

The influence of involvement with faculty and mentoring on the self-efficacy and academic achievement of African American and Latino college students

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Abstract: African American and Latino college students were surveyed to examine the influence of involvement with faculty and mentoring on self-efficacy and academic achievement. It was hypothesized that involvement with faculty and mentoring were related to greater academic achievement. It was suggested that the relationship of these factors was mediated by self-efficacy. Involvement with faculty and self-efficacy were significantly related to academic achievement. The relationship between involvement with faculty and better academic achievement was partially explained by higher self-efficacy. Possible explanations for mentoring not being predictive of academic achievement in this sample were provided and the significance of faculty-student interactions was discussed.

Keywords: Involvement with faculty, self-efficacy, academic achievement, African American, Latino, college students

I. Introduction.

Despite increases in college enrollment for African American and Latino students (Aud, Fox & Kewal Ramani, 2010), they still lag behind European American students in terms of their academic performance (Fletcher & Tienda, 2010). Two methods that have been used to alleviate these deficits are mentoring programs (e.g. Santos & Reigados, 2002) and increasing general involvement with faculty (e.g. Komarraju, Musulkin, & Bhattacharya, 2010). These practices may be particularly important for ethnic minorities who may not have people in their family or social network that can support their academic endeavors (Alvarez, Blume, Cervantes & Thomas, 2009). If these practices are going to continue to be utilized by institutions to improve the performance of ethnic minority students, then it behooves us to examine them more closely to determine their effectiveness and how they influence achievement. This study examines mentoring and involvement with faculty as predictors of academic achievement as well as the role of academic self-efficacy in explaining these relationships.

A. Mentoring, Involvement with Faculty and Academic Achievement.

Both mentoring and involvement with faculty are related to higher academic achievement. A group of formally mentored primarily African American and Latino college students had higher academic performance than a control group as measured by GPA and higher retention (Thile & Matt, 1995). Another group of primarily Latino and African American mentored students obtained more college credits when compared to a control group (Campbell & Campbell, 2007). Improvements in GPA have even been found when mentors are other students and not faculty

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(Sorrentino, 2006-2007). These findings suggest that mentoring relationships are related to better academic achievement for college students.

Research has suggested that interacting with faculty in a variety of ways is related to better academic achievement (e.g. Komarraju, et al., 2010). Sax and colleagues (2005) found that merely interacting with faculty outside of class was related to higher academic achievement, especially for male college students. Lundberg and Schreiner (2004) suggested that students who have positive interactions with their faculty have better learning outcomes in college. Their finding is particularly relevant to this study because it was conducted with a large ethnically diverse sample. Interactions, such as conducting research with faculty, have been related to higher academic achievement for students as well, particularly African American students (Kim & Sax, 2009). Furthermore, Tinto (1975) states that students who are more involved with campus activities, such as interacting with faculty, will be more likely to persist academically.

B. Mentoring, Involvement with Faculty and Self-Efficacy.

Bandura (1997) defined self-efficacy as one's belief that they can obtain a specific goal. He discussed the sources of self-efficacy which include vicarious learning or modeling and verbal persuasion. Both mentoring and involvement with faculty are likely to impact these two sources of self-efficacy. Mentors are by definition intended to be role models to their mentees and often offer advice and suggestions for success. In addition, when students interact with faculty outside of the classroom, they are likely to learn from observation in various settings in addition to receiving advice as well. Furthermore, faculty members are likely to encourage (verbal persuasion) students with whom they interact. In turn this interaction will increase student's self-efficacy. Because faculty members are usually perceived as credible and knowledgeable, their encouragement and faith in students' academic abilities will be believed. Once students have some success after being encouraged by a mentor, they are likely to have greater increases in self-efficacy.

Among Latino college students, a mentoring program found that greater frequency of contact with one's faculty mentor was related to higher levels of self-efficacy (Santos & Reigados, 2002). Of note, one study did not find a relationship between mentoring and self-efficacy, however this is likely due to the fact that the sample included elementary school children who may not have benefited as much from their mentoring intervention (Lee & Crammond, 1999).

Faculty interactions, other than mentoring, also influence self-efficacy. Vogt (2008) found that faculty-student interactions such as sharing with the students, advising students on research, and being accessible had a positive effect on student self-efficacy. Komarraju and colleagues (2010) found that having off campus contact with faculty, feeling respected by them, and perceiving them as being approachable were all related to higher self-concept—note that their measurement of self-concept was very similar to self-efficacy. They stated that these factors are particularly important for ethnic minority students who may not have other academic role models (Komarraju, et al.). Cokely (2000) found similar results with those feeling supported by faculty also having higher academic self-concept. It is clear that in some ways mentoring and involvement with faculty overlap when the mentoring is being conducted by faculty however research demonstrates a relationship between both factors and the development of self-efficacy in college students.

C. Self-efficacy and Academic Achievement.

Self-efficacy has a well-established influence on academic achievement (e. g. Bandura, 1990, 1997; DeFreitas, 2012). Higher self-efficacy has been directly linked to higher grades for college students (e.g. Choi, 2005), even when ability levels (Kitsantas, Winsler & Huie, 2009) and past performance (Elias & MacDonald, 2007) were controlled. A meta-analysis found that academic self-efficacy and college GPA are related also when controlling for socioeconomic status and high school performance (Robbins, Lauver, Le, Davis, & Langley, 2004). Due to the powerful influence of self-efficacy on academic achievement, it is important to consider it as a mediator for the influence of mentoring and other forms of student-faculty involvement on achievement. When students are mentored and have interactions with faculty, this is likely to improve their self-efficacy because they are encouraged and provided with a role model. This elevation in self-efficacy is related to improved academic achievement because students now believe that they can do well academically, therefore they perform better.

D. The Current Study.

Few studies, if any, have examined the academic achievement of African American and Latino students at a Hispanic serving institution therefore this study examines a population often overlooked. This study proposes the following hypotheses.

1. African American and Latino college students who are mentored will have better academic achievement (higher GPA) than those who are not mentored.
2. African American and Latino college students who are involved with faculty will have better academic achievement (higher GPA) than those who are not involved with faculty.
3. Furthermore, we suggest that self-efficacy mediates the relationships between these factors and academic achievement such that:
 - a. Mentoring is related to higher self-efficacy which in turn is related to better academic achievement
 - b. and involvement with faculty is related to higher self-efficacy which in turn is related to better academic achievement

II. Methods.

A. Participants.

This study included 249 African American (N = 105) and Latino (N = 144) undergraduate students attending a Hispanic serving four-year institution. The average age of the sample was 24.3 (SD = 7.17). There was a large first generation college student population (Latino N=74 and African American N=27) and 57% of the sample had family incomes below \$30,000. See table 1 for means and standard deviations for the sample.

B. Measures.

A demographics and academic history measure was included in which the participants reported their age, gender, ethnicity and other information about their academic experiences. GPA was taken from institutional records.

Academic self-efficacy was assessed using the Self-Regulated Learning scale of the Multidimensional Scales of Perceived Self-Efficacy (Bandura, 1990). Students reported how well they were able to complete 11 specific academic tasks on a 7-point likert scale from “not very well at all” to “very well.” Questions included “how well can you use the library to get information for class assignments” and “how well can you organize your school work.” The Academic self-efficacy scale was reliable for both African Americans ($\alpha = .89$) and Latinos ($\alpha = .87$).

Involvement with faculty (Millem & Berger, 1997) was assessed using the faculty subscale from the Involvement Behavior Scales and examines student interaction with faculty outside of the classroom. Students reported their experiences with faculty on a 4-point likert scale ranging from “almost never” to “often.” It included questions such as how often have you “met with faculty during office hours” or “had coffee or a soft drink with a professor.” This six item scale had sound reliability for African Americans ($\alpha = .75$) and Latinos ($\alpha = .79$).

The Mentoring scale assessed students mentoring relationships within the university (Gloria, Robinson Kurpius, Hamilton, & Wilson, 1999). The scale was four items and included questions such as “there is someone at [university name] that you consider a mentor or role model” and “There is someone at [university name] that cares about your educational success.” Students reported on a 4-point likert scale from “strongly disagree” to “strongly agree.” This scale had reasonable reliability for African Americans ($\alpha = .70$) and Latinos ($\alpha = .69$).

C. Procedure.

Students were given course credit or extra credit for their participation in this study. Students completed survey measures online after signing up and agreeing to participate in the study. Students took approximately 30 to 45 minutes to complete the survey. GPA was taken from institutional records 1 year after self-report measures were completed.

II. Results.

A. Preliminary analysis.

Data cleaning was the first step, including analyzing the distributions of variables for factors such as normality and univariate outliers. One key variable, Involvement with Faculty, was positively skewed therefore a log transformation was conducted. After the transformation, Involvement with Faculty was normally distributed therefore in this analysis, the log of Involvement of Faculty is used.

Income data was missing for 51 participants who declined to respond. A t-test was conducted to determine whether respondents who reported income were different from those who did not report income on GPA and academic self-efficacy. There were no differences between the groups therefore in analysis missing data for income were replaced with the mean.

A correlation matrix was calculated for all variables to be included in the regression analyses (see table 2). Self-efficacy was positively related to mentoring and involvement with faculty for both African American and Latino students. Of note, GPA was only related to involvement with faculty and self-efficacy for African American students. Results of the correlation matrix were also utilized to spot multicollinearity however none was relevant. Means for all study variables are also reported in table 1. The only significant difference between

African Americans and Latinos on study variables was with age such that African Americans in the sample were significantly older, $F(1, 230) = 8.58, p < .01$.

Table 1. Means and standard deviation for all study variables reported separately for African Americans and Latinos.

	African Americans N = 105		Latinos N = 144	
	M	SD	M	SD
Involvement with faculty	.19	.12	.20	.13
Mentoring	2.66	.64	2.65	.65
Academic self-efficacy	4.88	1.12	4.67	1.05
GPA	2.41	.84	2.54	.95
Age (years)*	26.13	7.93	23.32	6.64
Yearly income ⁺	1.93	1.61	2.09	1.58

* $p < .01$

⁺ 2 = \$20,000 to \$29,000

B. Primary Analysis.

The main study hypotheses were tested using hierarchical linear regression analysis. Entered at the first step for each regression equation were the background variables (Income and age). In order to determine whether involvement with faculty and mentoring were related to GPA, hierarchical regression analyses were used (see table 3). In the first step, age was a statistically significant predictor of GPA, $F(2, 229) = 3.57, p < .05$ but income was not suggesting that older students were more likely to have a higher GPA. It is likely that income was not a statistically significant predictor of GPA of this sample due to the fact that the university is an open enrollment institution that has students primarily from working class families. This restricted range in income was likely the cause of this lack of finding. In the second step, mentoring and involvement with faculty were entered. Only involvement with faculty was significantly related to GPA, $F(2, 227) = 8.09, p = .01$, so that those with more involvement were likely to have higher GPAs.

Hierarchical regression was then used to predict whether self-efficacy is predictive of GPA. The first step of the regression is noted above. In the second step, self-efficacy was significantly predictive of GPA, $F(1, 228) = 4.84, p < .05$, so that those with higher self-efficacy had higher GPAs.

Finally to test whether, self-efficacy mediated the relationship between involvement with faculty and GPA, another hierarchical regression was conducted to determine whether involvement with faculty predicted GPA beyond the influence of self-efficacy. This method of determining mediation was developed by Baron and Kenny (1986). As noted above both involvement with faculty and academic self-efficacy predicted GPA. The next step is to demonstrate that involvement with faculty predicts self-efficacy, which it did, $F(1, 230) = 31.68, p < .01$ (see table 4). The final step to determine mediation requires testing whether involvement with faculty predicts GPA beyond academic self-efficacy. Involvement with faculty was a significant predictor of GPA, $F(1, 226) = 4.84, p < .01$, even with self-efficacy in the model. This

indicates that self-efficacy is only a partial mediator of the relationship between involvement with faculty and GPA.

Table 2. Correlation matrix with African Americans above the diagonal and Latinos below the diagonal.

	1	2	3	4	5	6	7	8
1. Involvement with faculty		.42**	.35**	.30**	.22*	-.11	-.16	-.03
2. Mentoring	.57**		.28**	.19	-.10	-.09	-.07	.17
3. Academic self-efficacy	.36**	.32**		.24*	.02	.22*	.07	.06
4. GPA	.03	-.05	.13		-.10	.07	-.11	.11
5. Gender	.02	.12	.14	-.06		-.12	.00	-.03
6. Age	.08	.11	.17	.25**	-.15		.27**	.04
7. Yearly income	-.09	-.12	.14	.06	-.16	.27**		.01
8. First generation student	-.11	.12	-.02	-.06	-.04	-.02	-.12	

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

Table 3. Regression analyses for prediction of GPA by mentoring and involvement with faculty.

Model		<i>B</i>	<i>SE B</i>	95% <i>CI B</i>	β	<i>t</i>	ΔR^2	ΔF
1							.03	3.57*
	Age*	.01	.01	[.00, .027]	.14	2.03		
	Income	.04	.03	[-.25, .10]	.08	1.16		
2							.07	8.09***
	Age	.01	.00	[.00, .03]	.13	1.98		
	Income	.05	.03	[-.03, .10]	.11	1.70		
	Mentoring	.12	.08	[-.05, .28]	.10	1.37		
	Involvement w Faculty**	1.13	.44	[.27, 2.00]	.19	2.59		

* $p < .05$, ** $p < .01$, *** $p < .001$

III. Discussion.

The study hypotheses were partially supported in that involvement with faculty was related to better academic achievement in African American and Latino college students. In addition, that relationship was partially explained by higher self-efficacy. However, mentoring was not predictive of academic achievement.

It is possible that mentoring was not predictive of academic achievement because we assessed an informal type of mentoring relationship that did not include information about the duration or intensity of the mentoring relationship. Best practices in mentoring suggest that a formal, structured mentoring program is likely to result in better outcomes for students than an informal one (Campbell, 2007). Due to the fact that this study did not discern the amount and

quality of mentoring that was occurring nor whether mentorships were formal, a relationship between mentoring and improvement in academic achievement may have been difficult to ascertain. In addition, this study included a unique sample of primarily first generation college students attending a Hispanic serving institution. It is possible that this group of students may require more intense mentoring to result in a substantial impact on their academic performance due to the lack of information that they may have about college. This is because first generation students often lack the knowledge that other students have about the best way to successfully navigate the academic and social demands of college, generally entering college unprepared in many ways (Engle, 2007).

Table 4. Regression analyses to test meditation by examining Involvement with faculty as a predictor of GPA beyond Self-efficacy.

		<i>B</i>	<i>SE B</i>	<i>95% CI B</i>	β	<i>t</i>	ΔR^2	ΔF
Model								
1							.03	7.38**
	Age*	.01	.01	[-.002, .03]	.14	2.23		
	Income*	.07	.15	[-.01, .12]	.15	2.39		
2							.03	7.95**
	Age	.01	.06	[-.002, .02]	.10	1.60		
	Income*	.06	.03	[-.01, .12]	.14	2.27		
	Self-efficacy**	.12	.04	[-.04, .21]	.17	2.82		
3							.02	6.39*
	Age	.01	.01	[-.001, .02]	.11	1.73		
	Income**	.07	.03	[-.02, .13]	.16	2.64		
	Self-efficacy	.08	.05	[-.01, .17]	.11	1.75		
	Involvement with Faculty*	.99	.39	[-.22, 1.76]	.16	2.53		

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

As suggested by previous research (e.g. Lundberg & Schreiner, 2004), involvement with faculty was related to better academic achievement in this study. When students felt able to discuss academics and other subjects with faculty outside of the classroom they performed better in the classroom. This finding is particularly important in this study as it was conducted with African Americans and Latino students at a Hispanic serving institution. This suggests that even when ethnic students are not minorities at a university, they can still benefit from involvement with faculty. When students feel that they are respected and can be heard by faculty this is likely to impact them positively in many ways. This may be particularly important for ethnic minority students who are more likely than European American students to perceive that faculty have negative views of them and their academic potential (Museus, Nichols & Lambert, 2008). When ethnic minority students have positive interactions with faculty, this counteracts this belief such that they feel a sense of belonging in the academic environment and embrace the idea that they can have a successful academic career.

In addition, this study went beyond previous studies by suggesting that academic self-efficacy was a mediator of this relationship between faculty-student interaction and improved academic achievement. When faculty interacts with students, they increase student's belief in

their ability to achieve academically which is related to better actual performance. It is likely that faculty do this in a number of ways. Faculty may give direct information about assignments or general information about study habits. It is also likely that students are encouraged during these one on one times with professors so that they feel better about their own academic abilities. Though self-efficacy was only a partial mediator, this finding does give us some idea as to an important element of the faculty-student relationship that is related to improving the GPA of African American and Latino college students.

IV. Limitations and Future Research.

One limitation of this study was that mentoring was not assessed more strictly to determine whether it was formal or informal. Future studies should collect information on formal mentoring with inclusion of the quality and the duration of the mentoring relationship. This could be beneficial to help us determine a relationship between formal mentoring and academic achievement. In addition, this study would be improved by having African American and Latino samples from more than one Hispanic serving institution. This would assist in generalizing the findings to other institutions of this type. Further, as with much of the extant research (e. g. Kim & Sax, 2009; Lundberg & Schreiner, 2004; Santos & Reigados, 2002) this study was correlational and therefore cannot demonstrate a causal relationship. Unfortunately, it is very difficult to develop an experimental study in which mentoring programs or involvement with faculty is assigned to a group of students through random assignment. Typically, students who do not want to participate would merely drop out of the study therefore it may not be useful to attempt to develop such a study. However, future studies should focus on the development of quasi-experimental designs such as Campbell and Campbell (2007) and Sorrentino (2006-2007) in which students that are participating in mentoring programs or involved with faculty would be matched then compared with other peers who are not involved in these activities. Finally, since self-efficacy was only a partial mediator of the relationship between faculty-student interaction other factors should be examined that may fully mediate the relationship such as increased knowledge about course requirements and materials.

V. Implications.

Knowing the significance of faculty-student interactions, it is vital for faculty to make conscious efforts to have more positive relationships with their students especially outside of class. The first step is assisting students in knowing that faculty is available to them outside of the classroom. Students should be repeatedly invited to office hours by faculty, particularly early in the semester as well as before and after major assignments. Lundberg and Schreiner (2004) suggest using techniques like communicating more positively by smiling, making direct eye contact, avoiding direct criticism, and encouraging students to speak up in class in order to make students feel more comfortable talking to the professor. This increased comfort level should help students to request advice or help when they need it. This may be particularly important when students are first generation college students and do not know what to expect from college professors to whom they may feel subordinate. Furthermore, faculty members who show respect are also instrumental in helping students to feel motivated and capable of achieving academically (Komarraju et al., 2010). Students are likely to feel respected if professors take time to talk with them about issues that are of concern to them in a more egalitarian fashion. If faculty members

utilize this knowledge it can be the first step in beginning significant faculty-student relationships. In essence, when faculty members interact with students, particularly outside of the classroom, this is related to higher levels of academic self-efficacy for these students. They are more likely to have confidence in their ability to achieve their academic goals due to being respected by faculty that they find approachable and available (Komarraju et al.; Vogt, 2008). In addition, conscious efforts by faculty to increase self-efficacy by praising and encouraging students can also assist in improving academic achievement. If the university supports these endeavors, by doing things such as including information about building student relationships in new faculty orientation and other trainings, then faculty will put more of an effort into making these important connections with students. Strong relationships between faculty and students are particularly important for ethnic minority students who may not have others who can guide them through academic life.

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