. CSU's educational environment mirrors the above model, providing for a student population that is predominantly African-American, a nurturing and intentionally designed supportive family atmosphere that gives students with diverse backgrounds and educational needs every opportunity to succeed.

The Program Environment

The BBSP environment used organizational socialization theory to equip students with the proper knowledge and skills to transition into a STEM career and/or graduate study. Organizational socialization is the process an individual undergoes to become accustomed to a particular organizational role (Van Maanen & Schein, 1979). The BBSP encouraged each scholar to become a well-rounded student of excellence through academic achievement, research experience and professionalism. By grouping together participants with similar socio-economic backgrounds, majors and career goals, it was easier for the BBSP to use collective socialization- the process of socializing a group through shared experiences – to reach the above goal (Chan, 2008). Shared experiences included taking classes together and forming study groups, living together as roommates in the Honors Dormitory which fostered additional relationships (as peer-mentors, friends, counselors, sorority/fraternity affiliations, etc.), going to on-campus and off-campus events with fellow scholars and/or a faculty mentor, and participating in monthly mentoring meetings with all program participants and staff. These experiences allowed for program policies and procedures, life principles, academic expectations, behavioral expectations and social rules (written and unwritten) to be shared and implemented within the environment. These experiences also led to a strong team spirit, a peer support network among scholars, and to more accountability of academic performance and professional behavior (Dahlberg, 2008).

Othermothering

The six BBSP faculty who served as mentors for the student participants mirrored the diversity of the program participants and of CSU. Of the six, three were female and three were male; two were African-American, two Caucasian, one Indian, and one Egyptian. All faculty mentors were associate (three) or full professors (three). Five among the six faculty were tenured and had taught at CSU for more than seven years. Four of the six faculty were STEM department chairs. All of the faculty members led or participated in student focused programs (academic or academic support-centered) and were familiar with working and tending to the needs of minority students. Five of the faculty members had successfully led externally funded grant programs with a sole emphasis on student success in their respective fields. For these reasons, these faculty were natural choices to participate in the BBSP.

Guiffrida's (2005) framework of 'othermothering' as a means to understanding the unique relationship between an African American mentee and mentor (of similar background) accurately described the nature of the mentoring relationships of the BBSP. The term 'othermothering' dated back to the slave era when mothers and their children were separated and sold to different owners (Collins, 2000). The responsibility of raising the displaced child fell to other mothers who were sold to the same owner or resided on the same plantation (Collins, 2000; Beauboeuf-Lafontant, 1999; Case, 1997). The long tradition of raising other people's children was summarized over time as "it takes a village to raise a child." Fries-Britt and Turner's study (2002) of African American students' perceptions of their mentors noted that students defined a good mentor as one who went "beyond the call of duty." The BBSP needed, then, to recruit faculty mentors of similar disciplinary backgrounds to the scholars, who were culturally competent, caring teachers with experience in multicultural education, and who were also willing to go "beyond the call of duty" (Fries-Britt & Turner, 2002; Fries-Britt & Turner, 1995). BBSP participants noted the successes of these mentor/mentee pairings:

> *"... I developed a close relationship with my mentor... He not only helped me in and out of class with my issues regarding courses, but also provided me with insight as well as guidance towards scholarships, internships, and life after [an] undergraduate degree. It is because of him that I was fortunate enough to have four separate internships... all while maintaining a 3.8 grade point average within my major. My mentor is one of the most distinguished professors I have come in con-*

tact with. It is because of his drive, determination, and commitment to help students like me to succeed that makes him the outstanding professor that he is today. I am grateful and honored to… have been under his tutelage."

"The most valuable aspect would be the personal relationships between the students and the mentors. I believe if you're more comfortable with someone you can accomplish more."

"My advisor really cares about my success. I appreciate her concern to keep my classes and grades on track. If she feels like I'm not working to my full potential she lets me know and that just makes me work harder."

In their "othermothering roles," the BBSP's faculty mentors served as extended family – mothers, fathers, big brothers and sisters, etc. – who assisted scholars with academic, social and personal matters (Foster, 1993; Dempsey & Noblit, 1993). Mentors helped mentees find internships, additional scholarships, books, calculators and lab materials, resolved roommate conflicts, and arranged travel to and from home and gas money. Mentors also provided a place for scholars at the dinner table during holidays as well as clothes for formal conferences and other events, visited scholars' homes to talk to parents, talked with scholars on the phone or by video during the summer and/or holiday breaks, and at all hours of the night, and all of this in addition to the typical advising duties of each mentor:

"My faculty mentor has always been interested in my academic success. He cares not only how well I am doing in my classes but [is] also concerned about my general welfare."

"[I have] motivation to keep trying to improve my educational experience. My mentor [is] constantly speaking with me about doing better and trying to ease my college life."

"The most valuable aspect has been knowing I have support from the faculty when I need it."

Wallace et al. (2000) observed that students needed more than one person to share their social, cultural and academic concerns. Thus some mentoring duties in the BBSP were redistributed as needed among the faculty mentors (Peckham, 2007).

Advising

BBSP advising took place formally once a month at mandatory meetings, and informally as needed between the faculty mentor and his/her mentee. Informal meetings occurred at different frequencies depending upon the faculty mentor and/or the student's needs. As an advisor, the faculty mentor ensured program matriculation, course success and completion, exposure to undergraduate research, career advice, and provided study tips, tutoring, etc., as evidenced by the responses below:

"When meeting with my mentor we discuss my strengths and weaknesses and come up with solutions to becoming a better student. My mentor also helps me when I need help on different assignments. "

"My faculty mentor is very helpful in my academic career, she helps me plan my classes. She encourages me to fulfill the goals that I set for myself. This semester, she help[ed] me with one of my hardest classes (chemistry) that I dropped before, now I'm passing with an A. I'm happy she is my mentor during this program."

To facilitate undergraduate research, faculty mentors extended their professional network to students, assisted students applying for internships and supervised on-campus research. Mentors also facilitated the dissemination of research findings in scholarly forums. Those mentors who accompanied students to conferences, particularly students making presentations, offered moral support and reinforced a sense of shared purpose and collective achievement. Valuing responsiveness and taking a proactive approach to addressing scholars' academic challenges, faculty mentors analyzed students' efforts in assigned coursework to identify problem areas and offer solutions. In subsequent sessions, mentors followed up with the student to see if suggested strategies were working or if additional corrective actions were necessary.

Results & Discussion

To evaluate the effectiveness of mentoring in the BBSP, several methods were used, including student surveys, and students' interim and overall academic performance in STEM and co-enrolled general education courses.

Student Surveys

Student surveys (see Appendix) were administered by an external evaluator. At the end of the spring 2011 semester, participating scholars completed the *Benjamin Banneker Scholars Program Feedback on Faculty Mentoring*. The survey included questions regarding mentee interactions with their faculty mentor(s), satisfaction with mentoring and the BBSP overall, and frequency of published and presented research (see Tables 2 & 3). Students provided both quantitative and qualitative data. A Likert scale of 1 – *Strongly Disagree* to 5 – *Strongly Agree* was used to evaluate the following statements.

Mean scores were above 4.0 for all survey items which indicated positive experiences towards faculty mentoring. Moreover, favorable agreement (ratings of 4 or 5) represented the majority of scholars' responses to mentoring support in different academic areas such as class performance, curricular advancement, scholarly pursuits and career aspirations. The highest mean ratings related to receiving academic support in course work (Items 2, 3, 4 and 5) from the faculty mentors. An overall mentoring support score was calculated for each student by averaging his/her scores for all 12 survey items. The Cronbach's alpha for the overall mentoring support was 0.923, which indicated high internal consistency of items. Overall, mentor support scores ranged from a minimum 2.92 to a maximum 5.0. The average mentor support score for scholars was 4.47 (SD = 0.56). Students' cumulative GPAs were provided after the end of spring 2011. Mentor support was significantly and positively correlated to students' cumulative GPA, $r = 0.539$, $p = 0.03$.

Impact of Mentoring on Students' Academic Performance

The effectiveness of mentoring on academic performance was demonstrated by tracking students' performance from spring 2009- spring 2010 by the average GPA in each of the STEM areas as well as in co-enrolled general education courses (See Figure 1). The error bars in Figure 1 denoted the standard deviation of average GPAs of scholars across all courses within

Survey Item (Scale 1 – *Very Dissatisfied* to 5 – *Very Satisfied*)	Mean	*SD*	Min	Max	Percent Favorable*
Scholars					
How satisfied are you with your mentoring interactions?	4.63	0.62	3	5	93.8%
How would you rate your overall experience with your mentor?	4.69	0.60	3	5	93.8%

Table 2. Survey results of scholar satisfaction with mentoring in the BBSP.

Survey Item (Scale 1 – *Strongly Disagree to* 5 – *Strongly Agree*)	Mean	*SD*	Min	Max	Percent Favorable*
My faculty mentor showed genuine concern for me and treated me with respect.	4.69	0.60	3	5	93.8%
My faculty mentor was helpful in answering questions.	4.63	0.62	3	5	93.8%
My faculty mentor provided guidance about my educational program.	4.63	0.62	3	5	93.8%
My faculty mentor advised me about my degree progress.	4.63	0.62	3	5	93.8%
My faculty mentor provided constructive feedback throughout the semester.	4.63	0.72	3	5	87.5%
My faculty mentor provided adequate support to facilitate learning.	4.56	0.63	3	5	93.8%
My faculty mentor provided information about internship opportunities.	4.50	0.63	3	5	93.8%
My faculty mentor provided information about graduate school.	4.38	0.81	2	5	93.8%
My faculty mentor provided information about research opportunities.	4.31	0.95	2	5	81.3%
My faculty mentor provided information about professional development workshops.	4.31	0.95	2	5	81.3%
My faculty mentor was available when I needed him/her.	4.25	0.86	3	5	75.0%
My faculty mentor helped minimize my anxieties about School.	4.13	1.02	2	5	68.8%

Table 3. Survey results of scholars' perceptions of faculty mentoring.

each of the STEM areas. Scholars' academic standing (grade A, B, C, D, or F on a 4.0 scale) was recorded at the 5th, 10th and 15th weeks of the semester. Scholars improved their performance significantly between the 10th and 15th weeks in biology, showed a steady performance in mathematics and computer science with a slight improvement between the 10th and 15th weeks, and performed consistently well in general education courses. There was a slight decrease in students' performance in chemistry and physics during the 10th week. However, students were able to increase their GPA by the 15th week. Results suggested that scholars gradually improved their performance in STEM with most improvements occurring during the last five-week period of the semester. In physics and chemistry, mentors observed that corrective actions took additional time and believed that this was because students had to abandon old misconceptions and methods of learning and adopt new strategies. However, further research is needed to confirm the mechanism of such learning adjustments. Faculty mentors advised scholars to increase remediation of chapter summaries, participate in study groups/tables and utilize other supplemental instruction and support.

The scholars' GPA and retention rates from the spring of 2009 to the spring of 2010 are summarized below in Table 4. Scholars had to maintain a 3.0 GPA to remain in the program. Scholars met this requirement in the spring of 2009, and increased the average cumulative GPA by 5 percent the following year. All of the scholars were retained at CSU and were retained in a STEM discipline. BBSP was one of many experiences the students shared during their academic and personal growth at the institution that impacted their successes.

Faculty Surveys

Faculty mentors were asked to rate the BBS program and to indicate how effective the program was for influencing scholars' academic success using a scale of 1- *Extremely Poor* to 4 – *Excellent*. All mentors provided top ratings; mean scores were 4.00, SD = 0.0.

On the Post-Program Surveys, faculty had the following open responses to their overall experiences with their mentees and the BBSP:

"What I enjoy most is interacting with the students."

"I liked seeing the whole group together."

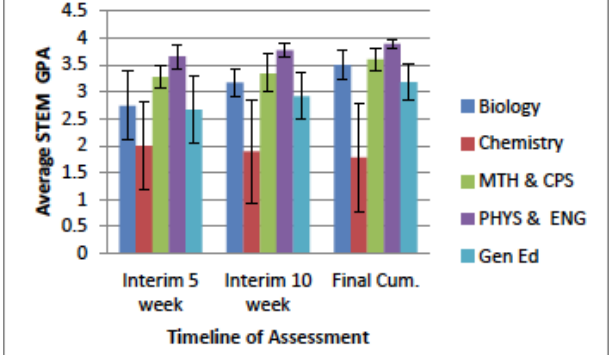
"I am especially impressed with all the nicely designed support pieces and the organizational structure."

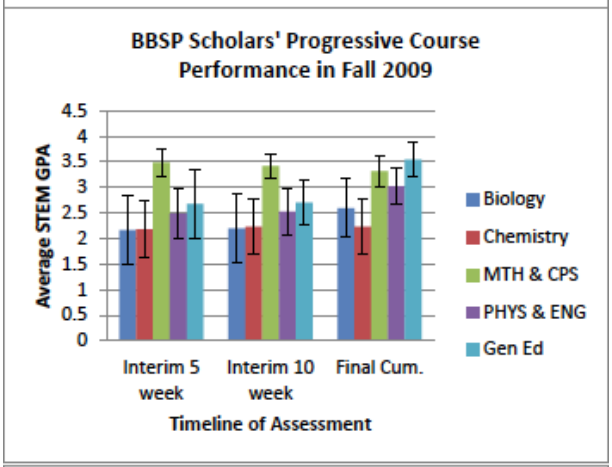
"What I enjoy most is watching students' progress [academically]."

In addition to student surveys, faculty surveys (not included here) were administered to assess the faculty's perception of BBSP's mentoring and advising

	Average cumulative GPA of the BBSP participants	Rentention Rate of BBSP participants in a STEM discipline
Cohort 1 (Spring 2009)	3.05	100%
Cohort 1 & 2 (Fall 2009 - Spring 2010)	3.2	100%

Table 4: Cumulative GPA & Retention Rates





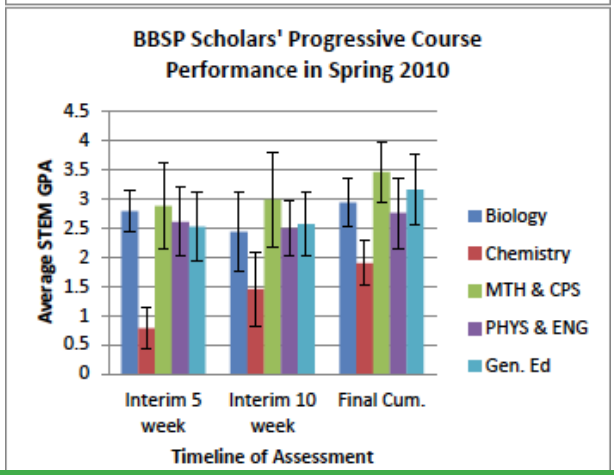


Figure 1: BBSP scholars' progressive course performance from Spring 2009 – Spring 2010.

environments and practices. The survey evaluated each faculty member's level of interest in student mentoring in areas such as showing genuine concern for BBSP scholars, supportive and caring learning environments, and nurturing career aspirations (internships, undergraduate research and graduate studies) of the students. The survey also assessed each faculty member's dedication to advising such as monitoring progression of degree completion, providing continuous feedback along the semester on academic progress, and offering help in answering mentee's questions or concerns in academic, as well as social and emotional aspects. A Likert scale of 1 – *Strongly Disagree* to 5 – *Strongly Agree* was used to evaluate the survey statements. An overall mean score of 4.67 was obtained, which indicated high acceptance of the BBSP model from the participating faculty. When asked on the Post-Program Survey if the faculty mentors felt they had made an impact on their advisees, they had the following responses:

> *"Yes, I think my informed communication with them during the evenings had the most impact. I was able to know what was going on with them week by week."*
>
> *"Yes, I think the dialogue with the students was useful and allowed us to explore problems and successes."*
>
> *"Yes, promoting undergraduate research and internships have made excellent off-campus contacts.*
>
> *"Yes, I have done research with one student and was asked to serve as the [departmental] academic advisor for all of the Banneker scholars I was assigned."*

Conclusion

BBSP developed a mentoring model for undergraduate STEM majors in a Midwestern HBCU serving predominantly African American students. Mentoring was offered in a caring institutional setting typical of HBCUs. The BBSP allowed scholars to share their academic, social and cultural experiences, not only among themselves, but also with faculty mentors in structured meetings. Mentoring was conducted through a network of faculty, or "family members" (mother, brother, and sister), who had a common interest in the scholars' retention and academic success, and who nurtured the scholars by integrating professional academic advising into social and professional meetings with students. Students perceived that the components of BBSP had an impact on their student success. In general, there were several factors that allowed scholars to progressively improve their academic performance in STEM areas throughout the semester. Students perceived that mentoring was the biggest contributing factor to their academic success. Student surveys on effectiveness of faculty mentoring showed strong correlation between academic success of scholars and their degree of acceptance of mentoring as a positive experience in their learning. This study reinforces the notion that good mentoring can lead to academic success. Students tend to be more successful academically when placed in supportive environments. BBSP has served as a catalyst to student success and might serve as a model for other institutions to adopt. The study may be useful in improving academic success and retention rates among STEM majors in small to medium sized universities where such collaborative environments exist or can be created among students and faculty.

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Survey Item (Scale 1 – Very Dissatisfied to 5 – Very Satisfied)	Mean	SD	Min	Max	Percent Favorable*
Mentors					
How satisfied are you with your mentoring interactions?	4.80	0.45	4	5	100%
How would you rate your overall experience with your mentees?	4.60	0.55	4	5	100%

Table 5. Survey results of faculty satisfaction with mentoring in the BBSP.

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Anthony R. Arment, Ph.D. is an Associate Professor of Biology in the Department of Natural Sciences at Central State University (CSU). Anthony earned his B.S. degrees from Urbana University, OH and his Ph.D. from Wright State University, OH. He currently serves as co-PI for the Benjamin Banneker Scholars Program. His research areas include bioremediation, quorum sensing, and inquiry-based curriculum development in biology. He is a strong proponent of the benefits of research as a teaching tool and works with both CSU and high school students in his research programs.

Appendix

Benjamin Banneker Scholars Program Feedback on Faculty Mentoring

The purpose of the Benjamin Banneker Scholars (BBS) Program Feedback on Faculty Mentoring survey is to help personnel of the program understand strengths and weaknesses of the mentoring program. All scholars participating in the program are asked to respond to questions about how well you feel your mentoring relationship went for the fall semester (2010) as well as respond to questions about your overall attitudes for the BBS program. As you take the survey, please reflect on your experiences with your mentor during the fall 2010 semester to answer each question. Your responses to this survey will be kept confidential so that only an independent evaluator with the BBS program will have access to your individual responses. Your name is needed only to help the evaluator track who has completed the survey and to connect your responses to other data (i.e., activity participation within the program). Any reporting of the information provided in these surveys will be summarized in aggregate form so that all individual responses remain confidential and nothing is linked to any individual person. If you have any concerns for completing the survey, please contact Mrs. Robin Taylor, independent evaluator for the Benjamin Banneker Scholars Program at Central State University. Phone: (865) 675-4970 or e-mail: ttr2003@gmail.com

Initials * _____

ID Code (Use the ID Code provided to you in your e-mail. Do not report your social security number): _____

Faculty Mentor(s)-- Give the first and last name of your faculty mentor. _____

Faculty Mentor(s)-- Give the first and last name of your faculty mentor. _____

How frequently did you interact with your faculty mentor over the past semester?

____ Daily ____ 3-4 times/week ____ Weekly ____ Bi-Weekly

____ Monthly ____ 1-2 times during the semester ____ Never

What methods of communication did you use with your faculty mentor during the past semester? * Check all that apply

____Face to Face ____Phone ____E-mail ____Virtual (Facebook, chatroom, etc)

____I have never met with a faculty mentor.

Please use the following scale of 1 – Strongly Disagree to 5 – Strongly Agree to answer the following questions regarding your interactions with your faculty mentor this past semester. Please use the following scale of 1 – Very Dissatisfied to 5 – Very Satisfied to answer the following questions.

	Strongly Disagree	2	3	4	Strongly Agree
My faculty mentor helped minimize my anxieties about school?	○	○	○	○	○
My faculty mentor was available when I needed him/her.	○	○	○	○	○
My faculty mentor was helpful in answering questions.	○	○	○	○	○
My faculty mentor showed genuine concern for me and treated me with respect.	○	○	○	○	○
My faculty mentor provided adequate support to facilitate learning.	○	○	○	○	○
My faculty mentor provided constructive feedback throughout the semester.	○	○	○	○	○
My faculty mentor provided guidance about my educational program.	○	○	○	○	○
My faculty mentor advised me about my degree progress.	○	○	○	○	○
My faculty mentor provided information about graduate school.	○	○	○	○	○
My faculty mentor provided information about research opportunities.	○	○	○	○	○
My faculty mentor provided information about internship opportunities.	○	○	○	○	○
My faculty mentor provided information about professional development workshops.	○	○	○	○	○

Please use the following scale of 1 – Very Dissatisfied to 5 – Very Satisfied to answer the following questions.

	Very Dissatisfied	2	3	4	Very Satisfied
How satisfied are you with your mentoring interactions?	○	○	○	○	○
How would you rate your overall experience with your mentor?	○	○	○	○	○
How would you rate your overall experience as a scholar of the Benjamin Banneker program?	○	○	○	○	○

Describe any positive experiences you encountered as part of the faculty mentoring component of the BBS program. Please explain.

Describe any negative experiences or challenges you encountered as part of the faculty mentoring component of the BBS program. Please explain.

Do you feel anything could be done to improve your mentoring relationship? Please explain.

During your time in the BBSP program, have you published or co-published a research project? ___Yes ___ No

If yes, please list all occasions you have presented your research to others:

If no, how likely are you to publish or co-publish any of your research?

____Not at all Likely ____ Probably Unlikely ____Somewhat Likely ____ Extremely Likely

During your time in the BBSP program, have you presented your research to others?

___Yes ___ No

If yes, please provide the citation(s) for all published research you have been involved with:

If no, how likely are you present your research in the future?

____Not at all Likely ____ Probably Unlikely ____Somewhat Likely ____ Extremely Likely

Benjamin Banneker Scholars Program

How effective do you feel the BBS program has been in influencing your academic success at Central State University?

____ Very Ineffective ____ Ineffective ____ Neither ____Effective ____ Very Effective