

The Academic Progress of Undergraduate and Graduate
Gates Millennium Scholars and Non-Scholars by Race and Gender

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Understanding the success in higher education of the Gates Millennium Scholars (GMS) is critical to the success of the entire program. The Scholars were chosen for their academic potential, but that potential was likely shown in ways other than test scores and grades. This study was an investigation of the ways that Scholars have shown that potential while in school. Academic activities of Scholars in higher education were studied and comparisons to Non-Scholars were made. Results of this study can help choose future Gates Millennium Scholars in the best way possible and help understand their pathways through higher education.

Also, results will allow academic advisors and educators to better plan for retention and student service programs while Scholars were in school, to maximize their chances of having a positive experience and graduating. Additionally, this study will have important implications for a better understanding of students of color, since there are large samples of Scholars and Non-Scholars included who attended a wide range of different types of institutions.

Many scholars and researchers have called for alternatives to standardized tests and prior grades as predictors of success. Some have called for a broader definition of college success (Camara, 2005), others have suggested using multiple measures (Sackett, Schmitt, Ellingson, & Kabin, 2001), and theorists have suggested possible approaches (Sternberg, 1999). A system of noncognitive variables that measures a wider range of attributes than more traditional methods, is more equitable for students of color, and fits the logic of Sternberg's work has been developed (Sedlacek, 1998; 2003a,b, 2004, 2005). The noncognitive variables were (see Exhibit 1); positive self-concept, realistic self-appraisal, handling racism/negotiating the system, long-range goals, support-person, leadership, community service, and nontraditional knowledge (See Exhibit 1).

The noncognitive variables noted above were used to select the Gates Millennium Scholars, along with assessments of the academic rigor of their high school curriculum, and their ability to write a good essay explaining their interests in becoming a Scholar. The goals of the selection process were to judge the academic potential of students of color, who show their abilities in ways other than the more traditional standardized tests and prior grades. The measure of noncognitive variables employed in selecting Scholars showed high internal consistency reliability for its scores (.92).

Previous research on GMS Scholars (Sedlacek & Sheu, 2004) showed that nearly all Scholars (95%) indicated that they were very unlikely to drop out of school and were committed to earn a degree at their current institution. Among African Americans, significantly more Scholars (97%) than Non-Scholars (94%) felt they were unlikely to drop out of school. A similar response was also observed for American Indians (94% for Scholars versus 87% for Non-Scholars). The great majority ($\approx 90\%$) of Scholars expected to complete an advanced degree (master's degree or above). African American Scholars had higher educational aspirations than African American Non-Scholars.

Among female Scholars, African Americans had higher educational aspirations than American Indians and Asian/Pacific Islanders.

Among Scholars, Asian/Pacific Islanders and Hispanic Americans perceived more difficulties with schoolwork than did African Americans. There were no differences by race or gender or their interaction on difficulties with time management for Scholars. Among Scholars, Asian/Pacific Americans tended to spend more time studying per week (27.58 hrs) than American Indians (17.89 hrs). On the other hand, among Asian/Pacific Islanders, Scholars (27.58 hrs) spent more time than Non-Scholars (23.22 hrs) studying per week. For Scholars and Non-Scholars, Realistic Self-Appraisal was positively predictive of how much time they spent studying. Scholars were more likely to be engaged in academic activities than Non-Scholars. American Indian Scholars were less engaged in academic activities than African Americans or Hispanic Americans. Males (Scholar and Non-Scholar) were involved in more academic activities than females.

The Grade Point Averages (GPAs) of Asian/Pacific Islander and Hispanic American Scholars were higher than those of their African American and American Indian counterparts. Also for Scholars, positive self-concept, realistic self-appraisal, understanding/navigation of social systems, and community service were associated with a higher GPA.

The goals of this study were to continue to investigate the progress of Gates Millennium Scholars and to identify any difficulties or problem areas that they may be experiencing. Particular attention was paid to differences by race, gender and between Scholars and Non-Scholars.

Method

Participants and Procedures

The first sample consisted of 737 (50.3%) Scholars and 729 (49.7%) Non-Scholars who were undergraduate students (Year 2001 Cohort). They were 31% males, 69% females; 37% African Americans, 31% Hispanic Americans, 21% Asian Pacific Islanders, and 11% American Indians.

The second sample consisted of 194 graduate student participants (Year 2000 Cohort). They were 77% Scholars, 23% Non-Scholars; 32% males and 68% females; 41% Hispanic Americans, 32% African Americans, 13% Asian Pacific Islanders, and 13% American Indians.

Measures and Data Analysis

A set of items related to academic experiences and their correlates was identified in the follow-up survey for undergraduate Scholars and Non-Scholars entering in 2001 and graduate student Scholars and Non-Scholars entering in 2000. The survey was conducted in 2004 by the National Opinion Research Center and sent to those receiving an award (Scholars) and those who did not receive an award (Non-Scholars). Return rates were 90% for Scholars and 75% for Non-Scholars.

Each item was first treated as a variable, and several items were combined to tap a construct based on the results of factor analyses and internal consistency. To accommodate differences in cell sizes, continuous variables were analyzed by two-way General Linear Models (GLM) to explore racial differences and the difference between Scholars and Non-Scholars for the undergraduate cohort. Another set of two-way GLMs was performed to explore gender differences and the difference between Scholars and Non-Scholars for the graduate student cohort. Because of small cell sizes, racial differences were not investigated for the graduate cohort. The effect size indices (η^2) were reported. According to Cohen (1988), an effect size (η^2) of .0099 can be considered as small, .0588 as medium, and .1379 as large. Also, where racial differences were statistically

significant, Tukey’s HSD Post Hoc analysis was followed. Ordinal and nominal variables were subjected to chi-square analysis.

Results

GPA and Academic Experience in Major

Undergraduate cohort (Tables 1, 1a)

There were significant racial differences on GPA ($F = 18.27, \eta^2 = .039, p < .001$). Results of Tukey’s post hoc analysis indicated that Asian Pacific Islanders had higher GPA than other racial minorities. Also, there were significant racial difference on academic experiences in major ($F = 5.38, \eta^2 = .011, p = .001$). Post hoc analysis indicated that Hispanic Americans had better academic experiences than African Americans and Asian Pacific Islanders.

Table 1. Descriptive Statistics of GPA and Academic Experiences for the 2001 Undergraduate Cohort

Description of item	Total sample		Scholars		Non-Scholars	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
GPA as of April 2004	3.31	.49	3.32	.49	3.29	.48
Academic experience in major	3.26	.66	3.28	.66	3.24	.67

Note. GPAs were rated on a 1 – 4 scale. Academic experience in major was rated on a 1 (Poor) – 4 (Excellent).

Table 1a. Descriptive Statistics of GPA and Academic Experiences by Race for the 2001 Undergraduate Cohort

Description of item	African Americans		American Indians		Asian Pacific Islanders		Hispanic Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
GPA as of April 2004 ^a	3.24	.46	3.27	.49	3.49	.46	3.28	.50
Academic experience in major ^a	3.20	.66	3.30	.64	3.21	.71	3.35	.64

Note. GPAs were rated on a 1 – 4 scale. Academic experience in major was rated on a 1 (Poor) – 4 (Excellent). ^a Significant racial differences.

Graduate cohort (Table 1b)

Results of a two-way GLM indicated that the interaction of gender and Scholar/Non-Scholar was not significant. Additionally, there were significant gender main effect on GPA ($F = 5.62, \eta^2 = .054, p = .020$). Male graduate students had higher GPAs than females. Results of another two-way GLM showed no interaction and main effects on academic experiences in their major for graduate participants.

Table 1b. Descriptive Statistics of GPA and Academic Experiences for Graduate Cohort (2000)

Description of item	Total		Scholar		Non-Scholar		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
GPA as of April 2004 ^a	3.76	.29	3.78	.26	3.65	.38	3.83	.27	3.72	.29
Academic experience in major	3.52	.63	3.51	.63	3.53	.67	3.56	.60	3.50	.65

Note. GPAs were rated on a 1 – 4 scale. Academic experience in major was rated on a 1 (Poor) – 4 (Excellent). ^a Significant gender differences.

Academic Involvement

Undergraduate cohort (Tables 2, 2a)

There were significant differences between Scholars and Non-Scholars on the five items related to academic involvement. Specifically, Scholars were involved more frequently than Non-Scholars on working with students outside of class ($F = 23.96, \eta^2 = .017, p < .001$), discussing ideas with students outside of class ($F = 23.81, \eta^2 = .017, p < .001$), discussing ideas with faculty outside of class ($F = 12.60, \eta^2 = .009, p < .001$), working harder than expected by instructors ($F = 6.61, \eta^2 = .005, p = .010$), and working on creative projects ($F = 7.44, \eta^2 = .006, p = .006$). However, there were no racial differences on academic involvement.

Table 2. Descriptive Statistics of Frequencies of Academic Involvement Variables for the 2001 Undergraduate Cohort

Description of item	Total sample		Scholars		Non-Scholars	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Work with students out of class ^a	4.11	1.62	4.42	1.58	3.88	1.64
Discuss ideas with students out of class ^a	4.28	1.50	4.49	1.43	4.05	1.55
Discuss ideas with faculty out of class ^a	3.14	1.53	3.32	1.53	2.95	1.52
Work harder than expected ^a	4.23	1.49	4.36	1.43	4.10	1.54
Work on creative projects ^a	3.27	1.79	3.41	1.78	3.12	1.80

Note. Items were rated on a 1 (Less than once a month) – 6 (Three or more times a week) scale with higher scores indicating higher frequencies. ^a Significant differences between Scholars and Non-Scholars.

Table 2a. Descriptive Statistics of Frequencies of Academic Involvement Variables by Race for the 2001 Undergraduate Cohort

Description of item	African Americans		American Indians		Asian Pacific Islanders		Hispanic Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
	Work with students out of class	4.09	1.64	3.87	1.68	4.10	1.66	4.22
Discuss ideas with students out of class	4.24	1.50	4.13	1.62	4.17	1.51	4.43	1.55
Discuss ideas with faculty out of class	3.16	1.53	3.08	1.54	3.01	1.54	3.23	1.52
Work harder than expected	4.37	1.50	4.11	1.36	4.08	1.55	4.22	1.54
Work on creative projects	3.32	1.78	3.07	1.70	3.27	1.86	3.27	1.80

Note. Items were rated on a 1 (Less than once a month) – 6 (Three or more times a week) scale with higher scores indicating higher frequencies.

Graduate cohort (Table 2b)

There were no differences between Scholars and Non-Scholars but there were gender differences on two of the academic involvement items. Male graduate participants were more involved than females on working with other students outside class ($F = 6.80, \eta^2 = .069, p = .011$) and working on creative projects ($F = 4.51, \eta^2 = .045, p = .036$). On the other hand, differences between Scholars and Non-Scholars on these two items were absent.

Table 2b. Descriptive Statistics of Frequencies of Academic Involvement Variables for Graduate Cohort (2000)

Description of item	Total		Scholar		Non-Scholar		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Work with students out of class ^a	3.33	1.18	3.38	1.78	3.11	2.00	3.81	1.68	3.11	1.84
Discuss ideas with students out of class	3.72	1.65	3.72	1.65	3.72	1.71	3.91	1.55	3.64	1.70
Discuss ideas with faculty out of class	3.49	1.58	3.52	1.54	3.37	1.77	3.91	1.38	3.30	1.64
Work harder than expected	4.31	1.60	4.28	1.62	4.41	1.54	4.48	1.46	4.21	1.67
Work on creative projects ^a	4.15	1.90	4.25	1.86	3.72	2.05	4.71	1.53	3.86	2.02

Note. *N* ranged from 95 to 99 due to missing values. Items were rated on a 1 (Less than once a month) – 6 (Three or more times a week) scale with higher scores indicating higher frequencies. ^a Significant gender differences.

Discussion of Academic Problems

Undergraduate cohort (Tables 3, 3a)

There were racial differences ($F = 11.07, \eta^2 = .024, p < .001$) on the frequency of discussing academic problems with family members. Asian Pacific Islanders were less likely than other racial minorities to discuss academic problems with family members. There were racial differences ($F = 5.52, \eta^2 = .012, p = .001$) on the frequency of discussing academic problems with faculty. Asian Pacific Islanders were also less likely to do so than African Americans and American Indians.

There were racial differences ($F = 7.26, \eta^2 = .018, p < .001$) on the frequency of discussing academic problems with clergy. African Americans were more likely to discuss their academic problems with clergy than other racial groups.

Table 3. Descriptive Statistics of Frequencies of Discussing Academic Problems for the 2001 Undergraduate Cohort

Description of item	Total sample		Scholars		Non-Scholars	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Talk academic problems with family members	2.95	1.43	2.96	1.40	2.93	1.45
Talk academic problems with friends	3.54	1.17	3.52	1.12	3.55	1.21
Talk academic problems with faculty	3.60	1.13	3.68	1.10	3.51	1.16
Talk academic problems with clergy	1.37	.78	1.41	.81	1.33	.74

Note. Items were rated on a 1 (Never) – 5 (Very Often) scale with higher scores indicating higher frequencies.

Table 3a. Descriptive Statistics of Frequencies of Discussing Academic Problems by Race for the 2001 Undergraduate Cohort

Description of item	African Americans		American Indians		Asian Pacific Islanders		Hispanic Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Talk academic problems with family members ^a	3.06	1.45	3.31	1.36	2.55	1.36	2.96	1.45
Talk academic problems with friends	3.46	1.19	3.57	1.18	3.64	1.13	3.54	1.13
Talk academic problems with faculty ^a	3.72	1.11	3.67	1.08	3.38	1.15	3.58	1.15
Talk academic problems with clergy ^a	1.50	.89	1.29	.62	1.26	.71	1.31	.71

Note. Items were rated on a 1 (Never) – 5 (Very Often) scale with higher scores indicating higher frequencies.

^a Significant racial differences.

Graduate cohort (Table 3b)

For graduate students, there were no gender differences or differences between Scholars and Non-Scholars on the frequencies of discussing academic problems with family members, friends, faculty, or clergy. Graduate participants tended to seek out help for academic problems from faculty, and were less likely to do so with clergy.

Table 3b. Descriptive Statistics of Frequencies of Discussing Academic Problems for the 2000 Graduate Cohort

Description of item	Total		Scholar		Non-Scholar		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Talk academic problems with family members	2.60	1.50	2.66	1.51	2.35	1.47	2.23	1.45	2.81	1.50
Talk academic problems with friends	3.06	1.22	3.04	1.22	3.12	1.23	3.09	1.25	3.04	1.21
Talk academic problems with faculty	3.70	1.18	3.68	1.24	3.79	.93	3.79	1.19	3.65	1.18
Talk academic problems with clergy	1.37	.81	1.38	.83	1.35	.75	1.38	.88	1.36	.78

Note. Items were rated on a 1 (Never) – 5 (Very Often) scale with higher scores indicating higher frequencies. All tests were not significant at the .05 level.

School Helpfulness

Undergraduate cohort (Tables 4,4a)

There was a difference between Scholars and Non-Scholars ($F = 6.24, \eta^2 = .004, p = .013$)

on their perceptions of how much school helped them develop analytic skills. Scholars were more likely than Non-Scholars to perceive their schools as helpful in developing their analytic skills. Also, there were racial differences ($F = 3.60, \eta^2 = .008, p = .013$) on participants' perceptions of how much school helped them develop abilities to work independently. Hispanic Americans were more likely than African Americans to perceive their schools as helpful.

There were racial differences ($F = 5.99, \eta^2 = .013, p < .001$) and the difference between Scholars and Non-Scholars ($F = 4.84, \eta^2 = .003, p = .028$) on perceptions of how much their schools helped them develop abilities to communicate orally well. Scholars were more likely than Non-Scholars to perceive their schools as helpful in this regard. Also, Asian Pacific Islanders were less likely than African Americans and Hispanic Americans to perceive their schools as helpful.

There were racial differences ($F = 5.97, \eta^2 = .013, p < .001$) and the difference between Scholars and Non-Scholars ($F = 9.67, \eta^2 = .007, p = .002$) on perceptions of how much their schools helped them develop abilities to write clearly and effectively. Similarly, Scholars were more likely than Non-Scholars to perceive their schools as helpful in this regard. Also, Asian Pacific Islanders were less likely than African Americans and Hispanic Americans to perceive their schools as helpful in developing writing skills.

There was a difference between Scholars and Non-Scholars ($F = 5.60, \eta^2 = .004, p = .018$) on perceptions of how much their schools helped them develop abilities to adapt to change. Scholars were more likely than Non-Scholars to perceive their schools as helpful in this regard.

Table 4. Descriptive Statistics of School Helpfulness Variables for the 2001 Undergraduate Cohort

Description of item	Total sample		Scholars		Non-Scholars	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
School help develop analytic skills ^a	4.47	.75	4.54	.65	4.40	.83

School help develop ability to work independently	4.52	.77	4.56	.70	4.48	.83
School help develop oral communication abilities ^a	4.34	.85	4.41	.79	4.28	.90
School help develop writing clearly ^a	4.37	.83	4.45	.77	4.28	.89
School help adaptation to change ^a	4.56	.74	4.62	.66	4.51	.81

Note. Items were rated on a 1 (Not at all) – 5 (A great deal) scale with higher scores indicating positive outcomes. ^a Significant differences between Scholars and Non-Scholars.

Table 4a. Descriptive Statistics of School Helpfulness Variables by Race for the 2001 Undergraduate Cohort

Description of item	African Americans		American Indians		Asian Pacific Islanders		Hispanic Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
School help develop analytic skills	4.50	.75	4.44	.67	4.40	.79	4.51	.74
School help develop ability to work independently ^a	4.46	.86	4.54	.64	4.48	.75	4.62	.70
School help develop oral communication abilities ^a	4.44	.82	4.27	.81	4.17	.91	4.37	.83
School help develop writing clearly ^a	4.45	.80	4.34	.84	4.18	.93	4.39	.78
School help adaptation to change	4.60	.76	4.49	.75	4.47	.76	4.61	.70

Note. Items were rated on a 1 (Not at all) – 5 (A great deal) scale with higher scores indicating positive outcomes. ^a Significant racial differences.

Graduate cohort (Table 4b)

For graduate participants, there were no gender differences or differences between Scholars and Non-Scholars on how much school helped them develop analytic skills, work independent,

communicate orally, write clearly, and adapt to change. On a 1-5 scale, they all rated their schools as highly helpful.

Table 4b. Descriptive Statistics of School Helpfulness Variables for the 2000 Graduate Cohort

Description of item	Total		Scholar		Non-Scholar		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
School help develop analytic skills	4.67	.62	4.71	.57	4.52	.78	4.74	.58	4.64	.64
School help develop ability to work independently	4.53	.81	4.59	.79	4.32	.83	4.59	.73	4.51	.84
School help develop oral communication abilities	4.57	.72	4.60	.71	4.45	.75	4.67	.60	4.52	.76
School help develop writing clearly	4.65	.65	4.64	.68	4.67	.57	4.74	.48	4.60	.72
School help adaptation to change	4.55	.78	4.59	.76	4.43	.87	4.59	.82	4.54	.77

Note. Items were rated on a 1 (Not at all) – 5 (A great deal) scale with higher scores indicating positive outcomes. All tests were not significant at the .05 level.

Academic Difficulties

Undergraduate cohort (Tables 5,5a)

There were racial differences on difficulties keeping up with schoolwork ($F = 13.39, \eta^2 = .028, p < .001$) and difficulties getting academic help ($F = 9.50, \eta^2 = .020, p < .001$). African Americans had experienced fewer difficulties with schoolwork than Asian Pacific Islanders and Hispanic Americans. African Americans had also experienced fewer difficulties getting academic help than other racial groups.

Table 5. Descriptive Statistics of Academic Difficulties and Perceived Discrimination Variables for the 2001 Undergraduate Cohort

Description of item	Total sample		Scholars		Non-Scholars	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>

*Difficulties keeping up with schoolwork	2.68	.78	2.69	.76	2.68	.80
*Difficulties getting academic help	3.11	.70	3.13	.68	3.08	.71
**Discriminatory academic climate toward racial minorities ^b	3.21	.69	3.21	.70	3.21	.68
**Discriminatory social climate toward racial minorities ^b	3.08	.74	3.08	.73	3.09	.75

Note. * Items were rated on a 1 (Very difficult) – 4 (Not difficult at all) scale with higher scores indicating positive outcomes. ** Items were rated on a 1 (Very discriminatory) – 4 (Very supportive) scale with higher scores indicating positive outcomes. ^b Significant interactions between race and Scholars vs. Non-Scholars.

Table 5a. Descriptive Statistics of Academic Difficulties and Perceived Discrimination Variables by Race for the 2001 Undergraduate Cohort

Description of item	African Americans		American Indians		Asian Pacific Islanders		Hispanic Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
*Difficulties keeping up with schoolwork ^a	2.84	.78	2.74	.73	2.52	.77	2.60	.77
*Difficulties getting academic help ^a	3.23	.70	3.04	.64	2.96	.70	3.09	.68
**Discriminatory academic climate toward racial minorities ^b	3.11	.69	3.39	.62	3.26	.63	3.22	.73
**Discriminatory social climate toward racial minorities ^b	2.97	.75	3.22	.67	3.18	.66	3.10	.79

Note. * Items were rated on a 1 (Very difficult) – 4 (Not difficult at all) scale with higher scores indicating positive outcomes. ** Items were rated on a 1 (Very discriminatory) – 4 (Very supportive) scale with higher scores indicating positive outcomes. ^a Significant racial differences. ^b Significant interactions between race and Scholars vs. Non-Scholars.

Graduate cohort (Table 5b)

Graduate Non-Scholars tended to experience more difficulties keeping up with schoolwork than Scholars ($F = 5.56, \eta^2 = .051, p = .020$). There were no gender differences or differences between Scholars and Non-Scholars on their perceived difficulties getting academic help.

Table 5b. Descriptive Statistics of Academic Difficulties and Perceived Discrimination Variables for the 2000 Graduate Cohort

Description of item	Total		Scholar		Non-Scholar		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
*Difficulties keeping up with schoolwork ^a	2.89	.85	2.98	.78	2.52	1.03	2.78	.89	2.94	.85
*Difficulties getting academic help	3.04	.90	3.09	.90	2.81	.87	3.08	.72	3.01	.99
**Discriminatory academic climate toward racial minorities ^a	2.95	.83	2.84	.83	3.33	.69	2.93	.84	2.96	.83
**Discriminatory social climate toward racial minorities	2.92	.86	2.85	.87	3.18	.77	2.91	.86	2.92	.86

Note. * Items were rated on a 1 (Very difficult) – 4 (Not difficult at all) scale with higher scores indicating positive outcomes. ** Items were rated on a 1 (Very discriminatory) – 4 (Very supportive) scale with higher scores indicating positive outcomes. ^a Significant difference between Scholars and Non-Scholars.

Discriminatory Climates toward Students of Color

Undergraduate cohort (Tables 5,5a)

There were significant interactions between race and Scholars vs. Non-Scholars on participants' perceptions on discrimination of college/university's academic climate ($F = 2.69, \eta^2 = .006, p = .045$) and social climate ($F = 3.71, \eta^2 = .008, p = .011$). In terms of discriminatory academic climate toward racial groups, the difference between Scholars and Non-Scholars (i.e., Scholars perceived the climate as less discriminatory than Non-Scholars) only occurred for American Indians, but not for other racial groups. On the other hand, American Indian Scholars perceived the academic climate as less discriminatory than African American and Hispanic American Scholars. For Non-Scholars, Hispanic Americans perceived the academic climate as less discriminatory than African Americans (See Figure 1).

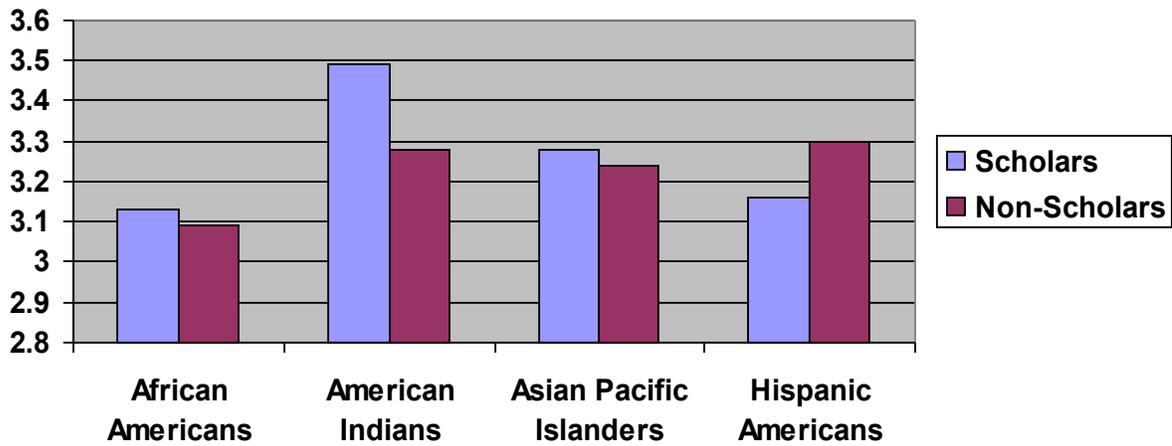


Figure 1. *The Race by Scholar vs. Non-Scholars Interaction on Perceived Discrimination of Academic Climate*

In terms of discriminatory social climate, American Indian and Asian Pacific Islander Scholars perceived their social climates as less discriminatory than African American and Hispanic American Scholars. For Non-Scholars, Hispanic Americans perceived the social climate as less discriminatory than African Americans. On the other hand, the difference between Scholars and Non-Scholars (i.e., Non-Scholars perceived the climate as less discriminatory than Scholars) was present only for Hispanic Americans, but not for other racial groups (See Figure 2).

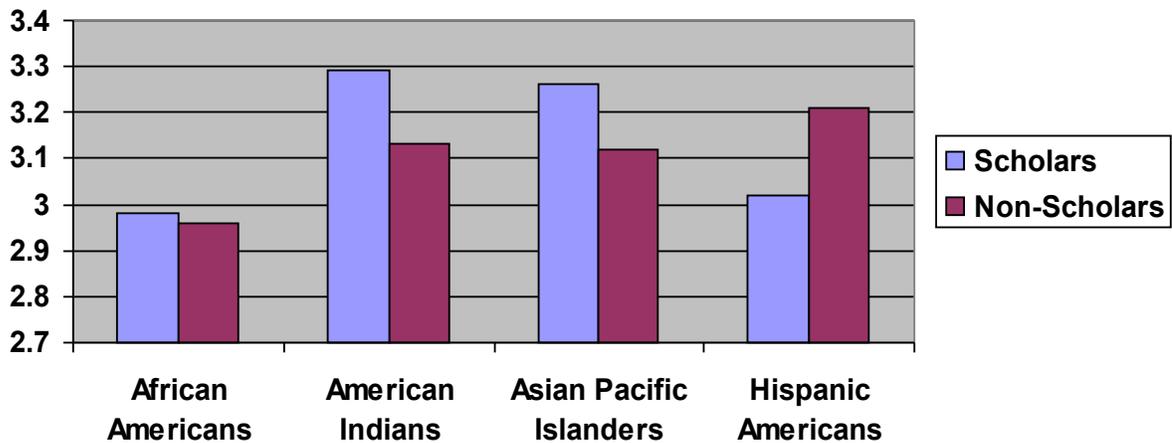


Figure 2. *The Race by Scholar vs. Non-Scholars Interaction on Perceived Discrimination of Social Climate*

Graduate cohort (Table 5b)

Graduate Non-Scholars perceived their academic climate as more supportive than did Scholars ($F = 8.31, \eta^2 = .046, p = .004$). There were no gender differences or differences between Scholars and Non-Scholars on how they perceived their social climate as discriminatory or supportive of persons of color.

Predicting GPA and Academic Experiences in Major

Undergraduate cohort (Table 6)

Based on the results of factor analyses (Principal Axis Factoring), three total scores were formed using items in Table 2, 3, and 4 to represent constructs of academic involvement, discussion of academic problems, and school helpfulness. These three single factors explained 52.95%, 41.90%, and 55.74% of the constructs, respectively. Also, total scores of academic involvement, discussion of academic problems, and school helpfulness had internal consistency estimates of .77, .53, and .80, respectively.

Because of the significant correlation ($r = .33$) between the two items regarding academic difficulties in Tables 5 and 5a, a composite score was formed by averaging scores of the two items to represent academic difficulties. With the same method, a composite score was formed to represent perceived discrimination on campus using the two items regarding discriminatory academic and social climates ($r = .69$) in Tables 5 and 5a. Intercorrelations among GPA, academic experiences in major, academic involvement, discussion of academic problems, school helpfulness, academic difficulties, and perceived discrimination on campus are presented in Table 6.

Results of a simultaneous regression analysis indicated that academic involvement ($\beta = .15$), school helpfulness ($\beta = .17$), academic difficulties ($\beta = -.20$), and perceived discrimination ($\beta = -.11$) were significant predictors of positive academic experiences in major for undergraduate participants. Another simultaneous regression analysis showed that academic involvement ($\beta = .09$), academic difficulties ($\beta = -.18$), and perceived discrimination ($\beta = -.11$) were predictive of GPA.

Table 6. Intercorrelations of GPA, Academic Experience in Major, Academic Involvement, Frequencies of Discussing Academic Problems, School Helpfulness, Academic Difficulties, and Perceived Discrimination for the 2001 Undergraduate Cohort and the 2000 Graduate Cohort

	1	2	3	4	5	6	7
1. GPA	-	.25*	.10	-.04	.03	-.13	-.14
2. Academic experience	.36**	-	.28**	.03	.14	-.24*	-.31**
3. Academic involvement	.12**	.23**	-	.26*	.19	.04	-.08
4. Discussing academic problems	.06	.13**	.27**	-	.18	-.16	-.09
5. School helpfulness	.12**	.27**	.28**	.27**	-	-.18	-.07
6. Academic difficulties ^a	-.18**	-.26**	-.09**	-.11**	-.17**	-	.28**
7. Perceived discrimination ^b	-.13**	-.14**	-.07*	-.06*	-.14**	.14**	-

Note. Data of undergraduate cohort are presented under the diagonal. Data of graduate cohort are presented above the diagonal. ^a Higher scores indicate more difficulties. ^b Higher scores indicate more discrimination.

* $p < .05$. ** $p < .01$.

Graduate cohort (Table 6)

Composite scores of academic involvement, discussion of academic problems, school helpfulness, academic difficulties, and perceived discrimination were created for graduate participants. Intercorrelations among GPA, academic experiences in major, academic involvement, discussion of academic problems, school helpfulness, academic difficulties, and perceived discrimination on campus are presented in Table 6. GPA was related to academic experience, whereas academic experience was correlated positively with academic involvement and negatively with academic difficulties and perceived discrimination.

GPA was not significantly related to the eight non-cognitive variables and the other three selection variables (i.e., rigor of course work, math/science/foreign language, scholarly nature of essay) (r ranged from $-.114$ to $.188$, $p > .05$). A simultaneous regression analysis was conducted for graduate participants' current GPA (as of April 30, 2004) with the eight noncognitive variables, the other three selection variables, academic involvement, discussion of academic problems, school helpfulness, academic difficulties, and perceived discrimination as predictors. Results indicated that the only significant predictor of GPA was Realistic Self-Appraisal ($\beta = .46$). Another simultaneous regression analysis was conducted to predict academic experience using the above same set of predictors. Results indicated that academic involvement ($\beta = .43$), academic difficulties ($\beta = -.29$), perceived discrimination ($\beta = -.25$), and noncognitive variable-Leadership ($\beta = .34$) were significant predictors of academic experience.

Conclusions

Undergraduate Students

Generally, undergraduate Scholars were doing well academically but there were differences among racial groups as to how they experienced academic success. While Asian Pacific Islanders had the highest GPAs, Hispanic Americans had more positive academic experiences in their majors than Asian Pacific Islanders and African Americans. This suggests some attention should be paid to the quality of the academic experiences of Asian Pacific Islander Americans. Asian Pacific Islanders also were less likely than other racial groups to discuss their academic problems with family

members and faculty and they tended to experience more difficulties keeping up with schoolwork and getting academic help than did African Americans. Combined with information on their self-concepts, Asian Americans may not be as comfortable in their majors or may not be having as positive an academic experience as the other racial groups.

Hune and Chan (1997) have argued that Asian Americans tend to be labeled as a "model minority" that does not have educational problems and may not be expected to seek help from advisors, faculty, student service providers, or family. The logic goes that perfect people do not seek help. Liang and Sedlacek (2003a) found some indication that student affairs practitioners subscribe to the model minority myth. Asian American students tend to avoid dealing with problems and stress, and use social withdrawal techniques (Chang, 1996; Liang & Sedlacek, 2003b). Further, Kodama et al. (2002) warned against using emotional cues or nonexpressiveness as an indication that a student is not experiencing any problems when working with groups of Asian American students and may wish to assess individual orientations toward coping with educational or social problems. Other research shows an indication of this pattern in that Asian Americans were more likely to complete their education, even though they were more dissatisfied with their experiences on campus than other groups (Bennett and Okinaka, 1990).

Scholars were more involved than Non-Scholars in academic activities, such as working with students outside of class, discussing ideas with students and faculty outside of class, and working on creative projects. This is a very positive outcome suggesting the importance of some of the noncognitive variables used in the selection of Scholars (Sedlacek, 2004). Scholars were selected to be higher on variables related to academic success than Non-Scholars and this looks to be the case. This difference should continue to be explored and is expected to show continued positive effects in success after Scholars leave school.

Academic involvement, fewer academic difficulties, and less perceived discrimination were significant predictors of positive academic experiences in one's major and GPA for Scholars. These findings support research on noncognitive variables (Sedlacek, 2004). The more one is involved academically the more likely will that student locate a support person and develop a community, which are two of the noncognitive variables shown in Exhibit 1. Perceiving less discrimination was also related to a positive academic experience and handling the system was another of the noncognitive variables on which Scholars were selected (Exhibit 1). These variables should also be considered in working with students in these areas because they are important to eventual student success.

Also, there were racial differences and differences between Scholars and Non-Scholars on perceived school helpfulness. Scholars were more likely than Non-Scholars to perceive their school as helpful in developing analytic skills, oral communication ability, writing abilities, and adaptation to change. All these variables could be seen as helping a student to "navigate the system" which is another of the noncognitive variables critical to the success of students. This should also be continued to be studied and will likely continue to distinguish Scholars from Non-Scholars and correlate with Scholar's success in school and beyond. Hispanic Americans perceived their schools as more helpful in developing ability to work independently than did African Americans. Also, African Americans and Hispanic Americans perceived their schools as more helpful in developing communication and writing abilities than did Asian Pacific Islanders. These findings suggest some important racial differences that should continue to be explored in future research as well as in campus multicultural programs.

There were race by Scholar vs. Non-Scholar interactions on perceived discrimination of academic and social climates toward students of color. In general, there were no differences

between Scholars and Non-Scholars for African Americans. American Indian Scholars tended to perceive climates as less discriminatory than Non-Scholars. However, Hispanic American Scholars tended to perceive climates as more discriminatory than Non-Scholars. This would be an important topic to pursue in Leadership Seminars and future studies since handling racism and negotiating the system are correlated with academic success.

Graduate Students

Graduate students tended to seek out help for academic problems from faculty, and were less likely to do so with clergy. Developing supportive relationships with faculty is critical to the success of graduate students. Graduate students felt their school helped them to develop analytic skills, work independently, communicate orally, write clearly, and adapt to change. These positive statements about the support from the school correlate with the success of graduate students (Sedlacek, 2003b).

For graduate students, Realistic Self-Appraisal was a significant predictor of GPA. As students enter graduate school they must reevaluate their strengths and weakness in a new context. Those that are more able to do this are more likely to succeed in school and beyond. GPA for graduate students suffers from restriction of range problems as a measure of success. In other words, because graduate students tend to get higher GPAs on the average than undergraduates, the range of those GPAs is reduced thus lowering the possibility that other variables will correlate with GPA. See Sedlacek (2004) for a more complete discussion.

For graduate students, more academic involvement, less academic difficulties, perceiving less discrimination, and higher noncognitive variable Leadership scores were significant predictors of positive academic experience. Students were chosen for their ability to score well on these dimensions and they are showing that potential in graduate school. As with undergraduates,

perceiving less discrimination was related to a positive academic experience suggesting that successful graduate students had developed a way to handle discrimination.

Male graduate students had higher GPAs than females. This finding should be explored in further studies as to its implications. Male graduate students were more involved than females on working with other students outside class. As with the previous findings it is important to explore the implications of gender differences in future studies. It may be that females are encountering more discrimination and less support in science, technology and engineering fields than are males as most graduate participants were studying in these fields. This has been an historical pattern in higher education Sedlacek (2004). Graduate student Non-Scholars perceived their academic climate as more supportive than did Scholars. This should be checked for consistency and implications in future studies.

Mentoring Students of Color

A number of findings from the study suggest the need for further information on how to work with or mentor students of color. Research has identified several obstacles for students of color to obtain mentoring. Some examples include (a) a lack of faculty role models of color (Pope-Davis, Stone, & Neilson, 1997), (b) differences in cultural values between mentor and protégé (Goto, 1999), (c) not understanding the importance of good mentoring to success in one's career (Grant-Thompson & Atkinson, 1997), and (d) reluctance entering a cross-race advising or mentoring relationship (Brinson & Kottler, 1993). In addition, faculty members may believe one or more myths about mentoring students of color (see Brown, Davis, and McClendon, 1999), and faculty of color may be overwhelmed with requests for mentorship from students of color.

Also, recent research from the advising literature has indicated that the student-faculty advising relationship is related to a number of important outcomes for both faculty and advisor

(Schlosser & Gelso, 2001) and student-advisee (Schlosser et al., 2003; Schlosser & Gelso, 2005). Specifically, the advising relationship has been shown to be related in theoretically consistent ways to (a) student research self-efficacy, attitudes toward research, and interest in science and practice, and (b) advisor satisfaction with the advising relationship, as well as the costs and benefits for advising. These findings suggest it is important to consider the needs of both mentor and the protégé, even though the overwhelming majority of research in this area is focused on the protégé-student-advisee.

Evidence suggests that mentoring can be done using noncognitive variables. (Sedlacek, Benjamin, Schlosser, & Sheu, 2007). Students can be mentored by identifying behaviors associated with good or poor performance on each of the variables (see Exhibit 2). Mentors can do a self-assessment on each of the variables to determine their strengths and weaknesses in working on each dimension. For example, one advisor may be particularly effective at helping protégés set long-term goals while another might be better at assisting them in learning to negotiate the system. While most of the research with these noncognitive variables has been with undergraduate students, Sedlacek (2003a, 2004) has discussed the value of the noncognitive variables in working with graduate and professional students of color, including a number of principles, techniques, and examples in working with the variables.

The noncognitive variables can be used along with any other variables, models, or techniques that are employed in whatever role or type of mentoring is involved. Teachers, advisors, or counselors who use the system can expect to obtain better student outcomes in terms of grades, retention, and satisfaction, as well as greater satisfaction themselves in employing something systematic with demonstrated utility in an area that often produces confusion and anxiety.

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Exhibit 1
Description of Noncognitive Variables

Variable #	Variable Name
1	<p><i>Positive Self-Concept</i></p> <ul style="list-style-type: none"> • Demonstrates confidence, strength of character, determination, and independence.
2	<p><i>Realistic Self-Appraisal</i></p> <ul style="list-style-type: none"> • Recognizes and accepts any strengths and deficiencies, especially academic, and works hard at self-development. Recognizes need to broaden his/her individuality.
3	<p><i>Understands and Knows How to Handle Racism (the System)</i></p> <ul style="list-style-type: none"> • Exhibits a realistic view of the system based upon personal experience of racism. Committed to improving the existing system. Takes an assertive approach to dealing with existing wrongs, but is not hostile to society, nor is a "cop-out." Able to handle racist system.
4	<p><i>Prefers Long-Range to Short-Term or Immediate Needs</i></p> <ul style="list-style-type: none"> • Able to respond to deferred gratification, plans ahead and sets goals.
5	<p><i>Availability of Strong Support Person</i></p> <ul style="list-style-type: none"> • Seeks and takes advantage of a strong support network or has someone to turn to in a crisis or for encouragement.
6	<p><i>Successful Leadership Experience</i></p> <ul style="list-style-type: none"> • Demonstrates strong leadership in any area of his/her background (e.g. church, sports, non-educational groups, gang leader, etc.).
7	<p><i>Demonstrated Community Service</i></p> <ul style="list-style-type: none"> • Participates and is involved in his/her community.
8	<p><i>Knowledge Acquired in or about a Field</i></p> <ul style="list-style-type: none"> • Acquires knowledge in a sustained and/or culturally related ways in any field.

Exhibit 2

Positive and Negative Evidence of Each Noncognitive Variable

VARIABLES 1 THROUGH 8

In the following , you will find the definition of the variable and a list of questions to guide you in the assessment of each variable for use in mentoring students

Variable Item #1: POSITIVE SELF-CONCEPT

This variable assesses the protégé's confidence, self-esteem, independence, and determination, all vital components of future achievement and success.

Positive Evidence	Negative Evidence
Does the protégé feel confident of making it through graduation?	Does the protégé express any reason he/she might not complete school or succeed and attain his/her goals?
Does the protégé make positive statements about him/herself?	Does the protégé express concerns that other students are better than he/she is?
Does the protégé expect to achieve his/her goals and perform well in academic and non-academic areas?	Does the protégé expect to have marginal grades?
Does the protégé provide evidence how he/she will attain his/her goals?	Does the protégé have trouble balancing his/her personal and academic life?
Does the protégé link his/her interests and experiences with his/her goals?	Does the protégé appear to be avoiding new challenges or situations?
Does the protégé assume he/she can handle new situations or challenges?	

Variable #2: REALISTIC SELF-APPRAISAL	
<i>This variable assesses the protégé's ability to recognize and accept his/her strengths and deficiencies, especially in academics, and works hard at self-development to broaden his/her individuality.</i>	
Positive Evidence	Negative Evidence
Is the protégé aware of his/her strengths and weaknesses?	Is the protégé unaware of how evaluations are done in school?
Does the protégé know what it takes to pursue a given career?	Is the protégé not sure about his/her own abilities?
Is the protégé realistic about his/her abilities?	Is the protégé uncertain about how his/her peers or superiors rate his/her performances?
Does the protégé show an awareness of how his/her service, leadership, extracurricular activities, or schoolwork has caused him/her to change over time?	Does the protégé overreact to positive or negative reinforcement rather than seeing it in a larger context?
Has the protégé learned something from these structured or unstructured activities?	Is the protégé unaware of how he/she is doing in classes until grades are out?
Does the protégé appreciate and understand both positive and negative feedback?	Is the protégé unaware of positive and negative consequences of his/her grades, actions, or skills?
Does the protégé provide evidence of overcoming anger, shyness, and lack of discipline?	
Does the protégé face a problem, like a bad grade, with determination to do better?	

Variable #3: SUCCESSFULLY HANDLES THE SYSTEM (RACISM)	
<i>This variable assesses the protégé's ability to understand the role of the 'system' in life and to develop a method of assessing the cultural/racial demands of the system and respond accordingly/assertively.</i>	
Positive Evidence	Negative Evidence
Is the protégé able to overcome challenges or obstacles he/she is confronted with as a result of racism in a positive and effective way?	Is the protégé unaware of how the "system" works?
Does the protégé understand the role of the "system" in his/her life and how it treats nontraditional persons?	Is the protégé preoccupied with racism or does not feel racism exists?
Does the protégé reveal ways that he/she has learned to "deal" with the "system" accordingly?	Does the protégé blame others for his/her problems?

	Does the protégé react with the same intensity to large or small issues concerned with race?
	Is the protégé's method for successfully handling racism that does not interfere with personal and academic development nonexistent?

Variable #4: PREFERENCE FOR LONG-TERM GOALS	
<i>This variable assesses the protégé's persistence, patience, long term planning, and willingness to defer gratification and success in college.</i>	
Positive Evidence	Negative Evidence
Does the protégé reveal experience setting both academic and personal long-term goals?	Does the protégé lack evidence of setting and accomplishing goals?
Does the protégé provide evidence that he/she is planning for the future?	Is the protégé likely to proceed without clear direction?
Has the protégé determined a course of study and anticipate the type of career or path he/she might or could pursue?	Does the protégé rely on others to determine outcomes?
Is the protégé aware of realistic and intermediate steps necessary to achieve goals?	Does the protégé focus too much attention to the present?
Has the protégé participated in activities (volunteer work, employment, extra courses, community work) related to his/her anticipated career goal?	Is the protégé's plan for approaching a course, school in general, an activity, etc. nonexistent?
	If the protégé states his/her goals, are the goals vague or unrealistic?

Variable #5: AVAILABILITY OF STRONG SUPPORT PERSON	
<i>This variable assesses the protégé's availability of a strong support network, help, and encouragement, and the degree to which he/she relies solely on her/his own resources.</i>	
Positive Evidence	Negative Evidence
Does the protégé have a strong support system? (This can be a personal, professional, academic support as long as it is someone the protégé can turn to for advice, consultation, assistance, encouragement etc.)	Does the protégé avoid turning to a support person, mentor, or close advisors for help?

Is the protégé willing to admit that he/she needs help and able to pull on other resources, other than him/herself, to solve problems?	Does the protégé keep his/her problems to himself?
	Does the protégé state that he/she can handle things on his/her own?
	Does the protégé state that access to a previous support person may have been reduced or eliminated?
	Is the protégé unaware of the importance of a support person?

Variable #6: LEADERSHIP EXPERIENCE	
<i>This variable assesses the protégé's skills developed or influence exercised from his/her formal and informal leadership roles.</i>	
Positive Evidence	Negative Evidence
Has the protégé taken leadership initiative, for example by founding clubs/organizations? What evidence is there?	Is the protégé unable to turn to others for advice or direction?
Does the protégé describe the skills s/he has developed as a leader, skills such as assertiveness, effectiveness, organizing, and time management?	Does the protégé lack confidence or leadership skills?
Has the protégé shown evidence of influencing others and being a good role model?	Is the protégé passive or does he/she lack initiative?
Is the protégé comfortable providing advice and direction to others?	Is the protégé overly cautious?
Does the protégé describe a commitment to being a role model for siblings, community members, or schoolmates?	Does the protégé avoid controversy?
Does the protégé show sustained commitment to one or two types of organizations with increasing involvement, skill development and responsibility?	
Does the protégé take action and initiative?	

Variables #7: COMMUNITY INVOLVEMENT	
<i>This variable assesses the protégé's identification with a cultural, geographic, or racial group and his/her demonstrated activity within that community grouping.</i>	
Positive Evidence	Negative Evidence
Does the protégé show sustained commitment to a service site or issue area?	Does the protégé lack involvement in cultural, racial or geographical group or community?
Does the protégé demonstrate a specific or long-term commitment or relationships with a community?	Is the protégé involved in his/her community in name only?
Has the protégé accomplished specific goals in a community setting?	Does the protégé engage more in solitary rather than group activities (academic or non-academic)?
Does the protégé's community service relate to career or personal goals?	

Variable #8: KNOWLEDGE ACQUIRED IN A FIELD	
<i>This variable assesses the protégé's experiences gained in a field through study and experiences beyond the classroom. This variable pays particular attention to the ways the protégé gains non-traditional, perhaps culturally or racially based views of the field.</i>	
Positive Evidence	Negative Evidence
Does the protégé use his/her knowledge to teach others about the topic?	Does the protégé lack evidence of learning from the community or non-academic activities?
Is the protégé working independently in his/her field? (Be sensitive to variations between academic fields and the experiences that can be gained. For example, if in the sciences, by doing independent research, or if in the arts or crafts, by participating in competitions or compositions.)	Is the protégé traditional in his/her approach to learning?
	Is the protégé unaware of his/her possibilities in a field of interest?