Delivering on the Promise

Access and Opportunity

Postsecondary Completion

Diverse Cadre of Leaders

An Impact Evaluation of the
Gates Millennium Scholars Program

Final Report

AMERICAN INSTITUTES FOR RESEARCH®

This report presents final results from a summative evaluation of the Gates Millennium Scholars Program (GMS) using longitudinal data collected on early cohorts of recipients. The report details the evaluation design; provides an analysis of outcome measures related to postsecondary access and opportunity, postsecondary completion, and leadership development; discusses implications for study findings; and offers recommendations to support the efficiency, effectiveness, sustainability and scalability of the program.

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Charts and Tables

It has been projected that by the year 2050, African Americans, Hispanic Americans, Asian Pacific Islander Americans, and American Indian/Alaska Natives will collectively represent approximately 50 percent of the U.S. population.[i] However, members of these racial and ethnic groups are underrepresented in positions of leadership in such fields as health, science, technology, and engineering. Higher education has long been regarded as a breeding ground for local and national leadership in these sectors. However, the pipeline of emerging underrepresented minority leaders to serve an increasingly global marketplace and diverse citizenry is narrowing as attaining a degree becomes more cost prohibitive.

College-going rates in the United States have improved over the past ten years, the proportion of 18- to 24-year-olds enrolled in college has grown modestly, and the pool of matriculating college students has become considerably more racially and ethnically diverse in recent decades. However, in the Delta Cost Project's 2008 report, *The Growing Imbalance: Recent Trends in US Postsecondary Education Finance*, study authors reported that fewer and fewer of these students come from low-income households. Instead, dependent undergraduate students whose parental income is $80,000 or more account for most of the growth in undergraduate enrollments. Low-income minority dependent undergraduate students are concentrated among the least selective institutions, particularly, public two-year and proprietary institutions.

College completion rates are similarly disconcerting for low-income minority students. Even the most high-achieving of low-income students are less likely than affluent students to graduate from college.[ii] At the greatest risk are first-generation college students who are less likely than their non-first-generation peers to earn college degrees.[iii]

Numerous factors account for the nation's low college completion rates but the high cost of tuition is certainly prominent among them. Average tuition at a four-year private institution is equal to 76 percent of the median family income in the United States, according to a report released in December of 2008 by the National Center for Public Policy and Higher Education. The report, *Measuring Up 2008: The National Report Card on Higher Education* noted that while college tuition and fees rose by 439 percent between 1982 and 2007, income rose by only 147 percent.[iv]

The federal government, by way of direct appropriations and loan guarantees to private lenders, accounts for nearly three quarters of the

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financial aid pool. Forty-seven percent of all undergraduates received some form of federal student aid in 2007–08.[v] Yet, legislative efforts at the federal level to alleviate the growing cost burden of college attendance have been slow. For example, despite rapidly rising tuition rates, it was not until the fall of 2008 that Congress increased the amount of unsubsidized loans a dependent or independent student could take out from the Federal government by $2,000 per year, thereby increasing the national limit for these loans from $5,500 to $7,500.[vi] Financial aid guidelines require review and approval by Congress every five years, but as the 2008-2009 academic year began, ten years had passed since the process had last been completed. A result is that higher education has become less affordable for the most disadvantaged students effectively reducing access to higher education and the opportunity to pursue enrollment at the nation's most selective and well-respected schools which are, not incidentally, the most expensive.   Among the postsecondary institutions that graduate the most students within each of the six admissions selectivity categories presented in *Barron's Profiles of American Colleges*, the average tuition and fee difference between the top ten least competitive and the top ten most competitive schools is $22767.

Average Tuition and Fees ($) for the Top Ten Schools by Graduation Rate in Each of Barron's Selectivity Category
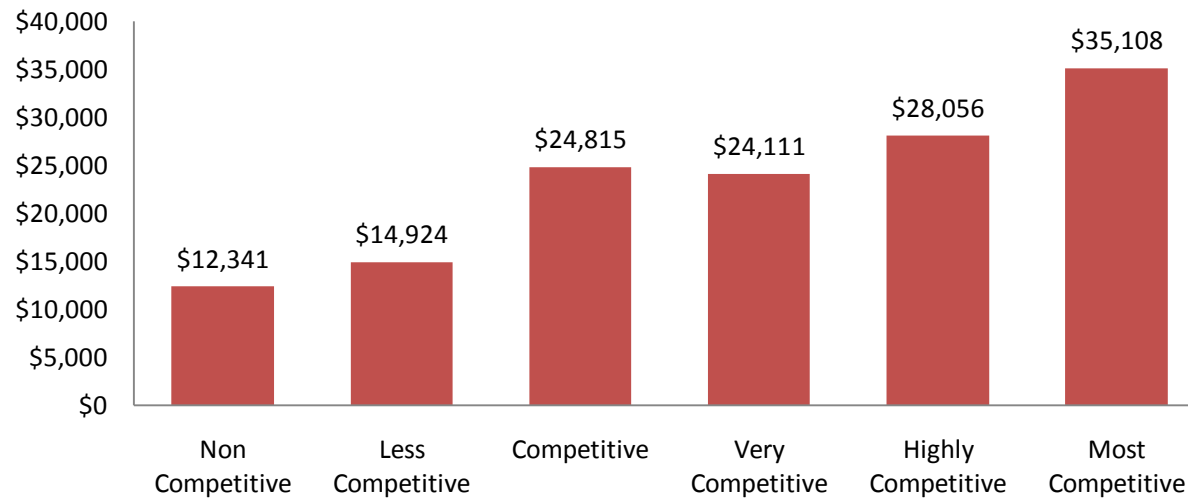
SOURCE: 2009 Barron's Profiles of American Colleges

The GMS Promise

The Gates Millennium Scholars (GMS) program is an ambitious effort of the Bill & Melinda Gates Foundation (the Foundation) designed to improve higher education access and opportunity for high achieving low-income students of color by reducing the cost of entry. The program also seeks to develop a new and diverse generation of leaders to serve America by encouraging leadership participation, civic engagement, and the pursuit of graduate education and careers in seven fields in which minorities are grossly underrepresented—computer science, engineering, mathematics, science, education, library science, and public health.

To do so, the Foundation annually provides roughly 1000 "last dollar" awards to African American, American Indian/Alaska Native, Asian Pacific Islander American, and Hispanic American students who are Pell Grant eligible and have demonstrated high academic achievement, a commitment to community service, and exceptional leadership potential. GMS awards are renewable for up to ten years, providing support through undergraduate and graduate school. Undergraduate recipients of a GMS award (Scholars) may pursue degrees in any discipline. Scholars are eligible for additional years of funding if they pursue graduate study in the GMS funded fields. Additionally, the program provides leadership development programming and support services at the undergraduate level to ensure above-average postsecondary completion rates for its awardees many of whom are first-generation college students.

Institutional Strategies to Improve Access and Completion

Institutions of higher education are individually and collectively considering ways to remove financial barriers to college enrollment and completion for all students. Many prestigious institutions have altered their financial aid practices to improve college access and minimize debt for students of all backgrounds. Princeton University's landmark no-loan financial aid policy was initiated in 2001 and has set a standard that a number of colleges and universities across the country have followed. Some examples of the ways in which colleges and universities attended by GMS Scholars have improved financial aid for students from low- and middle-income backgrounds include:

☐ **The replacement of loans with scholarships and grants**. Columbia University and Swarthmore College are just two of numerous institutions that have eliminated loans for all students receiving financial aid, regardless of their family income, and replaced them with grants and scholarships beginning with the current 2008-2009 academic year.[vii] Similarly, Emory University launched its Loan Replacement Grant Program and Loan Cap Program during the 2007-2008 school year. Under the Loan Cap Program, loans are replaced with scholarships when a student within a certain income bracket reaches $15,000 in loan debt.[viii] Stanford University's undergraduate financial aid program for the 2008-2009 academic year totaled $114 million, making it one of the largest programs in the nation.[ix] Stanford University prides itself on being one of the few universities with a "need blind" admission policy for U.S. citizens and permanent residents, which guarantees that students will be accepted to the university regardless of their ability to pay while also being offered the financial support they need to attend.[x] Comparable policy changes designed to make college more accessible to students of all

backgrounds have been enacted at other top-ranking institutions over the past several years.

☐ **The elimination or reduction of the Expected Family Contribution**. Columbia, Yale, Harvard, and other top institutions have recently reduced the Expected Family Contribution (EFC) for low and middle income families to eliminate the need for student loans. For example, at Harvard, the income threshold for families not required to make a family contribution rose from $40,000 to $60,000 for the incoming class of 2010.[xi] Harvard's new initiative also focuses on ensuring greater affordability for middle-and upper-middle-income families through major enhancements to grant aid, the elimination of student loans, and the removal of home equity from financial aid calculations.[xii] Additionally, Harvard's new policy, the "Zero to 10 percent Standard", dramatically reduces the amount families with incomes below $180,000 will be expected to pay.[xiii] At Yale, the total expenditures on Scholarships for the class of 2012 was $24.2 million— a 47 percent increase from the total for the class of 2011 the previous year.[xiv] Under Stanford University's new program, parents with incomes of less than $100,000 will no longer pay tuition and those who make less than $60,000 will not be expected to contribute to the cost of room, board, and other expenses.[xv]

In addition to making higher education more affordable for students from low- and middle-income families, some institutions have developed strategies for recruiting more economically diverse students. While there is significant minority representation among students from low- and middle-income families, there remains a growing need for recruitment and retention efforts targeted toward minority groups in particular. Some examples of effective recruitment strategies used by colleges and universities to reach underrepresented candidates for admission include:

☐ **Recruitment by current students**. The Student Ambassador program at Yale trains and compensates undergraduates to "act as ambassadors over their fall, spring and summer breaks in their home cities, making presentations about Yale admissions and financial aid to high schools with high proportions of low-income students."[xvi] The Yale ambassadors have effected a 15 percent increase in applications from targeted schools. Columbia University has a Multicultural Recruitment Committee that functions in a similar capacity, and other institutions have developed programs of this nature. Efforts to recruit minority candidates that engage current students from similar ethnic backgrounds can be highly effective, as students tend to be more attracted to campuses where there is a visible minority cohort.[xvii]

☐ **Partnerships with non-profit organizations**. Yale's Undergraduate Admissions Office partnered with Questbridge, a non-profit organization that matches qualified low-income students with top universities, for the 2008-2009 school year in an effort to bring greater economic diversity to the pool of accepted students.

☐ **Partnerships with schools and school districts that enroll a high number of underrepresented students**. Numerous programs like the Pre-College Youth Development and Student Academic Success Initiatives at the University of Texas-Austin promote college attendance among low-income and minority students.

☐ **Early intervention programs**. There are countless underrepresented students who have limited access to college because they have not been adequately prepared during their K – 12 experiences. As a result, there is a pressing need for colleges and universities to address this gap in preparation early on. A growing number of colleges and universities are improving minority retention by implementing early intervention programs like summer research and bridge programs (e.g. Upward Bound), mentoring programs, cadet programs, and career clubs to arouse

interest in a specific professional field.[xviii] Colleges, schools, and businesses are working together to establish career education programs for elementary, middle, and high school students to enhance their knowledge about career options and build their career self-efficacy.[xix]

☐ **Recruiting from non-traditional sources**. Some postsecondary institutions are recruiting minority students through minority, community, professional, and social groups, churches and other religious organizations, minority fraternities and sororities, minority alumni, and minority mailing lists.[xx]

Is Philanthropic Intervention Justifiable?

Given such efforts, whether intervention on the part of philanthropists such as Bill and Melinda Gates is warranted to improve higher education access and opportunity is arguable from an economic standpoint. Could their charitable dollars be spent more efficiently in this or another context entirely?

To respond to this question, this report shares findings from an impact evaluation of the GMS program and reflects on findings from implementation evaluations conducted on the program since its inaugural year. It discusses the extent to which the program has made an impact, and offers concluding thoughts on how the Foundation can maximize its investment in the higher education arena.

A central argument of this report is that philanthropic activities like the GMS program can indeed play a crucial role in improving academic outcomes for high-achieving, disadvantaged students for at least three reasons. First, higher education institutions cannot eliminate financial barriers to postsecondary enrollment and degree attainment on their own. In our present economic climate, they may, in fact, adopt resource allocation practices that are counter-productive for the neediest students. A study recently published in American Educational Research Journal on the impact of financial aid found that need-based and merit-based aid have a positive effect on college GPA but the effect of merit aid is larger than that of need-based aid. Consequently, this differential impact may incentivize institutions to redistribute aid and admissions slots from the neediest students to merit students, regardless of need, unless appropriate safeguards are put into place.[xxi]

Second, by drawing its Scholars from a high caliber pool and giving these students the funds to attend high caliber institutions where minorities are often historically underrepresented, the Foundation is helping to overturn not uncommon misconceptions about the academic potential of low-income students of color. The GMS program is a model philanthropic endeavor. As a result of the commitment of the Bill & Melinda Gates Foundation, GMS Scholars attend the most competitive US institutions of higher education at higher rates than demographically-similar Non-Recipients of the GMS award. Since the program's inception, the institutions most commonly attended by GMS Scholars are considered Research Universities with Very High research activity (RU/VH) according to the Carnegie Classification System and/or Tier I schools according to the US News and World Report ranking system. Scholars earn an undergraduate degree and enroll in graduate school at higher rates, and dropout at lower rates than Non-Recipients. Furthermore, receiving a GMS award offers Scholars a sense of pride and obligation.

Third, providing financial access to college via the GMS Scholarship has made the difference in Scholars' ability to persist in their academic pursuits. Pre-collegiate academic preparation consistently is found to be a stronger indicator of post-secondary success than demographic characteristics, such as race/ethnicity or sex, family income, or socioeconomic status.[xxii] Both Scholars and Non-Recipients in this study were exceptionally well-prepared academically, however, Non-Recipients dropped out of college at higher rates than Scholars. This suggests that while strong academic preparation primes students for post secondary success, it is not sufficient for many low-income students.

A second contention presented in this report is that from an administrative point of view, the GMS program has significant untapped potential. While the evaluation data we will present in the upcoming sections confirm that the program has made a noteworthy impact on postsecondary access, college completion, and influenced public perceptions of the program's prestige, we will also show that it has not made a significant impact on school choice and has struggled to make a considerable impact on Scholars' career aspirations. Specifically, we argue that a key hindrance in the program's effort to certify the continued success of the GMS program is operational inefficiency. In effect, a "tax" has been imposed on the Foundation's charitable contributions by the colleges and universities that have supplanted previously awarded financial aid to Scholars with GMS dollars. Additionally, the GMS program has devoted resources in areas where the program is not realizing an impact.

In response, we suggest ways in which the program might capitalize on its growing prestige, increase its effectiveness, ensure its sustainability and advance its prospects for scalability in the areas of access and opportunity, postsecondary completion, and leadership development. It is our recommendation that the program consider realigning its resources to enable 1) early Scholar identification; 2) early, on-going, embedded and differentiated programming; 3) loan repayment incentives in lieu of "last dollar" scholarships; 4) targeted retention services; 5) Scholar community building; and 6) door-opening relationship building. We also recommend that the GMS program explore a number of unanswered questions concerning its resource allocation practices, the institutional clustering of Scholars, the factors that contribute to Scholar school choice, Scholar outcome disparities, Scholar workforce participation in the GMS key fields, and the leadership and civic engagement of Scholars beyond the undergraduate years.

The American Institutes for Research (AIR) conducted a formative and summative evaluation of the GMS program to support strategic planning during its tenth anniversary year. This is the fourth implementation evaluation and first summative evaluation conducted by AIR on behalf of the Foundation since 2001.

Under this engagement, the formative, or implementation, evaluation concluded in May 2009. It assessed the strengths and difficulties associated with the administration of the GMS program with a particular emphasis on recent program enhancements. Specifically, this evaluation was designed to monitor program performance in a number of areas of interest identified by the Foundation and GMS stakeholders, namely, GMS program operations, Scholar programming, Scholar and Partner organization satisfaction, and the short-term impact of the GMS program. The implementation evaluation used a mixed-methods approach to collect and analyze Scholar focus group, stakeholder interview and Scholar online survey, and extant data that examine the extent to which GMS is meeting its goals and has addressed administrative challenges identified in prior evaluation years.

The summative, or impact, evaluation was designed to answer questions related to the GMS program's return on its significant long-term investment in three areas of interest: 1) higher education access and opportunity, 2) college completion, and 3) leadership development. These areas are described in more detail in the following graphic the components of which are referred to in this document as the GMS Constellation:

Access and Opportunity

Diverse Cadre of Leaders...

DEGREE WITH GENUIINE ECONOMIC VALUE

Postsecondary Completion

CIVIC ENGAGEMENT

ACCESS AND OPPORTUNITY

The GMS program seeks to expand post-secondary access and opportunity for low-income, underrepresented students of color many of whom are first-generation college students, hail from low-performing high schools that have inadequately prepared them for the transition into higher education and the rigors of college coursework, and/or are challenged by significant competing demands on their time and resources otherwise devoted to academics.

POSTSECONDARY COMPLETION

The GMS program offers Scholar support services in response to poor college retention and degree attainment rates historically observed for low-income students of color.

DIVERSE CADRE OF LEADERS

A prominent goal of the GMS program is to develop future leaders who can enable a strong American democracy and aptly serve the 21st century workplace by earning **degrees with genuine economic value**. To do so, it offers leadership development programming, encourages **civic engagement** on campus and beyond, and incentivizes the pursuit of graduate work in key fields in which minorities are underrepresented.

Evaluation Objectives

The 2008 – 2009 impact evaluation of the Gates Millennium Scholars (GMS) program was designed to answer questions related to the GMS program's impact on higher education access and opportunity, postsecondary completion, and leadership development. The impact evaluation primarily sought to respond to the following broad research questions:

☐ Has the GMS program improved access and opportunity for high achieving, low-income, minority students?

☐ Has the GMS program enabled higher college persistence and degree attainment for high achieving, low-income, minority students?

☐ Is the GMS program making quantifiable progress in its commitment to develop a diverse cadre of leaders by influencing the leadership activities and career aspirations of its recipients—particularly in the GMS key fields?

The evaluation principally involved logistic and linear regression analyses of survey data on Cohorts 2 and 3 GMS recipients (Scholars who matriculated in the falls of 2000 and 2001) and a comparison group of high-achieving, low-income minority students from the GMS Longitudinal Study of Scholars and Non-Recipients administered and managed by the National Opinion Research Center (NORC). Relative to students who applied for the GMS award but did not receive it (Non-Recipients), this study explored whether Scholars:

1) are more likely to persist and attain postsecondary degrees than Non-Recipients;

2) are more likely to pursue and attain postsecondary degrees and major in GMS key fields than their Non-Recipient peers; and

3) perceive themselves to have higher leadership potential, engage in more leadership activities, and pursue careers in the GMS key fields at higher rates than Non-Recipients.

Drawing from the NORC dataset, the impact of the GMS program was assessed according to the three components of the GMS Constellation. The outcome measures associated with each are summarized below and described in more detail in Appendix A:

Higher Education Access and Opportunity

A key GMS objective is to promote minority access to prestigious institutions and increase the number of minorities pursuing degrees in fields of study traditionally underrepresented by minorities. Specific outcomes studied in this area included:

☐ Enrolled in a Top 10 US institution (as ranked by *U.S. News and World Report*)

Postsecondary Completion

A second objective focused on whether GMS recipients (Scholars) were more likely to persist and attain secondary degrees than non-GMS Scholars (Non-Recipients) and whether Scholars were more likely to pursue and attain post-secondary degrees and enter careers in GMS key fields than their Non-Recipient peers. Specific outcomes included:

☐ On track academically (graduated college or is still enrolled)

Diverse Cadre of Leaders

This area addressed whether Scholars were more likely than Non-Recipients to take on leadership positions during and after college. Specific outcomes included:

☐ Majored in a GMS key field of study

☐ Attending graduate school (excluding students still enrolled as undergraduates)

☐ Aspires to attain a post-baccalaureate degree

☐ Leadership index indicating participant's perception of being considered a leader

☐ Currently holds/held a leadership position in school

☐ Currently holds a leadership position in a cultural or community group

For each outcome, the impact of the GMS was estimated based on comparing outcomes for Scholars and Non-Recipients. Additionally, we investigated whether GMS impact varied by sex or race/ethnicity. These analyses shed light on questions regarding the ability of the GMS program to address gender and race/ethnicity disparities in educational outcomes.

The evaluation components, primary and secondary research questions and outcome measures are summarized in Table 1 below:

Table 1. Evaluation Components, Research Questions and Outcome Measures

EVALUATION COMPONENT	RESEARCH QUESTIONS	OUTCOME MEASURES
ACCESS AND OPPORTUNITY	Has the GMS program improved access and opportunity for high achieving, low-income, minority students? ▪ *Are Scholars enrolling in highly selective institutions at higher rates than Non-Recipients?* ▪ *Are there any significant patterns of racial/ethnic and/or gender differences in enrollment?*	▪ Enrolled in a Top 10 US institution
POSTSECONDARY COMPLETION	Has the GMS program enabled higher college persistence and degree attainment for high achieving, low-income, minority students? ▪ *Do Scholars graduate at higher rates than Non-Recipients?* ▪ *Do Scholars drop out at lower rates than Non-Recipients?* ▪ *Are there any significant patterns of racial/ethnic and/or gender differences in persistence and attainment?*	▪ On track academically
DIVERSE CADRE OF LEADERS	Is the GMS program making quantifiable progress in its commitment to develop a diverse cadre of leaders by influencing the leadership activities and career aspirations of its recipients—particularly in the GMS key fields? ▪ *Are Scholars engaged in more leadership activities than Non-Recipients?* ▪ *Do Scholars have higher self-perceptions of their leadership potential as compared to Non-Recipients?* ▪ *Are Scholars attaining more undergraduate degrees in GMS key fields than Non-Recipients?* ▪ *Are Scholars pursuing graduate study at higher rates than Non-Recipients?* ▪ *Are there any significant patterns of racial/ethnic and/or gender differences in choice of major field?* ▪ *Are there any significant patterns of racial/ethnic and/or gender differences in the decision to aspire to or take on leadership positions in school or the community?* ▪ *Are there any significant patterns of racial/ethnic and/or gender differences in the decision to pursue graduate study?*	▪ Majored in a GMS key field of study ▪ Attending graduate school (excluding students still enrolled as undergraduates) ▪ Aspires to attain a post-baccalaureate degree ▪ Leadership index indicating participant's perception of being considered a leader ▪ Currently holds/held a leadership position in school ▪ Currently holds a leadership position in a cultural or community group

Research Method

The NORC study follows selected cohorts of Scholars and comparison samples of Non-Recipients from roughly a year after they apply to the GMS program up until the time they reach their mid-thirties. Non-Recipients are generally academically comparable to Scholars but not Pell-eligible, that is, their family income at the time they applied to the GMS program exceeded the federal Pell Grant program ceiling. Most Pell funding goes to students with gross household annual incomes less than $20,000.

Scholar and Non-Recipient data are collected in periodic rounds through the administration of a web-based survey instrument. These data are supplemented by other data sources including Integrated Postsecondary Database Systems (IPEDS) codes and census tract codes (e.g. postal zip code at the time of high school graduation). To date, the survey has been administered at least three times in the form of a baseline, first follow-up and second follow-up survey.

The sample for this report includes Cohort 2 and 3 Scholars and Non-Recipients. Cohort 1 outcomes are not presented here due to limitations of the data that are described below. Cohort 2 and Cohort 3 students enrolled as freshmen in the fall of 2001 and 2002, respectively. Baseline surveys were conducted with Cohort 2 in the spring of their freshman year (2002) and with Cohort 3 as freshmen in 2003. The first follow-up surveys were conducted during participants' third year of college. The second follow-up surveys were conducted two years later (spring of 2006 for Cohort 2 and spring of 2007 for Cohort 3). Participants with typical four year college tenure were one year out of their undergraduate programs. However, many students (approximately 30%) were still enrolled as undergraduates as it is common to allow at least five years to complete a Bachelor's degree program. The sample for Cohort 2 included 2340 students (1000 Scholars and 1340 Non-Recipients). Cohort 3 included 2333 students (1000 Scholars and 1333 Non-Recipients). Response rates for each round of data collection are reported in Table 2.

Table 2. GMS Impact Evaluation Enrollment and Participation, Cohorts 2 and 3 overall and for Scholars and Non-Recipients

	Total		Scholars		Non-Recipients	
Cohort 2	n	%	n	%	n	%
Total denominator	2340	100%	1000	100%	1340	100%
Interviewed at Baseline	1609	69%	831	83%	778	58%
Interviewed at First Follow-up	1466	63%	737	74%	729	54%
Interviewed at Second Follow-up	1459	62%	734	73%	725	54%
Cohort 3	n	%	n	%	n	%
Total denominator	2333	100%	1000	100%	1333	100%
Interviewed at Baseline	1893	81%	897	90%	996	75%
Interviewed at First Follow-up	1744	75%	816	82%	928	70%
Interviewed at Second Follow-up	1700	73%	774	77%	926	69%

Scholars and Non-Recipients were compared on key outcomes in order to evaluate the impact of the GMS program. Because participants were not assigned randomly to intervention and control groups, quasi-experimental methods were used to approximate random assignment. Appendix B describes in detail the propensity score methodology employed to create balanced groups of Scholars and Non-Recipients on which to base the outcome analyses. The propensity score methodology restricts the analysis sample to Scholars and Non-Recipients who can be matched in terms of key baseline covariates producing a "matched" sample. Propensity score analyses were carried out separately for Cohorts 2 and 3. Appendix C reports baseline comparisons before and after selecting the matched samples. In both Cohorts the full samples of Scholars and Non-Recipients were not comparable on many important baseline characteristics. The propensity score methods, by dropping some cases, succeeded in producing comparable groups (Appendix C). The strength of this approach is that differences in outcomes in the matched samples can be attributed to the intervention (the GMS). The major limitation is that because a substantial number of cases are dropped, the results cannot be generalized to the full population of GMS Scholars. A second limitation is that the smaller sample size results in reduced statistical power. The results presented here are based the matched samples.

Table 3. Baseline sample sizes for Scholars and Non-Recipients in full and matched samples, Cohorts 2 and 3

	Scholars	Non-Recipients	Total
Cohort 2 full baseline sample	831	776	1607
Cohort 2 matched sample	483	483	966
Cohort 3 full baseline sample	897	996	1893
Cohort 3 matched sample	664	664	1328

Inclusion in the final analysis sample required that the participant be part of the matched baseline sample and also have provided outcome data. As described in Appendix A, most outcomes were based on the 2nd follow-up

survey, however, some outcomes, such as undergraduate major, were gleaned from the baseline or 1st follow-up survey, or were based on a subset of the sample (e.g., current undergraduates were excluded from the analyses of post-baccalaureate education). Also, there were random missing values on some outcomes resulting from respondents skipping questions. For these reasons, sample sizes, which are reported in the tables, vary by outcome.

Using the matched samples, separately for the two cohorts, traditional logistic and linear regression models were estimated to evaluate GMS impact. The modeling procedure, described in Appendix B, included testing for subgroup variation in impact. We incorporated interaction terms (intervention by sex and intervention by race/ethnicity) to explore whether GMS impact differed by sex or race/ethnicity. For example, was GMS impact stronger for males or females, African Americans or Hispanic Americans?

In the final section of this report, we draw on various ancillary data sources to draw inferences about and implications for the impact evaluation findings in terms of the efficiency, effectiveness, sustainability and scalability of the GMS program. These data sources include an inaugural GMS Education Institution Impact survey designed and administered by AIR in the spring and summer of 2009. The survey explored the quality and reach of the GMS program's marketing and branding efforts from the perspective of high school guidance counselors; college and university diversity and student affairs officers, career counselors, and financial aid officers; as well as corporate campus recruiters and graduate school faculty and administrators in the GMS funded fields. The survey results provide a descriptive picture of the extent to which Scholars are perceived as high-achieving students and to what degree the program is viewed as prestigious (refer to Appendix D for a description of the survey recruitment process and a list of survey items). Other ancillary data sources include the implementation evaluations conducted by AIR between 2001 and the present 1) the Cohort 7 and 8 evaluation (refer to Appendix E for a summary of findings and the methodology), 2) the GMS Year 1 and 2 evaluation (refer to Appendix F for a summary of findings), and 3) the GMS Year 3 evaluation (refer to Appendix G for a summary of findings and the methodology).

Study Limitations

The current study is limited a number of ways. First, it potentially presents survey response bias. Data only reflect the outcomes for Scholars and Non-Recipients who elected to respond to the survey during each administration period.

Second, approximately 30 percent of students were still enrolled as undergraduates during the administration of the second follow-up survey. As this analysis took place prior to the administration and release of the most recent follow-up survey, this evaluation was unable to explore key outcomes of interest such as workforce participation. It is possible that given sufficient follow-up time, these students may realize similar academic outcomes as the Scholars and Non-Recipients who have completed college. Alternatively, their longer enrollment period may signal unique retention and completion challenges. Moreover, the GMS program does not yet know whether it has made a quantifiable impression in the area of workforce participation. **Analyses of the now-available third follow-up survey data are needed to more fully investigate post secondary completion, graduate school enrollment and workforce participation in the GMS key fields, and to learn whether Scholars outperform Non-Recipients on the outcomes of most interest to the Foundation.**

This report included the second and third cohorts of GMS Scholars. Because of limitations in the Cohort 1 data (low survey response rate and

missing baseline data on variables needed for the propensity score analyses to create the matched comparison sample), Cohort 1 results are not included in this report. It would be of great benefit to replicate the current findings in subsequent cohorts of students. **Replication in subsequent cohorts would indicate if the GMS results observed in Cohorts 2 and 3 were sustained over time or perhaps became more** **pronounced over time as the Foundation gained experience administering the program and it became better known.**

Necessary for understanding the full impact of the GMS program would involve replicating the analyses in subsequent cohorts, and analyzing data from later follow-up points to include final education outcomes as well as other outcomes of interest such as workforce participation.

The GMS program has improved postsecondary access and completion as well as enabled higher college persistence and degree attainment for high achieving, low-income, minority students. Specifically, this impact evaluation found that both male and female Scholars were more likely than Non-Recipients to:

1. be on-track academically (graduated or still enrolled in undergraduate program),

2. be enrolled in graduate school or other post-baccalaureate program, and to

3. aspire to obtain a post-baccalaureate degree.

However, as we will discuss in this section of the report, these findings were not consistent across cohorts and student subgroups. Furthermore, although the GMS program has successfully identified Scholars with significant leadership aspirations and activity, it has been less successful at ushering Scholars into the GMS key fields.

These findings are presented in more detail below in response to each of the evaluation research questions and organized according to the components of the GMS Constellation discussed and illustrated previously: 1) access and opportunity, 2) postsecondary completion and 3) a diverse cadre of leaders. Overall results for each outcome and results by subgroups defined by sex and race/ethnicity are provided in tabular form. Subgroup variation in GMS impact (i.e., different impact for males versus females and for different race/ethnic groups) was tested by including interaction terms between the variable indicating Scholar/Non-Recipient status and the indicator for the subgroup of interest (sex or race/ethnicity, respectively). If the p-value for the interaction was significant, it is noted in the table in the column labeled "statistical significance" for the respective subgroup (sex or race/ethnicity, respectively). When the model results indicated that the GMS program did not differ significantly across the sub-group, i.e., a non-significant interaction term estimating the sub-group difference in GMS impact), the statistical significance of the overall Scholar/Non-Recipient difference is reported and the cells in the table corresponding to the sub-groups are shaded because the overall significance level summarizes the estimated impact across the respective subgroups.

Access and Opportunity

The GMS program seeks to expand post-secondary access and opportunity for low-income, underrepresented students of color many of whom are first-generation college students, hail from low-performing high schools that have inadequately prepared them for the transition into higher education and the rigors of college coursework, and/or are challenged by significant competing demands on their time and resources otherwise devoted to academics. *Has the GMS program improved access and opportunity for high achieving, low-income, minority students? Are Scholars enrolling in highly selective institutions at higher rates than Non-Recipients? Are there any significant patterns of racial/ethnic and/or gender differences in enrollment?*

Scholars were *more likely* to enroll in highly selective institutions than Non-Recipients. However, this finding was *not consistent* across cohorts and racial/ethnic groups (Table 4):

- Cohort 3 Scholars attended Top 10 US institutions at significantly higher rates (6%) than Cohort 3 Non-Recipients (4%, p=.03).

- Cohort 2 Asian Pacific Islander American Scholars attended Top 10 US institutions at significantly higher rates than Cohort 2 Asian Pacific Islander American Non-Recipients (p=.01). Scholars of other racial or ethnic backgrounds did not differ from their Non-Recipient counterparts.

Table 4. Percentage of Scholars and Non-Recipients Attending Top 10 U.S. Postsecondary Institutions in the Overall Sample and by Subgroup...

Attended a Top 10 US Institution	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample[b]	483	8%	482	6%	ns	664	6%	664	4%	*
Sex[c]					ns					ns
Males	158	11%	158	10%		183	7%	179	6%	
Females	375	7%	324	3%		481	6%	485	3%	
Race/Ethnicity[c]					*					ns
African Americans	182	7%	173	8%	ns	282	6%	280	2%	
American Indians/Alaska Natives	50	2%	56	4%	ns	24	4%	33	3%	
Asian/Pacific Islanders	111	14%	107	4%	*	141	11%	143	4%	
Hispanic Americans	140	8%	146	5%	ns	217	3%	208	5%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

[b]Significance levels are for the Scholar—Non-recipient group differences, i.e., GMS impact.

[c]Significance levels are for the interaction between the respective sub-group (sex or race/ethnicity) and Scholar vs. Non-recipient indicator which indicates if there is significant sub-group variation. If the interaction was significant, the statistical significance of GMS impact (Scholar versus Non-recipient difference in the outcome) is indicated separately for each subgroup. If the interaction was not significant, indicating that the GMS impact did not vary across the subgroups, the area shaded because the overall sample significance level summarizes the GMS impact.

Postsecondary Completion

The GMS program offers Scholar support services in response to poor college retention and degree attainment rates historically observed for low-income students of color. *Has the GMS program enabled higher college persistence and degree attainment for high achieving, low-income, minority students? Do Scholars graduate at higher rates than Non-Recipients? Do Scholars drop out at lower rates than Non-Recipients? Are there any significant patterns of racial/ethnic and/or gender differences in persistence and attainment?*

Five years after starting college, Scholars in both cohorts were *more likely* to be "on track academically" (i.e., less likely to have dropped out) than Non-Recipients.

- Although the differences between Cohort 2 and 3 Scholars and Non-Recipients were small (3 to 4 percentage points), they were statistically significant ($p < .05$) for both Cohorts (Table 5).

- However, when disaggregated by sex and race/ethnicity, there were no statistically significant differences between the educational status of Cohort 2 and 3 Scholars and Non-Recipients (e.g. female Scholars were not more likely to be on track academically than female Non-Recipients) (Table 5).

- Even though American Indian/Alaska Native Scholars were more likely to be "on track academically" than their Non-Recipient peers, it should be noted that they graduated or were on track to graduate at lower rates than Scholars (Chart 1).

Chart 1. Percentage of Scholars and Non-Recipients "On Track Academically" by Race/Ethnicity.

	African Americans (n=261)	American Indians/Alaska Natives (n=73)	Asian/Pacific Islanders (n=167)	Hispanic Americans (n=220)
Cohort 2				
Graduated/on track to graduate				
Non-recipients	98%	79%	96%	94%
Scholars	98%	88%	99%	97%
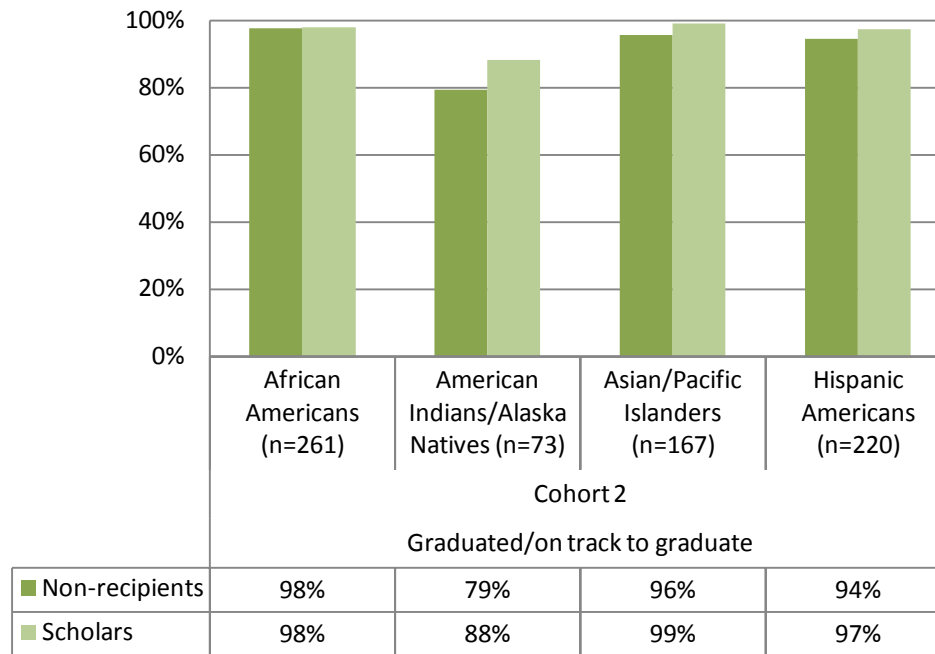
Table 5. Percentage of Scholars and Non-Recipients "On-Track Academically" in the Overall Sample and by Subgroup.

On-Track Academically	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample	390	97%	337	94%	*	535	97%	545	93%	*
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	130	98%	110	91%		145	98%	146	92%	
Females	260	97%	227	96%		390	97%	399	93%	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	145	98%	122	98%		223	97%	225	92%	
American Indians/Alaska Natives	34	88%	39	79%		15	93%	21	90%	
Asian/Pacific Islanders	99	99%	68	96%		118	98%	123	95%	
Hispanic Americans	112	97%	108	94%		179	97%	176	94%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

Diverse Cadre of Leaders

A prominent goal of the GMS program is to develop future leaders who can enable a strong American democracy and aptly serve the 21st century workplace by earning degrees with genuine economic value. To do so, it offers leadership development programming, encourages civic engagement on campus and beyond, and incentivizes the pursuit of graduate work in key fields in which minorities are underrepresented. *Is the GMS program making quantifiable progress in its commitment to develop a diverse cadre of leaders by influencing the leadership activities and career aspirations of its recipients—particularly in the GMS key fields?*

Concerning student career aspirations, are Scholars attaining more undergraduate degrees in GMS key fields than Non-Recipients? Are Scholars pursuing graduate study at higher rates than Non-Recipients? Are there any significant patterns of racial/ethnic and/or gender differences in choice of major field? Are there any significant patterns of racial/ethnic and/or gender differences in the decision to pursue graduate study?

- The GMS program did not impact Scholars' choice of major. Cohort 2 and 3 Scholars and Non-Recipients majored in a GMS key field at similar rates. There were no significant variations in impact by sex or race/ethnicity (Table 6).

- Cohort 2 and 3 Scholars were significantly more likely (p < .05) to be enrolled in a post-baccalaureate program (graduate school, medical school, law school, or other program) compared to Non-Recipients (Table 7). However, this was not true for American Indian/Alaska Native Scholars in either cohort, or for Asian Pacific Islander American students in Cohort 3. As shown in Table 7, rates of graduate school enrollment were lower in these groups. Students still enrolled as undergraduates were excluded from the analyses, making it more difficult to draw conclusions about academic outcomes for the racial/ethnic subgroups. Lower graduate school enrollment for American Indian/Alaska Native and Asian Pacific Islander American Scholars may be due to their small sub-group sample sizes.

- Cohort 2 and 3 Scholars were significantly more likely (p<.05) to aspire to attend graduate school compared to Non-Recipients. (Table 8).

Table 6. Percentage of Scholars and Non-Recipients Who Majored in a GMS key Field in the Overall Sample and by Subgroup.

Majored in a GMS Key Field of Study	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample	442	49%	437	52%	ns	632	48%	622	48%	ns
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	147	51%	141	62%		174	50%	164	53%	
Females	295	48%	296	48%		458	47%	548	46%	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	164	47%	157	48%		271	45%	268	47%	
American Indians/Alaska Natives	44	43%	45	58%		20	60%	25	56%	
Asian/Pacific Islanders	57	55%	56	55%		132	54%	136	62%	
Hispanic Americans	131	48%	133	53%		209	47%	193	39%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

Table 7. Percentage of Scholars and Non-Recipients Who Were Enrolled in a Graduate Program in the Overall Sample and by Subgroup.

Attending Graduate School	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample	274	38%	231	28%	*	359	37%	375	29%	*
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	84	35%	78	29%		88	35%	94	23%	
Females	190	40%	153	29%		271	38%	281	31%	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	110	45%	84	33%		152	43%	156	33%	
American Indians/Alaska Natives	19	21%	22	32%		6	17%	17	18%	
Asian/Pacific Islanders	75	36%	54	22%		88	30%	96	33%	
Hispanic Americans	70	36%	71	30%		113	36%	106	22%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

Table 8. Percentage of Scholars and Non-Recipients Who Aspired to Attain a Graduate Degree in the Overall Sample and by Subgroup.

Aspires to Attain a Post-Baccalaureate Degree	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample	390	93%	337	89%	*	535	94%	545	88%	*
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	130	89%	110	86%		145	92%	146	84%	
Females	260	95%	227	90%		390	95%	399	90%	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	145	94%	122	89%		223	97%	225	92%	
American Indians/Alaska Natives	34	82%	39	77%		15	87%	21	71%	
Asian/Pacific Islanders	99	97%	68	90%		118	93%	123	90%	
Hispanic Americans	112	92%	108	92%		179	92%	176	85%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

And concerning the leadership activities of students, are Scholars engaged in more leadership activities than Non-Recipients? Do Scholars have higher self-perceptions of their leadership potential as compared to Non-Recipients? Are there any significant patterns of racial/ethnic and/or gender differences in the decision to aspire to take on leadership positions in school or the community?

- Cohort 2 and 3 Scholars rated themselves higher than Non-Recipients on leadership qualities on the Leadership Index. In Cohort 2, the difference was significant ($p<.01$); in Cohort 3, the difference approached significance ($p<.10$). Scholar self-ratings did not vary significantly by sex or race/ethnicity (Table 9).

- Cohort 2 and 3 Scholars were not more likely to report holding leadership positions in school organizations (Table 10).

- Cohort 3 Scholars were significantly more likely ($p<.01$) to report holding a leadership position in a community organization than Non-Recipients (Table 11).

Table 9. Mean scores on Leadership Index for Scholars and Non-Recipients in the Overall Sample and by Subgroup.

Leadership Index	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	mean (s.d.)	total n	mean (s.d.)		total n	mean (s.d.)	total n	mean (s.d.)	
Overall sample	389	3.20 (0.54)	337	03.08 (0.59)	*	527	3.20 (0.53)	543	03.14 (0.56)	^
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	129	03.23 (0.58)	110	3.17 (0.58)		145	03.23 (0.55)	144	3.19 (0.50)	
Females	260	03.18 (0.52)	227	3.03 (0.58)		382	03.19 (0.53)	399	3.12 (0.57)	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	145	3.23 (0.53)	122	03.13 (0.51)		220	3.32 (0.52)	225	03.23 (0.53)	
American Indians/Alaska Natives	34	3.22 (0.54)	39	03.02 (0.44)		15	2.98 (0.43)	21	02.99 (0.72)	
Asian/Pacific Islanders	98	3.06 (0.49)	68	02.95 (0.65)		115	3.03 (0.51)	123	02.98 (0.54)	
Hispanic Americans	112	3.27 (0.57)	108	03.11 (0.66)		177	3.18 (0.53)	174	03.15 (0.56)	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

Table 10. Percentage of Scholars and Non-Recipients Who Held a Leadership Position in School in the Overall Sample and by Subgroup.

Currently holds/held a leadership position in school	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample	384	40%	328	38%	ns	518	43%	538	40%	ns
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	129	37%	106	42%		140	50%	143	40%	
Females	255	41%	222	36%		378	40%	395	40%	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	143	43%	118	46%		219	45%	222	47%	
American Indians/Alaska Natives	34	24%	39	36%		15	40%	21	43%	
Asian/Pacific Islanders	98	44%	64	39%		111	43%	122	38%	
Hispanic Americans	109	37%	107	29%		173	40%	173	32%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

Table 11. Percentage of Scholars and Non-Recipients in a Leadership Position in a Cultural/Community Group in the Overall Sample and by Subgroup.

Currently holds a leadership position in a cultural or community group	Cohort 2					Cohort 3				
	Scholars		Non-Recipients		Statistical significance[a]	Scholars		Non-Recipients		Statistical significance[a]
	total n	% with outcome	total n	% with outcome		total n	% with outcome	total n	% with outcome	
Overall sample	383	33%	332	31%	ns	519	34%	536	27%	**
Sex -- statistical significance of sex differences in GMS impact[b]					ns					ns
Males	126	29%	106	32%		139	33%	142	25%	
Females	257	35%	226	31%		380	35%	394	27%	
Race/Ethnicity -- statistical significance of race/ethnicity differences in GMS impact[b]					ns					ns
African Americans	143	36%	120	34%		221	39%	225	31%	
American Indians/Alaska Natives	34	18%	39	23%		15	33%	20	15%	
Asian/Pacific Islanders	97	38%	66	36%		109	31%	120	32%	
Hispanic Americans	109	30%	107	27%		174	31%	171	19%	

[a]ns=not significant; ^p<.10; *p<.05; **p<.01

The abilities of Scholars have not gone unnoticed. In our national survey of guidance counselors, graduate school faculty in the GMS key fields, financial aid officers, college career center staff, university diversity and student affairs officers, and corporate campus recruiters, the majority of respondents considered "high achieving" to be the most commonly associated characteristic of GMS Scholars. When asked how GMS compares to other Scholarship programs in terms of prestige, across the sample the most common response was "more prestigious." In light of these survey results and the data on the GMS program's impact on postsecondary access and completion, it is understandable why the GMS program is viewed as a proven intervention. However, it is our contention that the program has not been successful in two areas of presumed importance to the Foundation—school choice and leadership development.

There are a number of actions the organization could take to maximize the return on its investment in the lives of high-performing, disadvantaged students to whom it awards Scholarships. In this concluding section, we first discuss the nature of the GMS program's untapped potential. Second, we suggest directions for the future, namely, how the program might capitalize on its growing prestige, operate more efficiently, increase its effectiveness, ensure its sustainability and advance its prospects for scalability across the GMS Constellation. Third and finally, we propose analyses to be conducted in the upcoming years to fully appreciate and confirm the impact of the GMS program and to inform the next ten years of the program's administration.

Untapped Potential

School Choice

We present the findings on the impact of the GMS program on access and opportunity with some reservation. In this study, access and opportunity were narrowly defined as enrollment in a top 10 US institution due in large part to the survey data limitations discussed in the methods section of this report. When we look then to implementation evaluation data, GMS progress in this area is less definitive. Data on the top 20 schools at which Scholars cluster corroborates the finding that the GMS program has impacted *access* to higher education for the target demographic groups. Since the program's inception, the institutions most commonly attended by GMS Scholars are considered Research Universities with Very High research activity (RU/VH) according to the Carnegie Classification System and/or Tier I schools according to the US News and World Report ranking system. Roughly 12 percent of Cohort 7 and 8 Scholars attend top ten US institutions of higher education according to the 2009 US News and World Report rankings. Table 12 lists the number of Cohort 7 and 8 Scholars attending these colleges and universities by Cohort:

Table 12. Cohort 7 and 8 Scholar Enrollment in Top Ten US Institutions

Top Ten US Institutions (Source: 2009 US News and World Report Rankings)	Cohort 7	Cohort 8
Harvard University	21	22
Princeton University	9	5
Yale University	12	20
Massachusetts Institute of Technology	20	14
Stanford University	33	22
California Institute of Technology	1	0
University of Pennsylvania	8	6
Columbia University	11	9
Duke University	9	12
University of Chicago	3	5
Total Scholar Enrollment	**127**	**115**
Percentage of Cohort Enrolled in Top 10 US Institutions	**12.9%**	**11.5%**

As displayed in Table 13 below, the majority of the 2008 – 2009 GMS institutions—the schools in which Cohort 7 and 8 Scholars enrolled in the greatest numbers—are classified as Tier I institutions on the US News and World Report Top Schools rankings:

Table 13. Cohort 7 and 8 Top 20 GMS Institutions

2008 – 2009 Top GMS Institutions	Cohort 7 and 8 Enrollment
University of California-Berkeley	82
Stanford University	55
University of California-Los Angeles	55
University of Texas at Austin	46
Harvard University	43
Texas A & M University	36
University of Florida	35
Massachusetts Institute of Technology	34
Yale University	32
Brown University	31
University of North Carolina at Chapel Hill	27
University of Oklahoma Norman Campus	26
University of Washington	25
University of New Mexico Main Campus	24
Arizona State University Main	23
University of California, San Diego	22
Duke University	21
Columbia University in the City of New York	20
Cornell University	20

2008 – 2009 Top GMS Institutions	Cohort 7 and 8 Enrollment
Spelman College	20
Northern Arizona University	19
University of Miami	19
University of Michigan-Ann Arbor	19
University of Southern California	19
Dartmouth College	18
Georgetown University	17
Baylor University	16
New York University	15

However, implementation evaluation data also strongly suggest that the GMS program may not be making a noteworthy impact on school choice. We believe that the GMS program has the latent capacity to expand the perceptions of high-achieving, low-income minority students about what kinds of schools are possible and attainable for them—what kinds of schools they may have the opportunity to attend by virtue of their excellent academic records and leadership potential. The GMS program is in a unique position to encourage Scholars to mindfully weigh the affordances of pursuing enrollment in certain types of educational programs over others given their long- and short-term needs, academic and professional goals, and social and intellectual interests. The GMS program has the untapped potential to influence Scholars' school choice.

Moreover, the GMS program has the potential to broaden Scholars' conceptions of what constitutes a "first choice" school. For instance,

Cohort 7 and 8 Scholars attending a top GMS and/or top 10 US institution represent less than half of the Cohort 7 and 8 Scholar population. The majority of the remaining Scholars attend less competitive colleges and universities. Given what we know about the academic potential of GMS Scholars, it is plausible that the schools that the majority of Scholars are choosing for themselves may not be the most opportune both financially and academically. By way of example, Table 14 compares those institutions that are increasingly enrolling the highest percentage of Pell grant recipients with institutions enrolling the highest number of GMS Scholars from Cohorts 7 and 8:

Table 14. Cohort 7 and 8 Scholar Enrollment in the Ten Institutions with the Largest Percentage Increases in Pell-Eligible Students

Institution	% Increase in Pell Grant Recipients[xxiii]	Pell Recipient Enrollment Ranking	# Cohort 7 and 8 Scholars	Scholar Enrollment Ranking
Harvard University (MA)	52.5	1	43	4
University of California-San Diego	42.9	2	22	15
University of Pittsburgh	40.4	3	2	35
Arizona State University	39.3	4	23	14
University of Denver	36.1	5	13	25
Loyola University of Chicago	33.2	6	4	33
University of California-Davis	32.5	7	9	28
Illinois Institute of Technology	31.0	8	0	-
University of California-Riverside	30.4	9	2	35
Brown University (RI)	29.1	10	31	9

Since the schools that are making the most concerted efforts to enroll Pell grant recipients are not necessarily enrolling large numbers of Scholars, it appears that school affordability is important but not necessarily the most instructive factor considered by Scholars when making their school choice.

Implementation evaluation data, particularly the most recent findings on Cohort 7 and 8 Scholars, make clear that the concept of a "first choice" school is a highly relative term. Generally speaking, Scholars appear to be happy with their college decisions, with 66.9 percent of survey respondents who are not attending a Top Ten institution indicating that they are attending their first choice school and less than a quarter (25%) of Cohorts 7 and 8 Scholars reporting that they would have chosen a different institution had they been accepted into the GMS program earlier in the college application process (Table 15):

Table 15. First Choice School

	Cohorts 1 and 2 (2000 and 2001)	Cohort 4 (2003)	Cohort 6 (2005)	Cohort 7 (2006)	Cohort 8 (2007)
Currently attending first choice college or university	N/A	N/A	71.3%	70.0%	71.1%
Would have selected a different school if they had received earlier notification of the GMS Scholarship	25.4%	33.6%	25.8%	23.3%	24.2%
Would have attended their first choice school if they had received earlier notification of the GMS Scholarship*	91.1%	65.9%	53.7%	12.0%	10.8%

*Percentage excludes Scholars who reported that they are currently attending their first choice college.

However, upon closer inspection, numerous questions arise. When Scholars report that they are attending their "first choice" school do they share a concept for a "first choice" or do they define such a school differently? Is a "first choice" school a Scholar's ideal or dream choice in a perfect world in which there are no constraints such as family expectations or geography? Is a "first choice" school the best of the handful of schools a Scholar was aware of during their senior year in college? Is a "first choice" school the first choice of the schools Scholars applied to as opposed to the schools Scholars *would have* applied to if they had received the GMS award prior to applying for college?

Cohort 7 and 8 focus group and survey data collected for the implementation evaluation concerning GMS program impact on college choice is mixed; nearly half of participating Scholars reported that they could not attend their first choice institution without the GMS award but Scholars attending the ten most competitive US institutions pursued enrollment in these institutions regardless of need. 44.3 percent (n = 434) of Cohort 7 and 8 survey respondents indicated that receiving the GMS

Scholarship affected their college decision. 46.9 percent (n = 459) of respondents indicated that without GMS, they would not have been able to attend their first-choice school. While GMS gave these Scholars access to their first-choice schools by removing financial barriers, other Scholars' school choices were not as significantly influenced by their award. When asked if they believed that they would have been able to attend their current schools if they did not have the GMS Scholarship, the majority of survey respondents indicated that they would have found other ways to finance their education. Just 10.9 percent (n = 107) of survey respondents "somewhat" or "strongly" agreed that they would not have attended college at all if not for the GMS program and just 14 percent (n = 137) indicated that they would have had to postpone college. Respondents would have worked full-time (43.7%, n = 428), worked part-time (77.1%, n = 755), participated in the work-study program (77.3%, n = 757) and/or taken out loans (76.3%, n = 747) in order to attend college. Among the twelve percent (n = 118) of survey respondents who are attending the ten most competitive US institutions, 65.6 percent (n = 76) said that receiving the GMS Scholarship had no affect on their college choice. This suggests

that students who pursue acceptance at competitive US institutions may pursue these colleges and universities regardless of their financial aid needs. Not surprisingly, these respondents are reportedly the most satisfied with their college choice. Nearly all (95.2%) survey respondents who are attending a Top Ten US institution are attending their first choice school and 74.8 percent of them expressed that they "strongly agree" that

they are satisfied with their college choice, compared with 64.8 percent of respondents who are not attending a Top Ten US institution (Table 16):
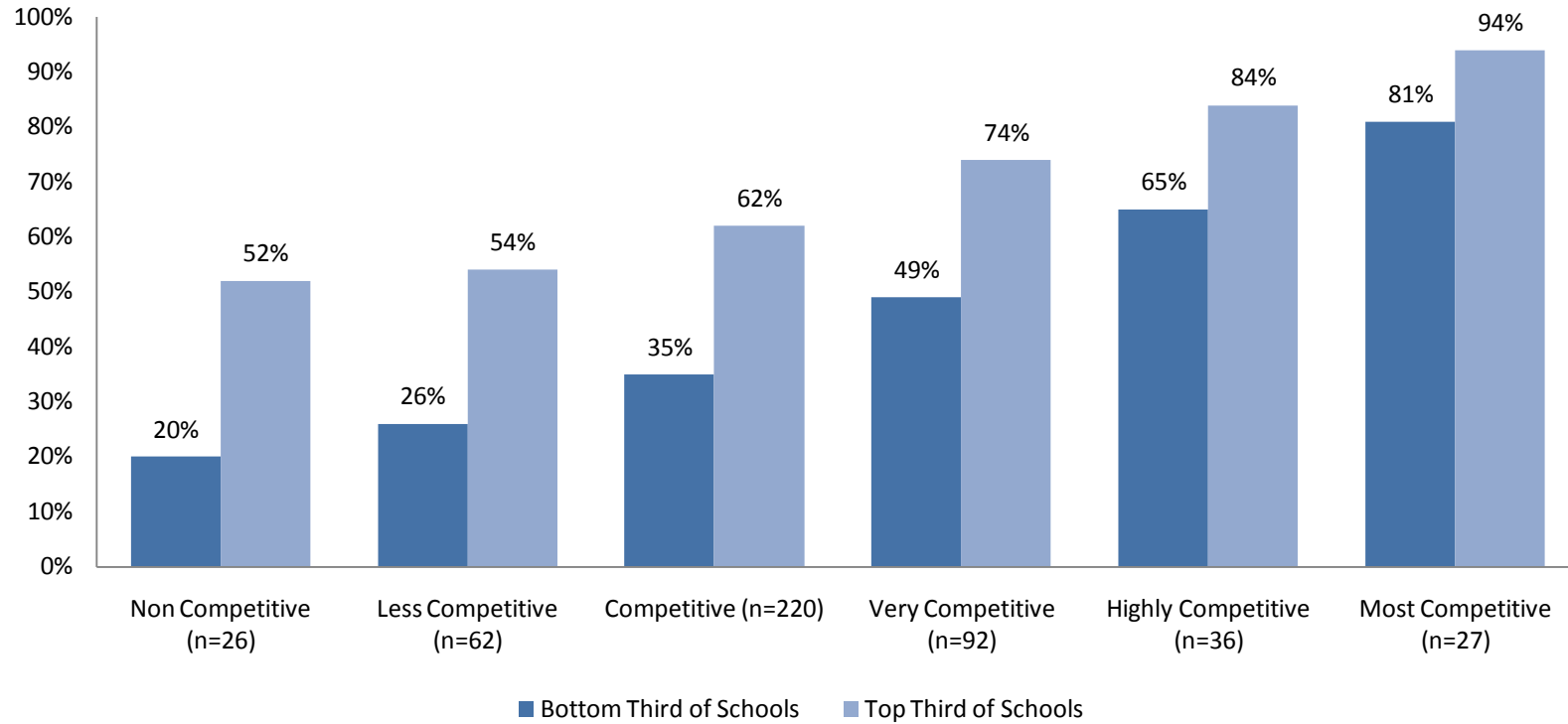
Table 16. College Choice by Type of Institution (Top 10)

	Attending a Top 10 US Institution	Not Attending a Top 10 US Institution
Receipt of the GMS Scholarship affected their college decision	34.4%	45.6%
Attending their first choice institution	95.2%	66.9%
"Strongly agree" that they are satisfied with their college choice	74.8%	64.8%

If Scholars were making the best decisions for themselves concerning school choice, one might hope that Scholar school satisfaction levels would be consistently high regardless of the type of institution. Instead, taken together these school choice data may imply that a large percentage of Scholars are "undermatching" their school choice. Undermatching, a term coined by the authors of the recently published book, *Crossing the Finish Line*, refers to occasions when a student elects to attend a school for which they are overqualified.[xxiv] While intuition may lead a Scholar to believe that doing this increases their chances for positive academic outcomes, this book and a study released this summer by the American Enterprise Institute argues alternatively that where students go to school matters.[xxv]

Stated simply, some institutions do a better job of retaining and graduating students than others. The graphic below illustrates that graduation rates tend to increase with a school's level of competitiveness. Here school competitiveness is defined by *Barron's* classification system which takes into account SAT/ACT scores, the percentage of freshman who ranked in the upper tiers of their high school class, minimum class rank and grade point average admissions requirements, and the school's acceptance rate:

Variation in Average Six-Year Graduation Rates within Barron's Selectivity Categories

Category	Bottom Third of Schools	Top Third of Schools
Non Competitive (n=26)	20%	52%
Less Competitive (n=62)	26%	54%
Competitive (n=220)	35%	62%
Very Competitive (n=92)	49%	74%
Highly Competitive (n=36)	65%	84%
Most Competitive (n=27)	81%	94%

■ Bottom Third of Schools   ■ Top Third of Schools

NOTE: n = number of schools per third in each selectivity category

SOURCE: 2007 Integrated Postsecondary Education Data System (IPEDS) and 2009 Barron's Profiles of American Colleges[xxvi]

Diverse Cadre of Leaders

Leadership development is an important aspect of the GMS program. GMS seeks students who have demonstrated leadership abilities prior to

college. The GMS program encourages Scholar participation in campus activities, community service and leadership roles through the GMS

Leadership Conference attended by Scholars at the beginning of their freshmen year, and by providing financial assistance allowing Scholars to devote fewer or no time to full or part-time work and more time to extra-curricular activities possible. Survey data of Cohort 7 and 8 Scholars suggests that Scholars are highly engaged in their campus with about 85 percent reporting that they are a member of an academic or social organization.

The impact evaluation indicated that even though Scholars had higher self-perceptions of their leadership potential than Non-Recipients, they were not more likely to hold a leadership position in a school organization. This may be because Scholars must demonstrate that they have leadership experience and that they value community service as part of the scholarship application process. This, coupled with the fact that there are limited opportunities for Scholars to participate in GMS-specific leadership development programming, may help to explain why there were few significant differences between Scholars and Non-Recipients on leadership outcomes.

Given program administration resource constraints—both human and financial—how to concurrently offer both leadership development programming and financial aid, particularly in a precarious economic climate, is a concern with which the GMS program continues to struggle. One finding that has been consistent across all cohorts evaluated is that Scholars are very pleased with the GMS Leadership Conference, appreciate the orientation, and generally leave feeling empowered and motivated. However, once they return to their respective campuses, there is little done to sustain the momentum of the Conference, leaving some Scholars feeling disconnected from other Scholars and the GMS organization as a whole. Many students also felt that they would have benefitted from an additional conference as they were nearing graduation.

"[I would like more] opportunities for leadership development for upperclassmen Scholars. The Conference we all attended as freshmen Scholars instilled us with the spirit of leadership but how many harnessed it and did something with it? Some of my fellow scholars at my university have done big things and we are organizing as a group and regularly checking things off our proposal for change. Yet there are other Scholars at my university who cash their scholarship check and go about their day. There should be a sort of follow-up conference where we can be held accountable and for those who have strayed, remind them of the potential they have to do something great."
**– Asian Pacific Islander American GMS Alumna**

The GMS program also strives to promote minority leadership in seven key fields of study—computer science, engineering, mathematics, science, education, library science, and public health—by offering funding to Scholars who pursue a graduate degree in these areas. The impact evaluation findings shared previously make clear that the GMS program has struggled to make a considerable impact on Scholars' career aspirations. Scholars were not more likely to major in a GMS key field than Non-Recipients. Furthermore, Scholars are not pursuing undergraduate or graduate study in these fields at exemplary rates. The program's goal is to encourage at least 35 percent of Scholars to transition into one of the key fields. This goal has not been met. As the following chart indicates, the percentage of students transitioning has increased since the start of the program but has consistently been below 25 percent. These numbers also appear to be declining but perhaps not surprisingly. GMS staff interviewed for the Cohort 7 and 8 implementation evaluation cited several strategies that they have been implementing to help address this issue, most of which are focused on providing information about the GMS key fields. However, at the time of the evaluation, it did not appear as if these

strategies were being implemented equally across the GMS partner organizations. Furthermore, the Scholarship accepts students regardless of their academic interests or intended major. Understandably, many Scholars enter college with interests outside of the key fields.

Chart 2. Percentage of Scholars Transitioning into a GMS Funded Field Overtime
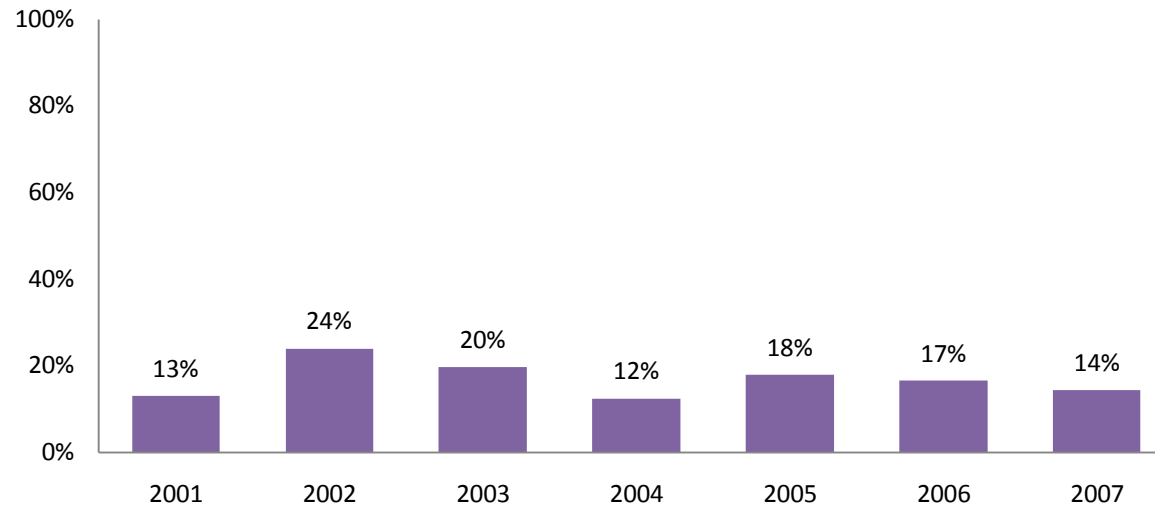
SOURCE: UNCF (GMS 2008 Program Performance Report)

Assuming the Foundation remains steadfast in its desire to enable a more representative and culturally-responsive pool of leaders to serve the nation, the GMS program is compelled to take more explicit and assertive action to encourage, prepare and incentivize Scholars to major as an undergraduate; pursue internship, fellowship and employment opportunities; and enroll in a graduate program in a GMS key field.

Our review of focus group data collected for each of the implementation evaluations conducted since the program's inception is unmistakable: the promise of funding for graduate school has not been compelling because lack of funding is not as great a deterrent to graduate school enrollment as is a lack of interest in specific fields. Cohort 7 and 8 focus group and

survey data revealed that students were motivated by the receipt of the Scholarship and felt a sense of responsibility to take advantage of the graduate school funding option. The challenge, then, presented to the GMS program is to take advantage of this willingness to continue on to graduate school by creating and growing interest in the GMS key fields where there is none.

Furthermore, there are racial/ethnic disparities in graduate school enrollment that should be addressed. American Indian/Alaska Native students from both Cohorts were not more likely to be enrolled in graduate or other post-collegiate studies. American Indian/Alaska Native Scholars reported high post-collegiate aspirations, yet were less likely than

their Scholar and Non-Recipient counterparts to be enrolled in graduate school. Given its resources, reach and prestige, the GMS program is uniquely poised to be a national leader in improving academic outcomes for this demographic group should it definitively and publicly respond to the call.

The "GMS Tax"

We believe that a key hindrance in the effort to ensure the continued success of the GMS program is inefficient resource allocation. The year one GMS program evaluation report suggested that last-dollar Scholarships are not necessarily an ideal form of financial aid writing that:

> GMS wants to supplement, not supplant, what the institution independently offers the GMS Scholar. But timing is everything in the process of packaging aid. Which dollars show up when can make a big difference in how and how much they ultimately benefit the student…Leave aside the conundrum, it is not at all clear that the last-dollar stance is the most constructive way to approach the complex equation of financial aid and achieve the stated goals of the GMS program. It may sound good in principle, but in practice last-dollar tends to strain relations with campus financial aid offices and puts undue pressure on the Scholar themselves (p.71).

Nearly a decade later, the problem persists according to Cohort 7 and 8 implementation evaluation focus group data. Scholars attending five different universities, each of which are one of the top 20 GMS institutions, claimed that previously awarded institutional grants were reduced and/or entirely supplanted with GMS funds by their financial aid offices without providing revised documentation to the Scholar. These Scholars reported that, in turn, they were not able to request adjusted awards from GMS. Consequently, these Scholars claimed that they were billed the balance on their accounts, denied work-study participation, their Expected Family Contribution increased, their summer contribution increased, and/or they had to take out a non-need-based or private loan to cover the unanticipated difference. Supplanted funds are essentially a "tax" on the Foundation's charitable dollars for which the GMS program and Scholars get little in return in the form of GMS-specific programming or faculty sponsorship of GMS-related campus activities and/or public recognition of GMS awardees.

> **"Yes. If we received a GMS scholarship for a student and they were at their need already, we would reduce grant and/or loan money with the GMS funds."**
> **– Financial Aid Officer, Texas A&M**

> **"For students that are on financial aid…there are 2 affected areas. First, the student's self-help amount and…freshmen have a set self-help amount and upperclassmen have a set self-help amount. An outside award that comes in would zero that out and once that is zeroed out… each student has a summer expectation amount…and there is a freshman, sophomore, and junior/senior amount…so that is the second area that is affected by outside scholarships and once both of these areas have been zeroed out. Then outside funding starts to wipe out Harvard grants dollar for dollar."**
> **– Financial Aid Officer, Harvard University**

More than 78 percent of Cohort 7 and 8 Scholars who participated in the implementation evaluation online survey reported that they had received notice that they had been awarded a GMS Scholarship more than three

months before starting college. This finding is important given that over 43 percent of these respondents also reported that receiving the Scholarship impacted their college decision. Alternatively, it is also important to note that the majority (57%) of survey respondents indicated that receipt of the Scholarship had no bearing on their decision. Moreover, over two-thirds of Cohort 7 and 8 Scholars reported receiving other Scholarships in addition to the GMS award. Even when financial needs were met by the GMS program or other sources of funding, the majority of survey respondents reported that they still elected to work at least part-time. Expended scholarship funds that do not meet the desired GMS program effect are lost, perhaps even wasted dollars. With the GMS tax and the previously raised concerns about the program's untapped potential in mind, it is our recommendation that the GMS program consider reallocating its resources in favor of a more efficient model so that program funds and the efforts of GMS and partner organization staff are not directed in areas in which the program is realizing little to not impact.

Recommendations for Efficiency, Effectiveness, Sustainability and Scalability

The authors of the year one evaluation report on the GMS program wrote:

> *Our assessment is that the GMS program is helping in the financial aid equation, but it would likely be more successful in meeting its goals if the program were structured differently. GMS awards are surely easing the burden of college costs for deserving young Scholars, but the program has not nearly maximized the impact it could have for the money expended. GMS can and should become a far greater force in expanding access and assuring freedom of choice in American higher education (p.69).*

We likewise recommend that the GMS program consider restructuring the program. Specifically, we suggest that the organization reallocate its financial and labor resources in favor of a more efficient program implementation model the core features of which could include 1) early Scholar identification; 2) early, on-going, embedded and differentiated programming; 3) loan repayment incentives; 4) targeted retention services; 5) Scholar community building; and 6) door-opening relationship building. The GMS Program is already taking significant steps to strengthen the program in ways that are consistent with some of the following recommendations to some extent. In these cases, our commentary is merely offered to commend, recount the rationale for change, and reinforce the importance of this work.

Early Scholar Identification

Identify Scholars during their junior year in high school. The affordances of doing so are at least two-fold. First, it gives the program the opportunity to help Scholars identify, consider the pros and cons of a range of school financing options (e.g. types of loans, loan repayment programs such as the *Princeton Scholars in the Nation's Service*, federal work-study, public and private grants), and secure funding from sources other than the Foundation. Although high school guidance counselors are becoming increasingly savvy about navigating disadvantaged students through the

financial aid process, research has demonstrated that low-income students are among the least informed about financial aid options and are more likely to seek private loans to pay for college or not borrow at all[xxvii]. Roughly 16 percent (n = 157) of Scholars that participated in the Cohort 7 and 8 implementation evaluation online survey expressed dissatisfaction with the timing of their awards explaining that earlier knowledge of the Scholarship would have impacted to which colleges they applied. The majority of these respondents explained that they limited their applications to schools that they felt were more affordable.

Maybe if the award process and notification came before actually applying to school, that would be better, I think, for me, so I would have been applying to more private schools, especially out-of-state schools.

– Cohort 7/8 Scholar Online Survey Respondent

I think that students should be notified as soon as possible. Because from experience especially coming from a single-parent home where every penny counts some students are going to

think about the survival of their families before applying to their dream college of their choice.

– Cohort 7/8 Scholar Focus Group Participant

Two, early identification allows the GMS program to help inform, broaden and shape Scholars' school choice. Cohort 7 and 8 focus group data suggest that for many Scholars, the universe of potential institutions worth applying to was narrow. Hispanic American and American Indian/Alaska Native focus group participants in particular reported that the GMS Scholarship made the difference between applying to a community college and a state school. Even with family support and approval, it was not uncommon for these Scholars to report that it did not occur to them to apply to schools outside of their local area or state because of a lack of knowledge about what opportunities were available to them. If your guidance counselor's office does not post brochures from top US universities and there is not a culture or history of graduates of your high school attending such institutions, why would you necessarily believe that enrollment in a highly selective institution is within your realm of possibility unless convinced otherwise?

Early, On-going, Embedded and Differentiated Programming

Consider shifting the administrative focus of the program from award disbursement to educational and leadership development programming that begins as early as Scholar's junior year in high school. Relative to other Scholarship programs, roughly half of GMS Scholars perceive that other programs provide better programming. Although viewed as more prestigious than other Scholarship programs, less than 50 percent of Cohorts 7 and 8 Scholars who participated in the implementation evaluation rated the GMS program as "somewhat" or "much better than" other Scholarship programs in the areas of professional and career development, facilitating peer networks, acclimating Scholars to campus

life, and demonstrating a sensitivity to Scholars' diverse cultural values. Barely 50 percent of Scholars rated the GMS program as providing better leadership development programming than other Scholarship programs. Scholars reported few GMS-sponsored leadership development opportunities beyond the Leadership Conference and reported low satisfaction with the availability of GMS-sponsored academic and social supports especially for first-generation college students.

While it is clear that the scope of the scholarship program (thousands of scholars spread out across the country) presents legitimate logistical and

financial challenges to providing leadership activities beyond Scholars' initial year in the program, an examination of data from current and previous evaluations reveals that additional issues persist among program and partner organization staff. These concerns include:

- ☐ Uncertainty about what culturally-appropriate leadership development should look like,

- ☐ No mechanisms in place to systematically track the differential leadership development activities of GMS and partner organization staff,

- ☐ No mechanisms in place to systematically monitor Scholar leadership development participation outcomes over time including the identification of appropriate metrics,

A lack of clearly defined, measurable outcomes makes it difficult to assess GMS impact on leadership development and may be masking potential positive effects.

Over the life of the program, Scholars who have participated in implementation evaluation focus groups have routinely asked for programming that goes beyond leadership development and is specific to their concerns at different stages in the academic life.

"Since GMS pays for a PhD, I got really involved with trying to help students through the graduate school application process. We started a club called the Association for Potential Doctors (PhD) in Science to help students find research opportunities. We've conducted the following workshops: How to Get Into Summer Research Programs, How to Write a Personal Statement/CV, and Post-Baccalaureate Research Programs."
– Hispanic American GMS Alumna

Scholars have expressed interest in programming on such topics as managing personal finances during college, financial literacy for life after college, academic survival and study skills, academic and career goal setting and planning, the transition to college, and business and social etiquette.

Such opportunities could be offered virtually as well as annually on a national or regional level in a GMS institute or academy setting in a manner that is progressive and differentiated by a Scholar's stage in the program. For instance, programming during a Scholar's freshman and sophomore years in college when they are exploring major field options could include GMS key field immersion activities such as local job site visits, GMS-sponsored summer internships, and speaking engagements led by industry leaders and GMS alumni for which they discuss what they enjoy about their profession and what underrepresented minorities and women have to uniquely offer their fields.

Programming offered at the beginning of Scholars' senior year in college could be designed as a call to action arming and tasking them to change the world. Additional workshop topics could include finding a job, making the most of the graduate school experience, and how to position oneself as a leader in the community and workplace.

Extending some of this programming to an online environment in the form of interactive career planning tools, video recordings of leadership conference events viewable online or downloadable as podcasts, webinars and webinar archives, and virtual Ask the Expert forums moderated by GMS alumni, for example, would allow the Foundation to reach a larger group of high-achieving, low-income minority students. Additionally, technology could be leveraged to showcase the career trajectories and achievements of current Scholars and alumni in a searchable database of profiles akin to the profile below:

Kabria Baumgartner (née Anderson)

Where FROM?

Kabria is a native of Los Angeles, California. She attended UCLA where she received her Bachelor of Arts in English Literature and a Masters degree in Afro-American studies. She them moved to Berlin, Germany for 2 years and enrolled in the British Studies program at the Humboldt University of Berlin where she studied politics, economics and British law.

Where NOW?

Kabria is currently a fourth-year doctoral student at the University of Massachusetts, Amherst. She is pursuing a degree in Afro-American Studies along with a certificate in Women's Studies. Her primary research interest is 19th century African-American history:

"What I am studying are the experiences of African-American female slaves. My PhD is going to be in African American studies but I am also getting a certificate in Women's Studies. So what I like about it is that there is all this theory looking at the intersection of race, gender, sexuality, class, and religion. I think that is really important because for so long there were few studies on enslaved African-Americans. No one really talked about it. I think that now there are a lot of interesting studies on that history, so it is very rich but there are still things that have not been analyzed, written or discovered and I think that is what I find most exciting about African American studies and African- American history. I think that I can contribute to this."

In addition to her academic pursuits, Kabria is involved in several community service activities including: counseling disadvantaged high school students and teaching a course for Latina and African-American students.

ADIVCE for Current Scholars

☐ Take advantage of university orientation programs
☐ Take advantage of campus resources and programs. If possible get involved with programs geared towards minority students. It is helpful to have that sense of community on predominantly white campuses.
☐ Be flexible about your career decisions:
   "I would be cautious about being tied to one particular career but I would say that you should not give up just because it may seem challenging at first"

☐ Build relationships with your professors – Find a mentor

Undergraduate ACTIVITIES...

…that helped prepare her for graduate school:

☐ College Honors program
☐ Writing and Senior Thesis
☐ Academic Advancement Program
☐ Working at the writing center and as a bibliographer
☐ Service learning activity (counseling high school students about college)

Loan Repayment Incentives

Replace last-dollar funding with loan repayment incentives. Such incentives could be designed as contingencies including entering graduate study or employment in one of the GMS fields, completing college within four years, working for a community-based organization, running for public office and/or working in the public sector (e.g. $3000 for enrolling in a Masters program in a key field, $5000 for forming a non-profit advocacy organization). Scholars who pursue a career that is not aligned with the GMS key fields and/or highly compensated would be eligible for fewer GMS loan repayment dollars.

Presumably, there are substantial labor costs associated with providing last-dollar funding in lieu of loan repayment incentives such as managing the renewal process (e.g. processing paperwork, answering Scholar questions via phone and email, working with financial aid officers to resolve check processing errors), and calculating Scholar awards and

resolving subsequent Scholar appeals. For the Cohort 7 and 8 implementation evaluation, program staff at UNCF acknowledged significant issues in the underlying systems that were in place to process and mail student funds. It was reported that the process was streamlined and in 2008 the turnaround time from the time students submitted complete paperwork to the time checks were mailed out, was reduced from two to three weeks to approximately 72 hours but these are 72 hours that could be spent on administrative activities that have a greater impact on the desired outcomes of the GMS program. Resources once devoted to providing "last dollar" Scholarships to Scholars can be reallocated to programming and services designed to support postsecondary completion and leadership development. While a loan repayment incentive program is not devoid of labor costs, it can nonetheless present significant cost savings over the long-term that can be redirected to more fruitful endeavors.

Targeted Retention Services

Provide targeted retention services to Scholars identified as at-risk for deferring or dropping out of school particularly during the first-year of college and with a particular focus on first-generation college students. Summerbridge or summer bootcamp programs are common at the secondary level to help students make the transition from middle to high school and from the freshman to the sophomore year. These programs have served as useful models for similar programs now in place at colleges that have instituted student retention teams to improve the first year college experience for students who enter college unprepared for the rigors of higher education. The GMS program could offer its own summerbridge experience for matriculating Scholars.

Additionally, the program could consider establishing a "Case Manager" and/or Campus Liaison System. Cohort 7 and 8 Scholars expressed a desire

for a contact person that would check up on them regularly. The Scholars reported that communication with GMS is presently sporadic. They would like to have more contact with a counselor or advisor that could answer their questions and speak to their personal concerns. They recommended that this person should be completely knowledgeable about GMS and the way the program works. The Scholars would also like for GMS to make it more clear what services are available and what types of assistance they can access. A case manager would be available to answer questions electronically (e.g. via Instant Messenger during work hours) or by phone.

Although receiving the reward is largely regarded as reducing or eliminating financial barriers to college, Cohort 7 and 8 implementation evaluation focus group participants have consistently reported, in not insignificant numbers, that they nonetheless face financial challenges that

prove more taxing than concerns about paying tuition such as health care, travel costs for those attending schools that are far from home, food, rent, local transportation and books. One Scholar reported being so cash-strapped that she chooses her classes according to the cost of each course's books.

> "I think they should cover things differently if you get a full ride like I did. I didn't have loans or gaps in my aid. I needed money for stuff that goes in my dorm, living expenses, that sort of thing. The award makes sure that I don't have to work for work study… but I don't receive that total amount anyway, and that refund goes towards books, flying back home for Thanksgiving and Christmas, not living expenses. They should give money directly for books. My mom doesn't have any money for my school, I pay for everything myself. Usually I work during the summer so that I can focus on my schoolwork during the year. College is about more than studying. Being involved on campus costs money." – African American GMS Alumna

As well, it is likely that an increasing number of students will encounter more financial hardships as their families experience the pressures of the current economic crisis reinforcing the need to provide Scholars with retention services designed in part to alleviate financial anxieties that are associated with everyday living expenses.

Higher-income students can typically rely on family members to help them through challenging or unanticipated financial situations but Scholars often come from families that are unable to fulfill the federal Expected Family Contribution let alone support their children through difficult times such as a family illness that requires a sudden and costly trip home. The GMS program might consider earmarking a certain amount of money for each Scholar to be disbursed directly to the them on a case by case basis in the form of transitional (e.g. purchasing a computer, dorm room essentials, or covering a university student health plan fee), travel (e.g. funds for Scholars attending out-of-state schools), and emergency aid. Receiving such aid may make the difference for some Scholars between remaining in college and dropping out when responding to daily burdens becomes too overwhelming.

Scholar Community Building

Establish formal and user-friendly mechanisms—virtual, material and programmatic—for supporting Scholar community building. Cohorts 7 and 8 Scholars spoke of feeling isolated and disconnected from GMS after the Leadership Conference attended during their initial year in the program. Focus group participants also cited feelings of being disconnected from the other Scholars on their campuses—students who can relate to their insecurities and provide peer support during the transitional period. Survey data confirmed this indicating that less than 50 percent of survey respondents believe that GMS facilitates communication between Scholarship recipients better than other award programs. Focus group

participants suggested that this is the case because Scholars do not know who the other Scholars on their campuses are unless they meet them by chance or at the Leadership Conference.

> **"I believe that if GMS set up some kind of community GMS group in each university, the Scholars would feel more of a connection with one another. The Scholars would have an opportunity to interact with other Scholars on a more personal level and would be more likely to turn to each other for help or even friendship. College is intimidating for freshmen... if they are given an opportunity to feel part of a group of people with something in common they can make friends and influence one another to do well in school." – Hispanic American GMS Alumnus**

Moreover, Scholars expressed a desire to look to alumni as mentors but are concerned about the limited means by which they can identify and contact them. Informal alumni interviews conducted in the spring of 2009 to complement the implementation and impact evaluations revealed that Scholars had graduated and were successfully pursuing diverse career and educational opportunities. All alumni interviewed also expressed an interest in giving back to GMS by reaching out to current Scholars. GMS would benefit significantly from increased alumni engagement (Table 17). If utilized effectively alumni can serve as a key resource in promoting the sustainability of the program by:

☐ Expanding outreach efforts to ensure that the program targets as many eligible Scholars as possible;

☐ Providing support for Scholars to encourage persistence and postsecondary completion;

☐ Raising the overall prestige of the Scholarship as alumni take on increasingly visible leadership positions; and

☐ Creating a culture of giving back that once established will continue beyond the life of the Scholarship.

**Table 17. Using Alumni to Promote Program Sustainability**

Access and Opportunity	Postsecondary Completion	Diverse Cadre of Leaders	Prestige
▪ Alumni serve as GMS Ambassadors and reach out to potential Scholars to tell them about the Scholarship and the opportunities available	▪ Alumni serve as mentors and as a resource providing support and advice about navigating through college and on campus to help encourage persistence and completion especially for first-generation Scholars ▪ Alumni serve as a resource for providing information about graduate school or careers	▪ Alumni share their graduate school and professional experiences to promote Scholar engagement in the GMS key fields ▪ Alumni encourage Scholars to pursue leadership opportunities by sharing their experiences as leaders in their school, community and workplace	▪ Highlighting alumni accomplishments in academics, the workplace and in civic positions for current and potential Scholars as well as the general public

Door-Opening Relationship Building

Develop relationships with graduate school faculty in the key fields, career counselors and corporate recruiters. As the GMS program gains popularity and its Scholarship recipients are increasingly viewed as exceptional students and leadership candidates, it behooves GMS to encourage the individuals, organizations and institutions who can open professional doors for the Scholars to offer GMS-specific recruitment events, internship opportunities, speaking engagements, and mentorship programs. As stated previously, the most common response among the respondents on the education institution online survey was "more prestigious" when asked how the GMS program compares to other Scholarship programs.

Percentage of Survey Respondents Who Believe the GMS Program Is "More Prestigious" Than Other Scholarship Programs
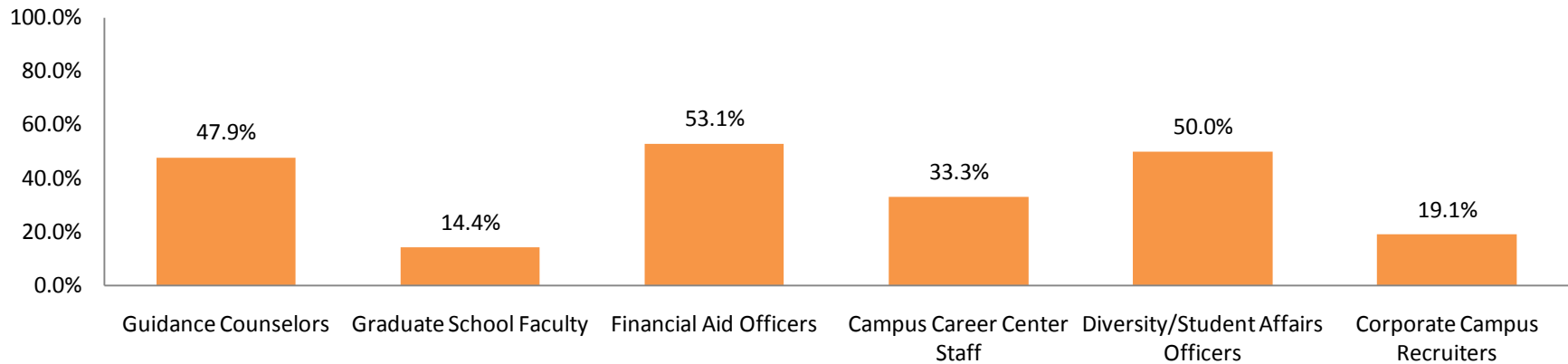
However, less than 20 percent of corporate campus recruiters, 15 percent of graduate school faculty in the GMS key fields, and 34 percent of campus career center staff share this belief. This is not surprising given that the program has not taken specific efforts to market the program to these respondent groups. We, nonetheless, view addressing such disparities in familiarity with and perceptions about the GMS program as an idle opportunity that can open professional doors for Scholars. For instance, 57.4 percent of the campus corporate recruiters reported that their organizations have diversity and/or minority recruitment initiatives in place. Why not encourage these recruiters to set their sights on GMS Scholars and alumni? 6.7 percent of graduate school faculty reported that they have specifically recruited students from the GMS program. One faculty member even indicated that he/she specifically reaches out to American Indian/Alaska Native Scholars. While this percentage is humble, it suggests that graduate faculty are open to targeted minority recruitment efforts. Why not encourage more graduate programs to target recipients

of the GMS award? Forming such relationships at the top 20 GMS institutions, the top 10 graduate programs in each of the key fields, and the top organizations heavily employing graduates in each of the key fields is a reasonable objective for the next ten years of the program.

Future Areas of Inquiry

To close, we have provided a list of potential research questions the Foundation may wish to explore. The answers to these questions can support future strategic planning and progress for the GMS program:

☐ **Resource Allocation:** Conduct a cost-effectiveness or cost-utility study of the program's existing resource allocation model which leans heavily on providing financial supports. This analysis should include a valuation of the GMS "tax" and an assessment of how the tax can be reduced. Contrast this with analyses of alternative resource allocation models which place a higher priority on programming.

☐ **Institutional Clustering:** Explore the factors that contribute to the institutional clustering of Scholars. How do the experiences, academic, leadership and career outcomes of Scholars at the top GMS institutions differ qualitatively and quantitatively from Scholars who do not attend these institutions? How does the type of institution (e.g. Carnegie RU/VH, US News Tier 1, top 10, HBCU) relate to Scholar characteristics (e.g. gender, race/ethnicity, geographic origin)? What are the differences within and between groups in terms of where they tend to cluster? If so, why do the GMS students cluster at these institutions? Are their institutional best practices in place?

☐ **School Choice:** To what degree are Scholars "undermatching" their school choice? Do the types of institutions (e.g. highly selective, less selective) that Scholars attend differentially affect completion rates? What factors do Scholars consider when making their choice? Is it cost, word-of-mouth, geographic proximity, the reputation of a given institution? What are the implications for the GMS program should it take steps to influence Scholars' school choice?

☐ **Outcome Disparities:** Investigate the between group outcome disparities among the Scholars. What more can be done to close the outcome gap between American Indian/Alaska Native Scholars and their African American, Hispanic American and Asian Pacific Islander American peers?

☐ **Workforce Participation:** Analyze GMS longitudinal survey data to understand the workforce participation patterns of Scholars relative to Non-Recipients. Are Scholars pursuing a career in key fields at higher rates? What are the emerging patterns of career choice for GMS undergraduate and graduate completers? Does GMS funding and/or debt burden influence the types of careers students chose? Are initial positions related to majors and/or prior work or internship experiences? Are there different patterns based on gender and/or race/ethnicity? Are Scholars providing increased diversity in the workplace?

☐ **Leadership and Civic Engagement:** Analyze GMS longitudinal survey data to understand the leadership activities and civic engagement of Scholars beyond college. Are Scholars more likely than Non-Recipients to hold democratic values, to be engaged in the civic life of their communities and the larger society, and/or to become leaders in their communities and the larger society? How can the GMS program capitalize on the leadership activities of

Scholars to extend program effects to high-achieving, minority

students who have not received the GMS award?

Delivering on the Promise

In a nation where today's students are less likely than their parents to graduate from high school[xxviii], it is disheartening to recognize that most middle-class jobs require a bachelor's degree or higher. Yet, the national college retention rate is lower now than it has been in 25 years, with 65.7 percent of college freshman returning as sophomores for the 2007-2008 school year.[xxix] Financial barriers are partially accountable for rising attrition rates so there remains an urgent need for continued efforts on the national, state, institutional, and philanthropic levels to remove these barriers for underrepresented students. The GMS program is an exemplar in this philanthropic arena.

Postsecondary access and completion are two stars that shine bright on the GMS Constellation. The GMS Program has mastered the art of identifying emerging talent from low-income, minority communities. As it enters its tenth year of operation, the number of nominees and submissions to the GMS program has increased steadily over the life of the program and continues to grow as knowledge of the program spreads throughout the country. For example, 19,144 students submitted applications for the Scholarship in 2006. Just two years later the total number of submissions exceeded 38,000. Our evaluation efforts have indicated that Scholars selected from these applicant pools have

significantly better academic outcomes than comparable high-achieving minority students who did not receive the Scholarship. Whether discussing the inaugural or current cohorts of the GMS program, Scholars enroll in top US colleges and universities in significant numbers and the majority of the top 20 GMS institutions are Tier 1 institutions. This impact evaluation confirms that Scholars are more likely than Non-Recipients to be on track academically and be enrolled in graduate school.

The GMS program is progressing towards its short- and long-term goals in earnest but we have also suggested there that there is still much work to faithfully honor the GMS program's vision for a diverse body of leaders to serve local communities, academia and the global marketplace in the GMS key fields, and in government. In so doing, the GMS program will continue to be the staunchest advocates for the academic potential of low-income students of color who hail from under-resourced, low-performing schools. The GMS program has proven that observed positive academic outcomes for disadvantaged students are not statistical anomalies. Instead, they are the anticipated outcomes when those with the means respond with their charitable giving to the belief that all students—regardless of background—should have equal opportunity to an economically viable and vibrant career.

Appendix A

Description of Outcome Measures

On-track academically: Graduated college, or is on track to graduate from college (i.e., is still enrolled).
SOURCE: Second follow-up survey
SURVEY QUESTIONS:
1) Did you complete your undergraduate degree? (Response options: yes/no)
2) In April … were you enrolled in an undergraduate program? (Response options: undergraduate, graduate)

Majored in one of the GMS key fields of study
SOURCE: Baseline, First Follow-up Survey, Second Follow-up Survey
Survey participants reported their major in the baseline, first follow-up, and second follow-up surveys. For this outcome, we combined the results across the three surveys and recorded the last major reported as their major. For the outcome analyses, we collapsed the seven key fields of study (math, science, computer science, engineering, library science, education, and public health) into one category "key field of study."

Attending graduate school
SOURCE: Second Follow-up Survey
Students still enrolled as undergraduates were excluded from analyses of this outcome.

Aspires to attain a post-baccalaureate degree.
SOURCE: Second Follow-up Survey
SURVEY QUESTION: Now thinking about the future, what is the highest degree you expect to receive? (Response options post-baccalaureate certificate, Masters degree (MA, MS, MBA, etc), first professional degree (M.D., J.D., D.D.S., O.D.), Doctoral degree (Ph.D., Ed.D., D.P.H., etc.) were collapsed and counted as "aspiring to attain a post-baccalaureate degree.")

Leadership Index
A Leadership Index was created using the following four survey questions:

1) I feel comfortable being labeled the "leader" in a group setting.

2) I believe I am destined to be a leader.

3) Others typically perceive me to be the leader in a group setting.

4) Others look to me for direction and example.

Respondents rated the leadership items on a one to four scale where one indicated "strongly disagree", two indicated "disagree," three indicated "agree," and four indicated "strongly agree." The item responses were summed to create a score with higher scores on the Leadership Index indicating stronger leadership qualities. The resulting Index had high internal consistency (Chronbach's alpha = .86 in Cohort 1, .87 in Cohort 2, and .85 in Cohort 3).

Currently holds a leadership position in a cultural or community group.
SOURCE: Second Follow-up Survey
SURVEY QUESTION: Do you hold a leadership position in a cultural or community group? (Response options: yes/no)

Currently holds/held a leadership position in school
SOURCE: Second Follow-up Survey
SURVEY QUESTION: Do/Did you hold a leadership position in school? (Response options: yes/no)

Appendix B

Propensity Score Results

The non-comparability of Scholars and Non-Recipients at baseline could introduce selection bias invalidating the results if not taken into account. To compensate for the baseline differences we used propensity score methodology to achieve comparable groups. This approach allows us to compare the outcomes of Scholars and Non-Recipients who were similar on key pre-intervention/baseline variables. All variables included in the propensity models are pre-intervention variables, meaning that they were observed before the individual was designated to receive the Scholarship or be in the non-recipient comparison group. The variables included indicate socio-demographic characteristics and academic preparedness. Baseline variables with less than 10% missing were imputed to increase the sample size for the propensity score modeling. The imputation resulted in a larger sample size that than reported previously (April 6, 2009 Data Snapshot). Additionally, we obtained larger matched samples as a result of applying a slightly higher tolerance level (.30 vs. .25) in order to match more cases.

Approach

The purpose of this project was to address the question of whether GMS Scholars performed better than Non-Recipients on educational outcomes – graduation rate, educational aspirations, and post-baccalaureate school enrollment – and leadership outcomes – taking on leadership roles in school and community organizations. In order to answer these questions, we applied a methodology that allowed us to compare similar students who received the GMS Scholarship with those who applied but did not receive the Scholarship.

In order to estimate the "true" effect of the GMS Scholarship on the educational and on leadership outcomes, the ideal scenario would be to observe the same individual as a Scholar and as a Non-recipient and to compare his or her outcomes. This is impossible – no individual participates in both groups simultaneously. We can only observe the outcomes of those students who either received the GMS Scholarship (treatment group D=1) and those who did not (control group, the Non-Recipients, D=0). Therefore, we need to estimate the unobserved outcome, called the counterfactual group (Roy, 1951; Rubin, 1974).

To estimate the unobserved outcome, the expected educational and leadership outcomes of Non-Recipients had they instead received the GMS Scholarship (Y_0 | P=1), we applied a propensity score matching (PSM) approach. The main principle of PSM is to identify GMS Scholars who have similar characteristics to those students who did not receive the Scholarship. It is essential to have students with a similar likelihood of receiving the GMS Scholarship that did not receive it in order to be able to estimate accurately the effect of the GMS Scholarship (Rosenbaum and Rubin, 1983). In order to identify similar students, we calculated the students' probability of being a GMS scholar using a logistic regression that includes characteristics of the student.

In summary, PSM allows us to compare people who were granted the GMS Scholarship versus those who did not obtain it but who are as similar as possible to the GMS Scholars in certain observed background characteristics.

The first step was to estimate the probability of an individual of being a GMS scholar. We estimated this probability with a logistic model that only takes into account variables that are not affected by whether the individual is a Scholar or not. In this case, we selected variables from the UNCF baseline data, collected at the time of the application, and from the NORC baseline survey. All of the variables selected are pre-treatment, meaning that they were observed before the individual was selected or not to be a GMS scholar. The variables selected encompass individual, family, and school characteristics. Individual characteristics included sex, race/ethnicity, year of birth, and academic preparedness (number of mathematics and science taken in high school, number of advanced placement exams taken, and standardized SAT or ACT scores). Family characteristics included mother's education, father's education, family income, family home ownership, and family size (all at the time of the student's high school graduation). Lastly, school characteristics included whether the student's high school was private or parochial and whether the majority of the student body was similar in ethnicity to the individual. Frequencies of these variables can be found in Appendix B.

Prior to conducting the propensity score analysis, we imputed values missing on the baseline covariates used to create the propensity score (those listed in the previous paragraph). Variables missing less than 10 percent of values were imputed by taking the mean value of the respective variable for groups of participants stratified by sex and race/ethnicity. For example, a missing value for an African American female was imputed as the mean value of the variable for African American females who provided data.

The second step was to create matched samples (a Cohort 2 sample and a Cohort 3 sample). This involved selecting individuals – Scholars and Non-Recipients – who were similar from both groups based on their probability of receiving the GMS Scholarship. We used a one to one matching strategy and we assured that the matching was done within a region of common support. In other words, only individuals who overlapped from both groups were considered. The students were matched using a "nearest neighbor[1]" approach whereby for each Scholar, the Non-recipient with the closest propensity score was selected as a match. The match must be within a certain range, or caliper (Dehejia and Wahba , 2002). The caliper was set at 0.3. Scholars without a "nearest neighbor" match within the 0.3 caliper were dropped from analyses because no suitable control was available for them. The matching model we estimated was the following:

$$P_i = 1 \mid X = \frac{1}{1+e^{-f(x)}}$$

where f is a function defined by f = (individual characteristics, family characteristics, and school characteristics).

Our model for Cohort 2 was able to predict correctly on average 70 percent of the cases, and for Cohort 3 66 percent. For both Cohorts 2 and 3, the logistic model is statistically significant (p<.001) indicating that the estimated model fits better than an empty model, in other words that there is a significant relationship between the outcome and independent variables. There was substantial overlap between Scholars and Non-Recipients, as can be observed in the graphs below.

Figures B.1 and B.2 present the distribution of the likelihood of being a GMS scholar. In other words, it shows the propensity matching scores of receiving the GMS Scholarship separately for students who got the Scholarship and those who did not. The figures show that for both Cohorts 2 and 3, there is a good overlap and that most of the students are concentrated within the ranges of 0.4 and 0.8. There were on average for both cohorts 45 cases

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[1] The nearest matching is done in Stata based on a program by E. Leuven and B. Sianesi (2003). "PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing". http://ideas.repec.org/c/boc/bocode/s432001.html.

below a propensity score of 0.2 and 10 cases above 0.9. Therefore, we have a small proportion of cases at the extremes.

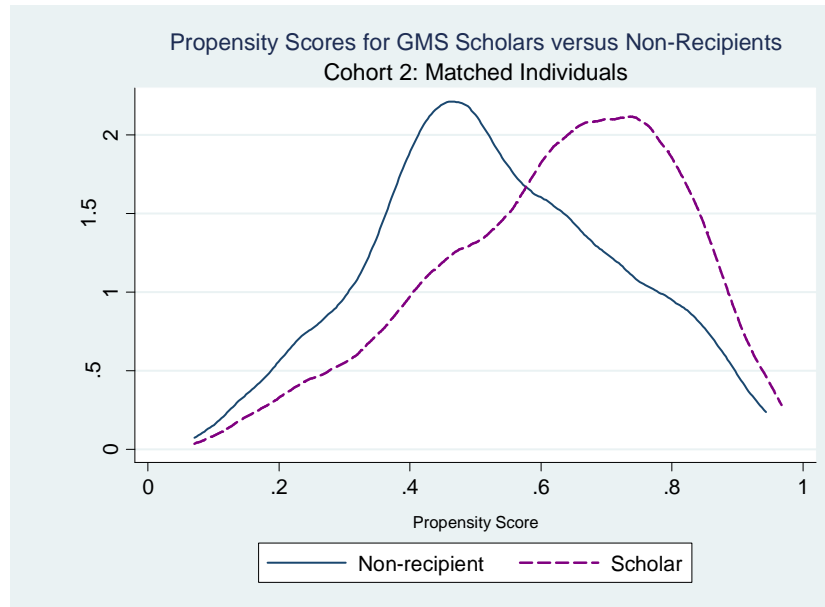**Figure B.1 Distribution of propensity scores, Scholars and Non-Recipients, Cohort 2**
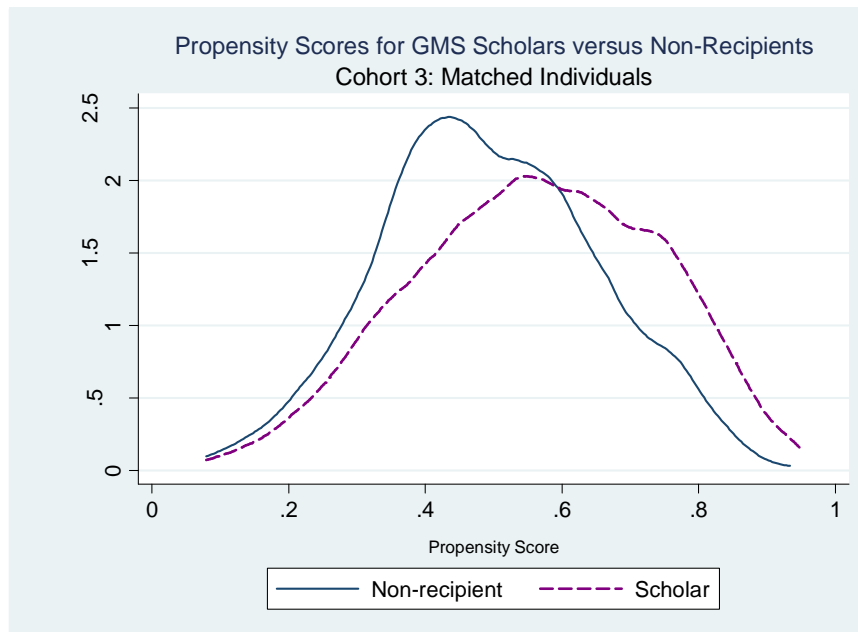

Propensity Scores for GMS Scholars versus Non-Recipients
Cohort 2: Matched Individuals

Figure B.2 Distribution of propensity scores, Scholars and Non-Recipients, Cohort 3

Propensity Scores for GMS Scholars versus Non-Recipients
Cohort 3: Matched Individuals

After completing the propensity score analyses, we used linear and logistic regression to estimate GMS impact using the matched samples. For the binary outcomes, we estimated five logistic regression models to determine the effect of the Scholarship program on the educational and leadership outcomes. This approach estimated 1) the average effect of being a GMS scholar on each outcome, 2) the relationships between sex and the outcomes, 3)

the relationships between race/ethnicity and the outcomes, and 4) whether or not intervention impact varied by sex or race/ethnicity.

The models estimated are the following:

Model 1. The probability of a given outcome given the individual is a GMS Scholar:

$$p(x) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 Treatment)]}$$

Model 2. The probability of a given outcome conditional on the individual being a GMS Scholar and on the sex of the individual. In Model 2 indicates whether or not there is a relationship between sex and the outcome, holding the intervention effect constant.

$$p(x) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 Treatment + \beta_2 Female)]}$$

Model 3. The probability of a given outcome conditional on the individual being a GMS Scholar and on the gender of the individual and the interaction term between gender and being a Scholar. If the p value for the interaction term is significant (<.05), it indicates that the intervention effect is different for males than females.

$$p(x) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 Treatment + \beta_2 Female + \beta_3 Female * Treatment)]}$$

Model 4. The probability of a given outcome conditional on the individual being a GMS Scholar and on the race/ethnicity of the individual. Model 4 is analogous to model 2 but tests whether there is a relationship between race/ethnicity and the outcome, holding the intervention constant.

$$p(x) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 Treatment + \beta_2 Race)]}$$

In this case the reference category is African American, and there are a set of indicators for the other three race/ethnicity categories: American Indian/Alaska Native, Asian Pacific Islander American and Hispanic American.

Model 5. The probability of a given outcome conditional on the individual being a GMS Scholar and on the race of the individual and the interaction term between race and being a Scholar. As with Model 3, Model 5 tests if the intervention impact varies by race/ethnicity. It Is not elaborated in the model, but race was dummy coded using the largest group, African Americans, as the reference category.

$$p(x) = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 Treatment + \beta_2 Race + \beta_3 Race * Treatment)]}$$

The treatment variable indicates whether the individual is a GMS Scholar. The betas are the coefficients to be estimated by the logistic regression model.

Each of the five models were estimated for each of the binary outcomes. For all the binary outcome measures, the models were able to predict correctly on average 70 percent of the cases, being the most accurate ones for dropouts and educational aspirations with a 90 percent accuracy level.

Because the Leadership Index was continuously measured, we estimated five regression models using ordinary least squares (OLS) regression. As before, we included gender and race identifiers and the interactions between these variables and being a scholar.

The estimated OLS model follows this equation form:

For Model 1a it is: $A_i = \beta_0 + \beta_1 \text{Treatment}_i + \varepsilon_i$

Model 2a is the following: $A_i = \beta_0 + \beta_1 \text{Treatment}_i + \beta_2 \text{Female}_i + \varepsilon_i$

Model 3a is defined as: $A_i = \beta_0 + \beta_1 \text{Treatment}_i + \beta_2 \text{Female}_i + \beta_3 \text{Female} * \text{Treatment}_i + \varepsilon_i$

Model 4a is structured as: $A_i = \beta_0 + \beta_1 \text{Treatment}_i + \beta_2 \text{Race}_i + \varepsilon_i$

And finally, Model 5a is: $A_i = \beta_0 + \beta_1 \text{Treatment}_i + \beta_2 \text{Race}_i + \beta_3 \text{Race} * \text{Treatment}_i + \varepsilon_i$

Where A is the leadership index outcome, and the rest of the independent variables are the same as for the logistic model. In this case, the betas are estimated with an OLS regression.

Summary

The PSM approach reduces the bias between all the variables included in the model by implementing a nearest neighbor matching. Then we pooled out a sample of matched cases that were on the common support region. The matched sample is comprised of 966 individuals (483 Scholars and 483 Non-Recipients) in cohort 2, which is 60 percent of the original sample. For cohort 3, the matched sample has   1328 observations (664 Scholars and 664 Non-Recipients) and it accounts for 70 percent of the original sample. Both samples are balanced, after matching, Scholars and Non-Recipients are similar in terms of key baseline covariates.   Therefore, PSM allowed us to pool a more homogenous group of students to conduct an unbiased estimation of the effect of the GMS Scholarship.

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Appendix C

Baseline Comparability of Scholars and Non-Recipients

Scholars and Non-Recipients were compared in terms of baseline characteristics using chi square statistics for bivariate variables and Student's T tests for continuous variables. As shown in the tables, Scholars and Non-Recipients differed on many important baseline variables such as parents' education and college entrance exam scores. *There was some variation by cohort, but generally, Non-Recipients appeared better prepared for college than Scholars.* Tables C.1 and C.2 report the baseline comparability for the full baseline samples. The baseline comparisons were repeated on the matched samples (Tables C.3 and C.4). As can be seen in Tables C.3 and C.4 the propensity score method produced comparable groups of Scholars and Non-Recipients.

Table C.1. Baseline comparability of GMS Scholars versus Non-Recipients, Cohort 2

	Scholars n=831		Non-Recipients n=776		p
	n	%	n	%	p
Minority group					0.001
African American	296	36%	280	36%	
American Indian/Alaska Native	109	13%	91	12%	
Asian/Pacific Islander	137	16%	186	24%	
Hispanic American	289	35%	219	28%	
Gender					0.968
Male	261	32%	243	31%	
Female	570	68%	533	68%	
Father's education					0.001
Less than high school	185	22%	96	12%	
High school graduate or some college	381	46%	404	52%	
College or more	191	23%	231	30%	
Do not know	74	9%	45	6%	
Mother's education					0.001
Less than high school	183	22%	104	13%	
High school graduate or some college	439	53%	414	53%	
College or more	194	23%	243	31%	
Do not know	15	2%	15	2%	
H.S. Academic preparation					
Four or more years of math	728	88%	663	85%	0.203
Four or more years of science	554	67%	540	70%	0.209
Advance Placement Exams					0.009
None	230	28%	263	34%	
Less than three	358	43%	318	41%	
Four or more	243	29%	187	24%	
	n	mean (sd)	n	mean (sd)	P
SAT score (mean, sd)	625	1154 (170)	560	1147 (177)	0.481
ACT score (mean, sd)	476	24.05 (4.3)	429	23.72 (4.2)	0.251
SAT/ACT standardized score (mean, sd)	802	-0.04 (.96)	735	-0.08 (1.01)	0.46
Family annual income in thousands	798	25.783 (13.97)	751	40.443 (19.87)	<0.001

Table C.2. Baseline comparability of GMS Scholars versus Non-Recipients, Cohort 3

	Scholars n=897		Non-Recipients n=996		p
	n	%	n	%	p
Minority group					<0.001
African American	329	37%	419	42%	
American Indian/Alaska Native	83	9%	37	4%	
Asian/Pacific Islander	153	17%	265	27%	
Hispanic American	332	37%	275	28%	
Gender					0.187
Male	268	30%	270	27%	
Female	629	70%	725	73%	
Father's education					0.057
Less than high school	209	23%	193	19%	
High school graduate or some college	437	49%	478	48%	
College or more	182	20%	246	25%	
Do not know	69	8%	78	8%	
Mother's education					0.001
Less than high school	186	21%	158	16%	
High school graduate or some college	504	56%	536	54%	
College or more	182	20%	272	27%	
Do not know	23	3%	27	3%	
H.S. Academic preparation					
Four or more years of math	778	87%	835	84%	0.079
Four or more years of science	609	68%	607	68%	0.812
Advance Placement Exams					<0.001
None	239	27%	325	33%	
Less than three	377	42%	445	45%	
Four or more	276	31%	214	21%	
	n	mean (sd)	n	mean (sd)	p
SAT score (mean, sd)	637	1137 (158)	723	1118 (171)	0.033
ACT score (mean, sd)	505	23.8 (4.1)	536	23.39 (4.3)	0.079
SAT/ACT standardized score (mean, sd)	849	-0.00 (0.92)	936	-0.10 (0.99)	0.024
Family annual income in thousands	897	26.725 (14.29)	996	38.127 (20.65)	<.001

Table C.3. Comparability of GMS Scholars versus Non-Recipients, matched sample, Cohort 2

	Scholars n=483		Non-Recipients n=483		p
	n	%	n	%	p
Minority group					0.865
African American	182	38%	173	36%	
American Indian/Alaska Native	50	10%	56	12%	
Asian/Pacific Islander	111	23%	108	22%	
Hispanic American	140	29%	146	30%	
Gender					0.945
Male	158	33%	159	33%	
Female	325	67%	324	67%	
Father's education					0.278
Less than high school	65	13%	86	18%	
High school graduate or some college	243	50%	230	48%	
College or more	142	29%	131	27%	
Do not know	33	7%	36	7%	
Mother's education					0.386
Less than high school	66	14%	82	17%	
High school graduate or some college	267	55%	255	53%	
College or more	142	29%	134	28%	
Do not know	8	2%	12	2%	
H.S. Academic preparation					
Four or more years of math	411	85%	417	86%	0.581
Four or more years of science	334	69%	332	69%	0.889
Advance Placement Exams					0.897
None	150	31%	145	30%	
Less than three	208	43%	215	45%	
Four or more	125	26%	123	25%	
	n	mean (sd)	n	mean (sd)	p
SAT score (mean, sd)	375	1154 (169)	349	1144 (175)	0.438
ACT score (mean, sd)	261	24.06 (4.2)	266	23.96 (4.3)	0.79
SAT/ACT standardized score (mean, sd)	483	-0.061 (0.93)	483	-0.064 (0.97)	0.966
Family annual income in thousands	483	32.92 (11.56)	483	30.69 (16.13)	0.014

Table C.4. Comparability of GMS Scholars versus Non-Recipients, matched sample, Cohort 3

	Scholars n=664		Non-Recipients n=664		p
	n	%	n	%	p
Minority group					0.652
African American	282	42%	280	42%	
American Indian/Alaska Native	24	4%	33	5%	
Asian/Pacific Islander	141	21%	143	22%	
Hispanic American	217	33%	208	31%	
Gender					0.805
Male	183	28%	179	27%	
Female	481	72%	485	73%	
Father's education					0.972
Less than high school	149	22%	143	22%	
High school graduate or some college	321	48%	329	50%	
College or more	137	21%	135	20%	
Do not know	57	9%	57	9%	
Mother's education					0.98
Less than high school	122	18%	127	19%	
High school graduate or some college	373	56%	373	56%	
College or more	150	23%	145	22%	
Do not know	19	3%	19	3%	
H.S. Academic preparation					
Four or more years of math	568	86%	559	84%	0.491
Four or more years of science	448	67%	447	67%	0.953
Advance Placement Exams					0.858
None	202	30%	208	31%	
Less than three	300	45%	290	44%	
Four or more	162	24%	166	25%	
	n	mean (sd)	n	mean (sd)	p
SAT score (mean, sd)	349	1121 (155)	375	1121 (176)	0.998
ACT score (mean, sd)	266	23.4 (4.02)	261	23.4 (4.04)	0.94
SAT/ACT standardized score (mean, sd)	664	-0.09 (0.88)	664	-0.09 (0.99)	0.962
Family annual income in thousands	664	30.24 (13.83)	664	29.42 (17.04)	0.341

Appendix D

Respondent Recruitment for the Education Institution Impact Survey

This section describes the process by which researchers at AIR developed a sample population for, and administered surveys to, each of the six respondent groups: (a) high school guidance counselors, (b) college/university financial aid administrators; (c) college/university career center administrators, (d) college/university graduate faculty of departments in the key GMS fields, (e) college/university diversity and/or multicultural affairs administrators, and (f) corporate recruiters. Participants were recruited in an effort to obtain diverse perspectives on the GMS program and its impact; however, given the exploratory nature of this study and the challenges to obtaining a large, representative sample, responses may not reflect the complete breadth and range of high school and college/university administrators' perceptions of GMS. Nonetheless, responses reveal a great deal about the growing role that GMS plays in high schools and on college campuses across the nation.

To populate a sampling pool, AIR researchers assembled respondent lists for each group according to the following procedures:

- **High school guidance counselors** – From a list of all public and private high schools in the country, schools were randomly selected that had at least 10 students enrolled in 12th grade and had student populations that were at least 20 percent minority. From this list, AIR staff used Web based search engines (e.g., Google) to find school homepages and assemble the names and email addresses of guidance counselors. The survey was emailed to 998 guidance counselors, out of which 214 completed the survey, 26 partially completed the survey, and six opted out. They survey was re-sent to non-respondents and respondents who completed only part of the survey were invited to finish and submit their surveys.

- **Administrators of financial aid offices, career centers, and diversity and/or multicultural affairs offices** – Using Scholar enrollment data provided by UNCF, AIR created a list of higher education institutions organized in descending order by number of enrolled Scholars, and searched each institution's web site to obtain names and email addresses of administrators and staff. Contact information was available in varying levels of detail from institution to institution, so whenever information was not available at one college/university, the Web site of the next institution on the list was searched. The following are the top 40 schools attended by GMS Scholars and were thus the most aggressively explored:

University of California-Berkeley	Cornell University
University of California-Los Angeles	Columbia University in the City of New York
Stanford University	University of Miami
University of Texas at Austin	University of Southern California
Harvard University	University of Michigan-Ann Arbor
Texas A & M University	Northern Arizona University
University of Florida	Dartmouth College
Massachusetts Institute of Technology	Georgetown University

Yale University	Baylor University
Brown University	New York University
University of North Carolina at Chapel Hill	Creighton University
University of Oklahoma Norman Campus	Princeton University
University of Washington	University of Pennsylvania
University of New Mexico Main Campus	Howard University
Arizona State University Main	University of Arizona
University of California, San Diego	University of Notre Dame
Duke University	University of Denver
Spelman College	University of Georgia
Northwestern University	Johns Hopkins University
University of Maryland College Park	Emory University

Among financial aid administrators, 202 individuals were invited to participate, of which 46 completed the survey and six partially completed the survey. Among career center administrators, 147 were invited to participate, of which 29 completed the survey, nine partially completed the survey, and one opted out. They survey was re-sent to non-respondents and respondents who completed only part of the survey were invited to finish and submit their surveys.

- **College/university graduate faculty in the key GMS fields** – AIR researchers identified top graduate programs in each of the seven GMS key fields: computers and information technology, education, natural sciences (including biology, chemistry, earth science, astronomy, and physics), engineering, mathematics, public health, and library science. Contact information, specifically email addresses, for department chairs and other faculty was obtained through the college/university and department Web sites. In many cases, a top graduate program existed within an institution attended by a high number f GMS Scholars. Surveys were sent out to 547 graduate faculty members, of which 113 completed the survey, 36 partially completed the survey, and seven opted out. They survey was re-sent to non-respondents and respondents who completed only part of the survey were invited to finish and submit their surveys.

- **Corporate recruiters** – Initially, AIR researchers contacted college/university career centers to request contact information for campus recruiters, such as participants in on-campus career fairs. However, career centers were largely unable or unwilling to disclose this information. Instead, AIR purchased contact information (including mailing addresses; email addresses were not available) for recruiters through the National Association of Colleges and Employers (NACE). Since names could only be purchased in bulk and by state and could not be sorted by field, AIR requested 1,000 recruiter names from California, Texas, and Massachusetts, as these three states house many colleges/universities that enroll a large number of GMS Scholars. An AIR staff member then went through this list and removed recruiters that were clearly from areas or industries outside the seven key GMS fields. From the remaining sample, 500 survey packets were mailed out to recruiters. This packet included a paper survey, stamped envelope for returning the survey, and a letter providing background on the survey and providing an online link that could be typed into a Web browser if the respondent wished to complete the survey online. A total of 61 respondents completed the survey.

For each respondent group, the introduction to the survey provided a background on the purpose of the study, estimated time it would take to complete the survey, the reason the individual had been selected to participate and the value of his/her response, assurance of confidentiality and anonymity, assurance that participation was voluntary and the respondent did not have to answer every question; an explanation of the potential risks and

benefits of participating in the study; description of the $25 Amazon gift card incentive for completing the survey; and contact information for the AIR staff member who administered the survey.

	Guidance Counselors	Recruiters	Faculty	Multicultural Affairs/Diversity	College/University Career Center	College/University Financial Aid Staff	Total
# Invitations	998	500	547	71	147	202	**2465**
# Completed Surveys	215	61	113	18	29	46	**462**
# Incomplete Surveys	27	3	36	2	9	6	**83**
Participation Rate	24%	13%	27%	28%	26%	26%	**22%**

Survey Items

(Item specific to Recruiter's Survey)
Name of company/organization for which you recruit

_____

What type of school are you affiliated with?
Four year private
Four year public
Graduate school – private
Graduate school – public
Other

In what city and state are you employed?

_____

(Item specific to Recruiter's Survey)
Name(s) of colleges/universities from which you recruit

_____

(Item specific to Recruiter's Survey)
For which area/industry do you recruit? Please select all that apply.

○ Computers/IT/Technology   ○ Library science
○ Education   ○ Social sciences
○ Natural sciences   ○ Finance/accounting
○ Engineering   ○ Media/journalism
○ Mathematics   ○ Other
○ Public Health/Medicine

If other, please specify: _____

How long have you been employed at this company/organization?   _____Years
_____Months

What is your current position/title?

_____

How long have you been employed in this particular position? _____Years _____Months

Please rate your level of familiarity with the GMS program.
○ Unfamiliar
○ Somewhat familiar
○ Moderately familiar
○ Very familiar

(Item specific to Faculty Survey)
What is the name of your specific school (e.g. School of Engineering)?

(Item specific to Faculty Survey)
What is the name of your department?

(Item specific to Faculty Survey)
In which field is your department? Please select all that apply.
Computers/IT/Technology
Education
Natural sciences
Engineering
Mathematics
Public Health/Medicine
Library science
Other
If other, please specify.

To your knowledge, what type of scholarship funding does GMS provide? Please check all that apply.
○ Full ride   ○ Four-year renewable
○ Last-dollar   ○ None of the above
○ Partial scholarship   ○ Other
○ One time lump sum
If other, please specify: _____

In comparison to other scholarship programs, how would you rate the GMS program's financial support?
○ Not effective
○ Somewhat effective
○ Moderately effective
○ Highly effective
○ Unable to answer

What is your perception of the type of student that the GMS program serves? Please check all that apply.
○ Low achieving   ○ High income   ○ American Indian/Alaska Native
○ Average achieving   ○ Urban   ○ Asian American/Pacific Islander
○ High achieving   ○ Suburban   ○ Hispanic American
○ Low income   ○ Rural   ○ Non-Hispanic White/Caucasian
○ Middle income   ○ African American ○ Other
If other, please specify: _____

In your opinion, is the GMS program more or less prestigious than other scholarship programs?
○ GMS less prestigious
○ GMS equally as prestigious
○ GMS more prestigious
○ Unable to answer

Please list examples of any prestigious scholarship or fellowship programs with which you have some familiarity.

How would you rate the impact of the GMS program on student life at your school?
○ No impact
○ Minor impact
○ Moderate impact
○ Significant impact
○ Unable to answer

(Item specific to Guidance Counselor's Survey)
What efforts does your school make to inform students about scholarship and fellowship opportunities? Please check all that apply.
Email announcements
Newsletter
Bulletin board
Visits from alumni, college representatives, etc.
Other
If other, please specify.

(Item specific to Guidance Counselor's Survey)
Is the GMS program one that school staff routinely recommend to students attending your school?
○ Yes
○ No
I don't know
Why or why not?
(Item specific to Recruiter's Survey)

(Item specific to Guidance Counselor's Survey)
Have you ever nominated or recommended a student at your school for the GMS program?
○ Yes
○ No

(Item specific to Guidance Counselor's Survey)
Have any of your colleagues ever nominated a student for the GMS program?
○ Yes

○ No
I don't know

(Item specific to Guidance Counselor's Survey)
How does your school support students who decide to pursue funding for college? Please check all that apply.
Informational sessions
One-to-one counseling
Visitors/guest speakers
Distribute written material (e.g., booklets, packets)
Other
If other, please specify.

(Item specific to Guidance Counselor's Survey)
Does your school provide specific support to students who decide to apply to the GMS program?
○ Yes
○ No
I don't know

(Item specific to Faculty Survey)
To your knowledge, have any GMS Scholars applied to your program/department?
○ Yes
○ No
I don't know

(Item specific to Recruiter's Survey)
How would you rate the impact of the GMS program on workplace diversity?
○ No impact
○ Minor impact
○ Moderate impact
*○ Significant impact
○ Unable to answer

Are you aware of any GMS Scholars that have worked at your company or gone to your school?
○ Yes
○ No

If you answered yes *to question #8, please answer questions #9 and 10 on the next page. If you answered* no*, please skip to question #11.*

Based on your knowledge of and interaction with GMS Scholars, please rate them as compared to heir peers in the following areas:

	Poor	Below Average	Average	Above Average	Excellent	Unable to answer
Academic Ability	○	○	○	○	○	○
Professional goals	○	○	○	○	○	○
Involvement on campus and in the community	○	○	○	○	○	○
Leadership potential	○	○	○	○	○	○
Potential contributions to the workforce	○	○	○	○	○	○
(Item specific to Recruiter's Survey) *Potential contributions to your organization/ company*	○	○	○	○	○	○

In your opinion, are GMS Scholars more or less likely than their classmates to...

	Less likely	As likely	More likely	Unable to answer
(Item specific to Recruiter's Survey) *Enroll in a four-year college/university?*	○	○	○	○
Graduate from college/university?	○	○	○	○
Pursue graduate education?	○	○	○	○
Participate in extracurricular or community activities?	○	○	○	○
Hold a position of leadership on campus?	○	○	○	○
Be high achieving in mathematics?	○	○	○	○
Be high achieving gin science?	○	○	○	○
Be high achieving in the humanities?	○	○	○	○
Be high achieving in arts and/or music?	○	○	○	○
Be an athlete?	○	○	○	○

(Item specific to Financial Aid Staff's Survey)

In your opinion, do GMS Scholars have more or less familiarity with financial aid policies and procedures as compared to their classmates? (E.g., general financial literacy, understanding of loan repayment, etc.)
Less familiarity
Comparable familiarity
More familiarity
Unable to answer

(Item specific to Guidance Counselor's Survey)
Please rate the influence that you believe the GMS program has had on your students' ability to access the following:

	No influence	Minimal influence	Moderate influence	Substantial influence	Unable to answer
A public four-year college or university	○	○	○	○	○
A private four-year college or university	○	○	○	○	○
A prestigious out-of-state college or university	○	○	○	○	○

(Item specific to Recruiter's Survey)
How would you rate the impact of the GMS program on workplace diversity?
○ No impact
○ Minor impact
○ Moderate impact
○ Significant impact
○ Unable to answer

How familiar are you with any institutional and policy changes that intend to increase diversity and educational opportunities for underrepresented minorities on college campuses?
○ Unfamiliar
○ Somewhat familiar
○ Moderately familiar
○ Very familiar

Does your company/organization have any diversity initiatives or policies?
○ Yes
○ No
○ I don't know
If yes, please describe the motivation or rationale for the initiatives or policies:

In your opinion, has the GMS program influenced your company/organization's diversity initiatives or policies?
○ Yes
○ No
○ I don't know
○ My company does not have any diversity initiatives.
If yes, briefly describe the ways in which the GMS program has influenced your institution's diversity initiatives:

How successful have these initiatives or policies been?
○ Unsuccessful
○ Somewhat successful
○ Successful
○ Very successful
○ Unable to answer
Please explain:

What would you recommend to improve the success of these initiatives and policies?

(Item specific to Guidance Counselor's Survey)
Has the GMS program had any influence on policies, programs, or events within your school?
○ Yes
○ No
○ I don't know
If yes, please explain.

(Item specific to Financial Aid Staff's Survey)
Are you aware of any changes to financial aid policies that have taken place within colleges and universities (locally, regionally, and nationally) that have altered the recommendations that you provide to your students?
If yes, please answer the four questions in Part B. If no, please proceed to the final page of the survey.
Yes
No
I don't know

Are you aware of any financial aid policy changes that have taken place at local colleges and universities over the past 10 years?

If yes, please answer the four questions in Part B. If not, please proceed to the final page of the survey.

○ Yes

○ No

In your opinion, how well has your school addressed the following issues through policies, programs, and events?

	Poorly	Moderately well	Very well	Unable to answer
Access to postsecondary education for underrepresented minority students	●	○	○	○
Reduction/elimination of financial barriers for students from low-income backgrounds	○	○	○	○
Fostering a multicultural and inclusive campus climate	○	○	○	○
Supporting the professional/career aspirations of underrepresented students	○	○	○	○
Developing students' leadership potential	○	○	○	○

Please describe any institution-wide policy changes or initiatives related to diversity that you are aware of.

Please rate the influence that you believe the GMS program has had on the following areas within your institution.

	No influence	Minimal influence	Some influence	Substantial influence	Unable to answer
Diversity initiatives	○	○	○	○	○
Policy and institutional changes	○	○	○	○	○
Financial aid policies/processes	○	○	○	○	○
Recruitment/retention efforts	○	○	○	○	○

Please describe any specific factors that have influenced the implementation of policies or initiatives targeting underrepresented minority students at your school, including those policies/initiatives specific to the career center.

Please describe any programs that served as models for these changes.

(Item specific to Recruiter Survey)
What does your company/organization look for in a candidate for employment? Please select all that apply.

○ Strong academic record   ○ Related work/internship experiences
○ Degree from prestigious college/university   ○ Strong communication skills
○ Civic/community involvement   ○ Problem solving skills
○ Leadership skills   ○ Other

If other, please specify: _____

(Item specific to Faculty Survey)
Does your school provide any targeted programs or formal recognition for GMS Scholars or scholars from other programs (e.g. printing the names of recipients in the school newspaper)?

○ Yes
○ No
○ I don't know

Please list some of the top companies/organizations/agencies within key GMS fields (science, technology, mathematics, public health, library science, and education) that recruit students from your school.

(Item specific to Staff Survey)
Does your school's career center implement any of the following programs or events *specifically for underrepresented minority students*? Please check all that apply.

☐ Career fairs   ☐ Distribute written materials and resources

☐ Internship programs   ☐ None of the above

☐ Networking opportunities   ☐ Unable to answer

☐ Alumni/current student matching/mentorship program   ☐ Other

☐ Identification of employers who foster workplace diversity
If other, please specify

(Item specific to Staff Survey)
In your opinion, has the GMS program influenced any programs, policies, or events within your school's career center?

○ Yes
○ No

○ I don't know

If yes, please describe.

In your opinion, have policy changes had an impact on minority recruitment and enrollment within your school?

○ Yes
○ No
○ I don't know

If yes, please explain

Based on your knowledge, what influence have these financial aid changes had in the following areas?

	No influence	Minimal influence	Moderate influence	Substantial influence	Unable to answer
Recruitment efforts targeting underrepresented students	○	○	○	○	○
Number of minority students applying to your school	○	○	○	○	○
Enrollment of underrepresented students at your school	○	○	○	○	○
Retention of underrepresented students at your school	○	○	○	○	○
Pursuit of advanced degrees at your school by underrepresented students	○	○	○	○	○

(Item specific to Recruiter Survey)
What advice would you offer to a GMS Scholar who is interested in working for your company/organization?

(Item specific to Recruiter Survey)
In what ways could the GMS program help you identify such a candidate?

Has your program/department made efforts to recruit recipients of any specific scholarships/fellowships? If yes, please select all that apply.

☐ *I am not aware of any efforts to recruit from specific scholarship/fellowship programs*

☐ Dell Scholarships

☐ Rotary Scholarships

☐ McDonald's Scholarships

☐ Beinecke Scholarships

☐ GMS Program

☐ Ron Brown Scholar Program

☐ Other

☐ Target Scholarships

☐ Mellon Fellowships

☐ Coca Cola Scholarships

☐ Fulbright Scholarships

☐ Byrd Scholarships

If other, please specify.

Has your program/department made efforts to recruit GMS Scholars specifically?

○ Yes
○ No
○ I don't know

Do you recruit from specific scholarship or fellowship programs? If you answer no, please skip to the next page.

○ Yes
○ No
○ I don't know

If you answered yes to the previous question, please select all programs that you specifically target.

○ GMS Program   ○ Dell Scholarships   ○ Fulbright Scholarships
○ Target Scholarships   ○ McDonald's Scholarships   ○ Rotary Scholarships
○ Coca Cola Scholarships ○ Ron Brown Scholar Program   ○ Beinecke Scholarships
○ Byrd Scholarships   ○ Mellon Fellowships   ○ Other

If other, please specify: _____

If you answered yes to question #20, why do you recruit from specific scholarship or fellowship programs?

(Specific to Diversity Staff Survey)
Does your school's Office of Multicultural Affairs (or similar office) provide any events or forums specifically for GMS Scholars?

○ Yes
○ No
○ I don't know
If yes, please describe.

Appendix E

Cohort 7 and 8 Implementation Evaluation Summary of Findings

- **Quality of Scholar Pool.** Cohorts 7 and 8 Scholars enrolled in top US institutions at slightly higher rates than previous cohorts.

- **Application Process.** Cohorts 7 and 8 Scholars also expressed a great deal of satisfaction with the availability of application materials, the length of the application, and the ease of submitting the application.

- **Impact of GMS on Financial Burden.** The majority of Cohorts 7 and 8 Scholars and stakeholders reported that the GMS award is adequate to cover recipients' college expenses. As a result, fewer Scholars are working and/or taking out loans, and more Scholars are able to dedicate their time to academics and extracurricular opportunities.

- **Program Administration.** GMS stakeholder perceptions of overall program operations are generally favorable.

- **Leadership Conference.** The Leadership Conference continues to be a highly regarded event among Scholars. Many were particularly enthusiastic about the networking opportunities it provides.

- **Perception of GMS Prestige among Minority Peers.** The GMS program has gained in prestige on college campuses. Relative to earlier program implementation years, the majority of Cohorts 7 and 8 Scholars believe the GMS program is a prestigious one. They find that their minority peers in particular share this perception and laud them for their achievement.

- **Accessibility and Responsiveness of UNCF and Partner Organization Staff.** Cohorts 7 and 8 Scholars generally reported high levels of satisfaction with the accessibility and responsiveness of UNCF and partner organization staff particularly by phone.

- **Early Outreach.** Awareness and promotion of the GMS program has improved considerably, especially among guidance counselors.

- **Award Disbursement.** The disbursement of scholarship funds to Scholars' financial aid offices, rather than direct payments to Scholars, is generally viewed by Scholars and stakeholders alike as a successful and welcome policy change.

- **Timing of Notification and its Impact on College Choice.** Cohorts 7 and 8 Scholars were generally pleased with the timing of award notification. It came early enough in the spring that it allowed Scholars to make college decisions that many felt were otherwise not open to them. Moreover, Scholars reported that the GMS award opened up opportunities to attend their first-choice, top-tier and/or more competitive out-of-state institutions.

The evaluation also identified a number of areas in need of improvement. These include:

- **Ratio of Male-to-Female GMS Scholars.** As is the case nationally and since the program's inception, the GMS program continues to struggle with increasing male participation in the program.

- **Technology.** Both Scholars and stakeholders report significant concerns about GMS website usability in terms of its functionality, navigation and content. The stakeholders also reported that there is poor

infrastructure in place to facilitate program monitoring, communication between Scholars and the partner organizations, and data sharing between stakeholders.

- **Leadership Development.** Cohorts 7 and 8 Scholars spoke of feeling isolated and disconnected from GMS after the Leadership Conference. Scholars reported few GMS-sponsored leadership development opportunities beyond the Leadership Conference.

- **Partner Relations.** Current representatives of the partner organizations reported satisfaction with their interactions with UNCF but would appreciate greater involvement in some decision-making such as the development of the Leadership Conference agenda.

- **Perception of GMS in Comparison to Other Scholarship Programs**. Relative to other scholarship programs, roughly half of GMS Scholars perceive that other programs provide better programming.

- **Perception of GMS as a Merit Scholarship.** The GMS program is reportedly not perceived as prestigious among Scholars' non-minority peers, professors and campus administrators.

- **Unmet Need.** Financial aid policies and procedures at a number of institutions may be imposing unanticipated financial burdens on some Scholars' finances.

- **Cultural Disconnects.** Concerns have been raised by Scholars and partner organizations that some programming decisions and outreach strategies are not as culturally-sensitive and -specific as they could be.

- **Decentralization of Program Administration.** Scholars and financial aid officers expressed frustration with the decentralized nature of program operations. Scholars complained of inconsistent resources and service offerings from partner organization to partner organization. Scholars and financial aid officers raised concerns about identifying key contacts and persistent miscommunication issues when attempting to resolve award disbursement problems.

- **Academic and Social Support.** Scholars reported low satisfaction with the availability of GMS-sponsored academic and social supports especially for first-generation college students.

- **Alumni Engagement.** Maintaining connections with GMS alumni appears to be an administrative challenge. Scholars expressed a desire to look to alumni as mentors but are concerned about the limited means to identify and contact them.

Methodology

A mixed-methods research approach was used by AIR to provide a comprehensive analysis of the strengths and challenges associated with the administration and operation of the GMS program. Both qualitative and quantitative data were collected and analyzed including:

- Scholar focus group and online survey data;

- Interviews with representatives from the UNCF GMS program office, partner organizations, Research Advisory Committee (RAC), Advisory Council (AC), and financial aid offices at select universities; and

- Administrative documentation.

Data Collection

Scholar Focus Groups

Seventeen focus groups were conducted between January 22, 2009 and February 13, 2009 at 16 sites in the Northeast, South, Southwest, and West coast regions. Eighty Scholars participated, representing 21 different

institutions. The groups were designed to capture Scholar perceptions of the strengths and weaknesses of the GMS program.

The focus group protocol was adapted from the protocol that was used in previous evaluations of the GMS program. All of the questions included in the 2006 evaluation were incorporated into the protocol for the current evaluation. Several questions were added to gauge Scholar perceptions of the program's prestige and programmatic changes to the financial aid disbursement process.

The Cohorts 7 and 8 evaluation protocol included 33 questions that address four specific areas: 1) GMS outreach to applicants and potential Scholars; 2) Scholar perceptions about the application, notification and award disbursement process; 3) Scholar satisfaction with GMS programming and communication; and 4) Scholar recommendations.

Scholar Online Surveys

To assess Scholars' level of satisfaction and perceptions of various components of the GMS program, AIR administered a web-based survey to Cohorts 7 and 8 Scholars.

The survey consisted of questions designed to assess Scholar perceptions and level of satisfaction with GMS program operations and programming as well as indicate the extent to which the program has influenced their academic decision-making. The survey was developed and administered with Survey Monkey, a web-based survey tool. Included a combination of 33 close-ended (e.g. "yes/no" and "check all that apply"), Likert-scaled (e.g. "rate your level of satisfaction") and open-ended (e.g. "please explain") items. Survey items were similar in content to the survey administered to Cohort 6 Scholars for the 2006 evaluation. The Cohort 6 version was revised to include new questions designed to assess Scholars' perceptions of program components or initiatives that have been implemented or enhanced since the last evaluation. Responses to new questions serve as a baseline for future comparisons. The questions also allow Scholars to provide recommendations for how GMS could improve existing services to better meet the needs of current and future Scholars. The survey required respondents to read and electronically complete a consent form in order to take the survey and the survey took approximately 20 to 30 minutes to complete thereafter.

Stakeholder Interviews

AIR conducted a total of 29 interviews with GMS administrative staff and seven financial aid officers. The interviews were designed to capture stakeholder perceptions of GMS program administration, staff relations, Scholar programming and program changes and improvements.

To facilitate longitudinal performance monitoring of the GMS program, the interview protocol used to facilitate discussions with stakeholders was adapted from protocols used in previous evaluations. The main interview protocol consisted of 34 questions designed to examine four areas:

- Staff roles and responsibilities;
- Program administration and staff relations;
- Program objectives and goals; and
- Perception of program changes and improvements.

New questions were added to the protocol to assess stakeholders' perception of programmatic changes and new program initiatives including marketing and outreach, efforts to increase alumni and male engagement and the overall prestige of the Scholarship. As a follow-up to issues raised by Scholars who participated in the focus groups, financial aid officers at seven institutions were interviewed as well. The protocol was adapted to investigate Scholar concerns regarding:

- How need is calculated by a given institution;

- What documentation a given school provides GMS so that GMS may calculate a Scholar's award;

- The appeal process when a Scholar believes that an institution has miscalculated his/her need;

- What the institution believes the Scholarship should cover (i.e. Is there a disconnect between GMS, the Scholars and the financial aid offices?);

- What the institutions require from GMS in order to streamline the process and ensure that the Scholars receive all the funds they are intended to receive; and

- How the disbursement processes differ from institution to institution.

Data Analysis

Quantitative data collected through the online Scholar survey were analyzed using Stata statistical software. The following statistics were run:

- Frequencies and percentages by survey item and cohort

- Frequencies and percentages by gender and cohort for select survey items

- Frequencies and percentages by race and cohort for select survey items

- Frequencies and percentages by race, gender and cohort for select survey items

- Frequencies and percentages by institution type for select survey items

All Cohort analyses included data on Cohort 6 Scholars as well as earlier Cohorts when available.

Appendix F

Year 1 and 2 Evaluation Summary of Findings

Overall, the GMS program appears to provide crucial financial support to promising students who otherwise would have had to struggle with the burdens of funding postsecondary education. However, as expected, perceptions of the program's effectiveness vary by stakeholder group roles and responsibilities.

Scholars' Views and Perceptions of GMS

For the vast number of Gates Millennium Scholars, the program has provided the resources for high-achieving, economically disadvantaged students to pursue a postsecondary degree and focus their energies on developing the skills, knowledge, and experience that will help them reach their full potential. Scholars selected for this study view their selection as Gates Millennium Scholars as both an honor and a privilege. Indeed, they are grateful for the financial assistance received from the GMS program and are cognizant of the fact that they were selected from a large pool of promising academically gifted students of color. Even though the majority of Scholars surveyed and interviewed would have pursued postsecondary education without the GMS award, a sizable share acknowledge that GMS support *has* made a significant difference in their college and career pathways by increasing their options for college enrollment; decreasing the necessity to assume loan debt; or decreasing the need to work full time, part time, or through an institutional work-study program.

Scholars also noted that another positive byproduct of being a GMS award recipient was that it gave them the opportunity to devote more time to not only studying, but other co-curricular learning opportunities such as campus extracurricular activities and community service. Giving back to the community and being viewed as a positive role model were themes that were present among and between all racial/ethnic group participants.

GMS Scholars offered similarly positive comments about the value derived from the program's emphasis on leadership. As participants in the structured GMS leadership activities, Scholars reported feeling a certain sense of empowerment, and most Scholars felt that receipt of the GMS award instilled a sense and an expectation of leadership. Approximately 85% of Scholars who attended a GMS Leadership Conference stated that the program is helping them become effective leaders.

While Scholars generally hold the GMS program in high regard, the consequences of late award notification are problematic for many Scholars. There is also some question as to whether the award is meeting all unmet need in a number of cases. For example, while the GMS program is reducing financial barriers for many students, TMG found that 23% of Scholars surveyed are still taking out loans and over 50% are working while in school. Some Scholars are also concerned about a perceived lack of clarity in the program's goals and objectives and lack of clear communication among students, program administrators, and campus financial aid administrators. In addition, concerns emerged regarding the current breadth of outreach, and many would like to see GMS improve the marketing of the program to students of color.

Program Staff, Foundation Staff, and Advisory Council Member Views and Perceptions of GMS

Program staff, Foundation staff, and Advisory Council members generally feel that GMS has done a good job of initiating implementation of the program given its ambitious mandate. For the most part, the comments of these groups reflect frustrations inherent in any new programmatic endeavor—confusion regarding staff and

organizational roles, the need for timelines and direction, and gaps in the exchange of information. These concerns, as indicated previously, are neither novel nor insoluble for a program of GMS' size and scope.

Specifically, what these stakeholders see as "working" is the dedication of the administrative staff at both GMS/UNCF and the partner organizations, the support of Foundation staff, and the assistance of the Advisory Council when available. Nearly all representatives interviewed from these three groups regarded favorably their continuing focus on improving program processes, as well as the program's commitment to cultural sensitivity.

The problems cited by stakeholders interviewed focused on the administrative challenges of providing last-dollar funding; specific aspects of the selection, notification and renewal processes; and outreach. Staff expressed the need to clarify roles and responsibilities of the various organizations involved in the GMS program. They also voiced concern about the insufficient notification of timelines between GMS and Scholars as well as between organizations. The picture that emerges from these perspectives is of a program that is diligently working to build relationships, establish procedures, and respond to the challenges inherent in any new venture. The level of commitment and the responsive relationships that exist between the partners, Foundation staff, and the Advisory Council are certain to advance GMS' goals.

Appendix G

Year 3 Evaluation Summary of Findings

The GMS program continues to provide crucial financial support to promising students who would otherwise struggle to fund a postsecondary education. In the course of the Year 3 Evaluation, all stakeholder groups identified areas of significant improvement since 2001-2002, while continuing to identify areas of concern that adversely impact the ability of GMS to carry out its mission.

Areas of Improvement

Program Administration: All stakeholders agree the administration of the GMS program has improved markedly. A number of stakeholder representatives indicated that the program has progressed beyond the rocky "start-up" period and is now a smooth running operation able to focus on program development rather than just logistics. Most significantly for continued progress, the feedback from Foundation, partner, and Advisory Council representatives is overwhelmingly positive about the current GMS administrative leadership. The Executive Director was commended for enforcing management timelines and for the development of program policies and procedures now underway.

Coordination and Communication Among Parties: The working relationships among the Foundation, GMS, partners, and the Advisory Council continue to improve and were variously described as "steadily improving" to "good" or even more positively. The working relationship among the partners seems to have improved the most and was characterized by partner representatives as "great" or "excellent." Various stakeholder representatives – including the Advisory Council – expressed the sense that the Council is underutilized, but also that the relationship and involvement of the Council is improving. The current GMS leadership was praised for opening lines of communication with other stakeholders.

Application/Notification Process: There is general consensus that this component of the program is working well. While the timing of award notification has continued to improve, both scholars and program administrators and Advisory Council representative continue to note that it must continue to improve to avoid adverse impacts on the college choice of some scholars.

Areas of Concern

Technology: Problems surrounding the use of technology are having a wide-ranging impact on the program.

- Increasingly scholars are using the online application, but many reported frustration with problems ranging from difficulty logging in, to loss of data, and timing out of sessions.
- The GMS web site was identified by a number of stakeholders as underutilized.
- Partners expressed frustration over difficulties in accessing the data warehouse to acquire data to plan outreach and recruitment activities.

Leadership: The leadership component of the program continues to lack definition in the minds of many respondents.

- While praising the GMS Leadership Conferences, a number of respondents noted that they often focused on orientation to college and the program rather than on leadership activities.
- Concerns were also expressed that the leadership program needs to be more aware of cultural factors that influence leadership in different communities.
- Other respondents expressed the importance of focusing leadership efforts beyond the freshman year by putting in place a comprehensive leadership development plan for scholars from year one through degree completion and onto alumni status.

Student Support: The program has yet to develop a strong student support program. Stakeholders mentioned the need for components such as academic intervention mechanisms, peer mentoring, and alumni group support for current scholars. Some respondents mentioned the role technology could play in strengthening student support. Some potential web site suggestions included features that would allow scholars to learn about other scholar and alumni accomplishments and take advantage of networking opportunities such as locating nearby scholars, an electronic newsletter, and e-mentoring components.

Outreach: Outreach to underserved, underrepresented, or isolated regions and populations needs to be strengthened to ensure that the program identifies and serves the most disadvantaged students. Some partner representatives expressed concern whether current nomination policies are affecting partners' ability to increase their applicant pool and would also like to see the applicant pool widened to include GED recipients.

Public Relations: While noting definite improvements in broadening public relations efforts, a number of respondents felt that more and better information on the program needs to be disseminated. One Advisory Council member suggested that it was especially important that information be provided beyond the target groups in secondary and higher education institution (HEI) circles. A number of partner representatives noted opportunities for publicity such as national conferences and continue to urge that GMS do a national public service announcement (PSA) to raise the visibility of the program.

Research and Policy Analysis: Foundation, GMS, partner, and Advisory Council representatives all mentioned – from differing perspectives – the need to focus on research and policy analysis to move the program forward. Suggestions of areas in need of improvement ranged from improving the GMS databases to being able to manage the data for program planning and efficient operations, and from the need for practical research to support partner outreach efforts to the need to ensure that the data is interpreted in a culturally sensitive way.

Methodology

For the purpose of this evaluation, TMG used mixed-method research strategies – both quantitative and qualitative – to address process outcomes in five main areas:

- program administration;
- award disbursement;
- working relationships and coordination among organizations;
- leadership and student support activities; and
- outreach, communications, and public relations.

Online surveys, focus groups with scholars and interviews with administrative and financial staff were used to gather data.

Focus Groups

On October 25, 2003, TMG conducted four 60-minute focus groups as part of its Year 3 Evaluation of the Gates Millennium Scholars Program. The focus groups – conducted during the 2003 GMS Leadership Conference in Chantilly, Virginia – were designed as small, informal, relaxed discussions. Scholars were assigned to participate in one of the four homogenous groups based on racial/ethnic identification. Participating scholars were asked to share their thoughts and opinions about various aspects of the GMS program. Each discussion was tape recorded with the permission of the scholar participants, and additional notes and observations were recorded by a scribe assigned to the session. In exchange for participation in the focus group, each scholar received a $15 Amazon.com gift certificate.

Administrative Interviews

Between January 2004 and March 2004, TMG conducted 15 administrator interviews as part of its Year 3 Evaluation of the Gates Millennium Scholars Program. The interviews were designed to gather the perceptions of GMS stakeholders about various aspects of the scholarship program. Interviews were facilitated by Drs. Floretta McKenzie, Ericka Miller, Carmen Arroyo, Clyde Aveilhe, Jimei Chang, and John Tippeconnic.

Financial Aid / On-campus Student Support Interviews

As in the Year 1 Evaluation, TMG conducted interviews with administrators from a cross section of colleges and universities. This year the Foundation asked TMG to tap the views of not only financial aid personnel, but also officials responsible for student support services on campus. The objective was to gather ideas on how GMS could better leverage its potential to maximize opportunities, choices, and chances of success for high-achieving, low-income students of color.