

Mentoring and Student Persistence in College: A Study of the Washington State Achievers Program

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Abstract Using survey data on the third cohort of scholarship recipients in the Washington State Achievers (WSA) program, this study first examined how the assignment of college mentor and student engagement in mentoring vary based on student and institutional characteristics and then examined the relationship between mentor assignment and different mentoring aspects of the WSA program and student persistence in college. The results from this project indicated that Asian American students were more likely to have an assigned college mentor and that Hispanic students were more likely than White students to turn to their college mentors for support and encouragement and had a higher level of perceived importance of their overall experiences with mentors. Among all WSA recipients, having an assigned college mentor was positively related to the probability of persisting in college; among those who had an assigned college mentor, the probability of persisting was positively associated with the extent to which the recipients turn to mentors for support and encouragement and with their perceived importance of experiences with mentors.

Key words mentoring · encouragement · persistence

The Washington State Achievers (WSA) program provides funding for students from the state of Washington to attend in-state colleges and universities to obtain a college degree. It is funded by the Bill & Melinda Gates Foundation and managed by the Washington

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Education Foundation. The scholarship is available to students attending one of 16 identified Achievers high schools in Washington with family incomes of less than 35% of the median family income in the state. The unique aspects of the program include the intention to give awards to students with high potential and to provide mentors while they are in college. Each year approximately 500 high school juniors are selected from the Achievers High Schools in the State of Washington to receive Achievers Scholarships.

As Tinto (1998) observed, few areas in the field of higher education have attracted as much attention as student persistence. College persistence by students in the WSA program is of particular concern. Many of these students are the first in their families to go to college, and in some cases they are also the first in their families to graduate from high school. Navigating the college campus is a difficult task for these students. Many of them do not have any knowledge of what it truly means to be a college student and how to succeed in college. Thus, the Washington Education Foundation encourages colleges and universities to provide mentors to assist the WSA scholarship recipients during the first two years in college. However, the assignment of mentors varies greatly across institutions, and not all WSA recipients had an assigned mentor in college (Institute for Higher Education Policy 2010).

Purpose of the Study

The purpose of this study was two-fold. First, it was intended to examine how the assignment of mentors and student engagement in various aspects of mentoring vary based on student and institutional characteristics. Second, it further examined whether having an assigned mentor and engagement in various mentoring aspects of the Washington State Achievers (WSA) program were related to student persistence in college. Specifically, this study was designed to answer the following questions:

- How does the assignment of a college mentor vary based on race/ethnicity, gender, institutional type, and academic preparation in high school?
- How does student engagement in various mentoring aspects vary based on race/ethnicity, gender, institutional type, and/or academic preparation in high school?
- To what extent are having an assigned college mentor and engagement in various mentoring aspects of the program related to student persistence in college?

Mentoring and Persistence in College

Policy makers, institutional administrators, and researchers have been interested in student persistence in college over decades (Adelman 1999, 2006). One of the best known models on college student persistence is the integration model proposed by Tinto. In this model (1975, 1987, 1993) academic integration and social integration are two key constructs to conceptualize the student attrition process. According to Tinto, the academic system is concerned with the academic affairs of the college; and the social system of the college centers on the daily lives and personal needs of the various members of the institution. Students' integration into both systems of the college is central to their persistence; however, student experiences in these two systems may have quite different effects on their persistence decisions. Given individual attributes and dispositions at entry stage, Tinto argued in his model that subsequent experiences within the institution (e.g., the interactions

with other members of the college) are centrally related to further study at that institution. Other things being equal, the degree of one's intellectual and social integration into the academic and social communities of the college is positively related to the likelihood of persistence (Pascarella and Terenzini 1991, 2005; Tinto 1987, 1993).

Some alternative models on student persistence have been proposed over time in the study of student persistence (Bean and Metzner 1985; Braxton 2002; Swail et al. 2003). Researchers have empirically tested the models and found that they have both strengths and weaknesses (Cabrera et al. 1992, 1993). While there are some limitations in Tinto's model of student persistence, it is still one of the dominant conceptual models that guide the design of retention programs in higher education, including the mentoring program in the WSA program. A goal of that program is to provide students with the emotional and psychological support, academic advising, and role modeling needed for them to succeed in college (Jacobi 1991).

Tinto's model does not explicitly describe the role mentoring plays in student persistence. However, faculty mentoring can provide academic advising to students that can contribute to academic integration into the college system. Faculty mentoring can also contribute to alleviating the sense of alienation and isolation and meet the need for adjustment and support for underrepresented and at-risk students in the early years of college life (Pope 2002; Scisney-Matlock and Matlock 2001), thus enhancing student social integration. Therefore, mentoring facilitates both social and academic integration, which in turn enhances satisfaction with and commitment to the institution and degree completion, thereby positively impacting students' persistence.

Formalized mentoring programs and practices have become a national priority (Girves et al. 2005). Most college mentoring programs aim at increasing student persistence; and many serve targeted populations such as minorities, "at risk" students, and first generation students (Crisp and Cruz 2009; Nora and Crisp 2007). Over the past two decades, research on mentoring has focused on the mentoring process per se, participants' perceptions of mentoring, and the effect of formal mentoring programs on student academic performance and persistence (Campbell and Campbell 1997; Crisp and Cruz 2009). Several studies have examined the relationship between mentoring and student persistence, and overall results indicate that mentoring has a significant and positive impact on student persistence (e.g., Campbell and Campbell 1997; Mangold et al. 2003; Pagan and Edwards-Wilson 2003; Salinitri 2005). However, these studies have focused on the impact of a mentoring program without examining the specific aspects of mentoring. Consequently, they have not investigated how student background characteristics are related to different aspects of mentoring and, subsequently, how different aspects of mentoring influence student persistence.

There exist no widely accepted definitions of mentoring or valid theoretical framework guiding research on college student mentoring (Crisp and Cruz 2009). Roberts (2000) defined mentoring as "a formalized process whereby a more knowledgeable and experienced person actuates a supportive role of overseeing and encouraging reflection and learning within a less experienced and knowledgeable person, so as to facilitate that person's career and personal development" (p. 162). In her study of mentoring on high-achieving African American students, Freeman (1999) suggested that "the best of all possibilities for mentoring would be a program that began at the point of entrance into the higher education institution; that included involving students in challenging activities; and that, at the same time, provided trust, encouragement, and nurturing" (p. 25). Nora and Crisp (2007) proposed a theoretical model for academic mentoring comprised of four domains: psychological or emotional support, goal setting and career paths, academic subject knowledge support, and the existence of a role model. The mentoring aspects of the WSA program reflect the domains or features identified by Freeman (1999) as well as Nora

and Crisp (2007). However, it has been unclear how different mentoring elements of the WSA program contributed to student persistence, which was the focus of this study.

Methods

Data

The data for this study were gathered from surveys of the third cohort of participants in the WSA program. The National Opinion Research Center (NORC) at the University of Chicago has so far conducted two surveys of the third cohort of the WSA scholarship recipients and other applicants to the WSA program. The baseline survey was administered to the high school class of 2005, and the follow-up survey was administered in 2007 when these students had been in college for two years. The response rates on the NORC surveys were in excess of 50%. To deal with non-response and the longitudinal nature of the survey, NORC developed a set of weights for research purposes. Since the data from the baseline and the first follow-up were used, weights from baseline to the first follow-up were used in the statistical analysis. Two samples were used in this study. To examine the assignment of college mentors and their influence on student persistence, the responses of all WSA recipients were used ($N=452$). Within this group, 18.5% were African Americans, 19.3% Asian Americans, 12.2% Hispanics, 39.1% Whites, and 10.9% other. About 62.1% were female students and 37.9% male students. About 73.7% of all WSA recipients in this study had an assigned college mentor, and the persistence rate was 80.2% from the base year to the first follow-up two years later.

To examine the relationship between the mentoring aspects of the WSA program and student persistence, all the WSA recipients with assigned mentors in the baseline survey ($N=334$) were used in this study. Among the students in this group, 18.6% were African Americans, 22.1% Asian Americans, 11.2% Hispanics, 39.9% Whites, and 8.3% others. About 63.9% were female students and 36.1% male students. The persistence rate was 83.8% from the base year to the first follow-up two years later.

Variables

Whether a student was assigned a mentor or not was a variable coded dichotomously (yes=1 and no=0). The variables concerning the mentoring aspects of the WSA program included the following three measures: 1) number of meetings with mentor during the academic year (from 1 to 9 or more), 2) extent to which the WSA recipients turned to mentors for support and encouragement (1—not at all, 2—little, 3—some, and 4—a lot), and 3) overall experiences with mentoring (1—not important, 2—somewhat important, and 3—very important). These four variables were considered as dependent variables when the focus was on how individual and institutional characteristics were related to whether a student received an assigned mentor and the three aspects of mentoring, but they then were used as independent variables when the focus was on student persistence. Persistence was measured in the first follow-up survey when students had completed two years of college (persistence coded 1 and otherwise coded 0). Other variables used in this study were gender (women as the reference group), race/ethnicity (Whites as the reference group), parental education (neither parent with baccalaureate or above as the reference group), high school preparation (number of AP courses taken in high school, ranging from 0 to 4 and more), and total non-cognitive scores. The total non-cognitive score is the score initially used to identify qualified candidates for the WSA award by the Washington Education Foundation. It is the sum of rating scores of students by a group of raters on the following

aspects: positive self-concept, realistic self-appraisal, leadership, rigor of course work, and other related items; educational aspirations; and institutional type (two-year, private four-year, and public four-year, with public four-year as the reference group).

Analysis

First, we ran a logistic regression on all the WSA recipients to examine how the assignment of a college mentor varied depending on race/ethnicity, gender, institutional type, and academic preparation in high school. Second, using WSA recipients with assigned mentors, we conducted three multiple regressions to examine how different variables may be related to student involvement in various mentoring aspects. Finally, to examine whether having an assigned mentor and engagement in three different aspects of mentoring in the WSA program affect student persistence, we ran four separate logistic regressions while controlling for student gender, race/ethnicity, institutional type, high school preparation, parental education, educational aspirations, and non-cognitive scores.

Results

Table I presents the findings about the factors contributing to whether or not students had an assigned college mentor. The results suggested that gender was not a significant factor.

Table I Results from Logistic Regressions on “Having an Assigned College Mentor”

	B	SE	Odds Ratio	Sig.
Gender				
Men	-.282	.242	.754	
(Women)				
Race/Ethnicity				
African American	.432	.346	1.541	
Asian American	.725	.361	2.065	*
Hispanic	-.515	.364	.598	
Other	-.696	.368	.499	
(White)				
Institutional Type				
Private 4-Year	-1.070	.324	.343	***
Two-Year	-1.443	.290	.236	***
(Public 4-Year)				
High School Preparation (AP Exams Taken)	.226	.095	1.254	*
Parental Education				
At least one parent having Baccalaureate or above	.103	.333	1.109	
(Neither parent having Baccalaureate or above)				
Educational Aspiration				
Post-Baccalaureate	-.199	.245	.820	
(Baccalaureate or Below)				
Non-Cognitive Scores	-.018	.404	.982	

N=452; *p≤.05, and ***p≤.001.

Asian Americans were more likely than White students to have an assigned college mentor, but students of other racial/ethnic backgrounds were not significantly different from White students. Students in both two-year and private four-year institutions were less likely than those in public four-year institutions to have an assigned mentor. The number of AP courses taken by students in high school was positively and significantly related to the probability of whether the recipients had an assigned college mentor. However, parental education, student educational aspirations, and non-cognitive scores were not significant factors affecting whether WSA recipients had an assigned mentor.

Table II presents results from the multiple regression on “number of meetings with college mentor”. The effect of student gender, race/ethnicity, institutional type, or high school preparation on the number of meetings with college mentor was not significant, controlling for the effects of the other independent variables. The effect of non-cognitive scores of WSA recipients was also not statistically significant. However, parental education and student educational aspiration were significantly related to the number of meetings WSA recipients had with their mentors. Specifically, WSA recipients with at least one parent having a baccalaureate or post-baccalaureate education had approximately 1.5 more meetings per year with their mentors than their peers with neither parent having a baccalaureate or post-baccalaureate education. In addition, WSA recipients who had a post-baccalaureate educational aspiration had about 0.8 more meetings per year with their mentors than their counterparts aspiring only to a baccalaureate or sub-baccalaureate education.

Table II Results from the Multiple Regression on “Number of Meetings with College Mentor”

	B	SE	Beta	Sig.
Gender				
Men	.321	.328	.054	
(Women)				
Race/Ethnicity				
African American	-.754	.449	-.102	
Asian American	-.277	.410	-.040	
Hispanic	-.424	.531	-.047	
Other	.324	.596	.031	
(White)				
Institutional Type				
Private 4-Year	-.481	.405	-.069	
Two-Year	-.548	.373	-.090	
(Public 4-Year)				
High School Preparation (AP Exams Taken)	-.156	.111	-.078	
Parental Education				
At least one parent having Baccalaureate or above	1.509	.405	.211	***
(Neither parent having Baccalaureate or above)				
Educational Aspiration				
Post-Baccalaureate	.843	.330	.148	*
(Baccalaureate or Below)				
Non-Cognitive Scores	-.081	.056	-.080	

$N=334$; * $p \leq .05$, and *** $p \leq .001$

Table III reports results from the multiple regression modeling “extent to which the WSA recipients turn to mentor for support and encouragement”. The effect of gender was not statistically significant. Hispanic students and “other” students were more likely than White students to turn to their mentors for support and encouragement while African American and Asian American students were not statistically different from White students in this regard. Institutional type and high school preparation were not significant, nor were non-cognitive scores. However, parental education and student educational aspiration were significantly related to the extent of turning to mentors for support. Specifically, in terms of the extent of turning to mentors for support WSA recipients with at least one parent having a baccalaureate or post-baccalaureate education were about 0.5 units higher in doing so than their peers whose parents had a lower educational level. Likewise, WSA recipients with a higher level of educational aspiration were more likely (i.e., about 0.3 units higher) than their counterparts with lower educational aspirations to turn to their college mentors for support and encouragement.

When the dependent variable was “perceived importance of the overall experiences with mentor” (Table IV), there was no gender difference. Hispanic students perceived a higher (i.e., 0.4 units higher) level of importance of their experiences with their college mentors than did White students while students of other racial/ethnic backgrounds were not significantly different from White students in this regard. The effects of institutional type, high school preparation, parental education, and non-cognitive scores were not significant. However, WSA recipients who had post-baccalaureate educational aspirations perceived

Table III Results from the Multiple Regression on “Turning to Mentor for Support”

	B	SE	Beta	Sig.
Gender				
Men	-.103	.121	-.047	
(Women)				
Race/Ethnicity				
African American	-.040	.165	-.015	
Asian American	.193	.151	.077	
Hispanic	.551	.195	.165	**
Other	.436	.219	.116	*
(White)				
Institutional Type				
Private 4-Year	-.066	.149	-.026	
Two-Year	.036	.137	.016	
(Public 4-Year)				
High School Preparation (AP Exams Taken)	-.028	.041	-.038	
Parental Education				
At least one parent having Baccalaureate or above	.463	.149	.176	**
(Neither parent having Baccalaureate or above)				
Educational Aspiration				
Post-Baccalaureate	.297	.121	.142	*
(Baccalaureate or Below)				
Non-Cognitive Scores	-.017	.021	-.044	

N=334; *p≤.05, and **p≤.01

Table IV Results from the Multiple Regression on “Importance of Experiences with Mentor”

	B	SE	Beta	Sig.
Gender				
Men	.042	.088	.027	
(Women)				
Race/Ethnicity				
African American	-.146	.121	-.074	
Asian American	.081	.110	.044	
Hispanic	.420	.143	.171	**
Other	.167	.160	.061	
(White)				
Institutional Type				
Private 4-Year	-.141	.109	-.075	
Two-Year	.143	.100	.087	
(Public 4-Year)				
High School Preparation (AP Exams Taken)	-.019	.030	-.035	
Parental Education				
At least one parent having Baccalaureate or above	.133	.109	.069	
(Neither parent having Baccalaureate or above)				
Educational Aspiration				
Post-Baccalaureate	.270	.089	.176	**
(Baccalaureate or Below)				
Non-Cognitive Scores	-.009	.015	-.031	

$N=334$; ** $p \leq .01$

their experiences with their mentors as more important than did WSA recipients with baccalaureate or sub-baccalaureate aspirations.

We conducted four separate logistic regressions to investigate the impacts of having an assigned college mentor and student engagement in three different mentoring aspects on student persistence, controlling for variables concerning student and institutional characteristics. Corresponding results are summarized in Table V.

Table V Impacts of Different Mentoring Aspects on Student Persistence

Mentoring Aspects	Persistence			
	B	SE	Odds Ratio	Sig
<i>For All WSA Recipients (N= 452)</i>				
Assigned Mentor Base Year	.563	.289	1.756	*
<i>For WSA Recipients Who Had Mentors (N= 334)</i>				
Number of Meetings with Assigned College Mentor	.086	.071	1.090	
Turn to Mentor for Support	.460	.201	1.584	*
Perceived Importance of Mentoring Experience	.537	.255	1.712	*

Results are from separate logistic regressions, controlling for student and institutional characteristics; * $p \leq .05$

To examine the relationship between the assignment of a college mentor and the WSA students' probability of persisting, all recipients in the third cohort were included in the logistic regression. The results indicated that the assignment of a college mentor was statistically related to the probability of persisting by WSA recipients. Those who had an assigned college mentor were more likely to persist, controlling for the variables of gender, race/ethnicity, institutional type, high school preparation, parental education, student educational aspirations, and non-cognitive scores.

Table V also demonstrates three corresponding findings on the impact of student engagement in three mentoring aspects. First, the number of meetings with college mentors was not significantly related to the probability of persisting. Second, the extent to which WSA recipients turned to their mentors for support and encouragement was positively related to the probability of persisting. Controlling for the effects of the other independent variables, an increase of one unit in the extent of turning to the mentor for support increases the odds of persistence by approximately 1.6 times. This model explained the largest variance in outcome among all three models (effect sizes not reported in the table). Third, the perceived importance of the overall experience with mentoring was also positively related to the probability of persisting. An increase of one unit in the perceived importance of overall experience of mentoring increased the odds of persistence by about 1.7 times.

Discussion

This study showed that the assignment of college mentors varies by institutional types; and public, four-year institutions seem to have done a better job in this regard. Hispanic students and "other" students are more likely than White students to seek support and encouragement from their mentors. In addition, Hispanic students are more likely than their White counterparts to perceive their overall experiences with mentoring as important. Previous research has suggested that ethnic minority students report lower coping efficacy and expect to confront more educational and career-related barriers than White students (Luzzo and McWhirter 2001). Thus, the findings of this study offer support for the hypothesis that mentoring experiences vary by race and ethnicity (Barker 2007; Nora and Crisp 2007).

Student educational aspiration also plays an important role in various mentoring aspects. This study demonstrates that having a post-baccalaureate educational aspiration has a positive impact on all of the three mentoring aspects examined in the study. Research on student retention has shown that educational aspiration can be an important factor in student persistence and degree completion (Cabrera et al. 1993; Tinto 1993). However, research on mentoring has rarely examined the impact of students' educational aspiration on mentoring processes and outcomes. The current study revealed that mentees' educational aspirations may be a critical factor in determining the dynamics of mentoring and, consequently, its effect on student persistence.

Students with at least one parent having a baccalaureate education or above are more likely than students with neither parent having a baccalaureate education or above to meet their mentors frequently and seek for their support and encouragement. This finding exposes a realistic dilemma. On the one hand, one purpose of the college mentoring program is to help first-generation college students, who account for a good proportion of all WSA recipients, with adjustment issues. On the other hand, these first-generation students tend to be less likely to be involved in the mentoring program. It is possible that first-generation students do not feel confident or comfortable in meeting with their mentors.

They may also be reluctant to acknowledge their problems and take the initiative to discuss them with their mentors. Given these possibilities and to maximize the intended benefits of the mentoring program, mentors may need to take a more active role in their interactions with their mentees who are first-generation students. Undoubtedly, further research on this issue is merited.

While the findings suggest that students in two-year and private four-year institutions are less likely to have an assigned mentor than those in public four-year institutions, none of the three mentoring aspects differ by institutional type. Little research has been conducted to investigate differences in mentoring among different types of higher education institutions or among the same type of institutions; almost all of the studies on mentoring college students have been done at four-year institutions, with two-year colleges largely ignored (Crisp 2009). Scholars doubt whether findings from four-year institutions can be generalized to two-year institutions (Crisp and Cruz 2009). The findings from this study shed some light on differences or lack thereof in mentoring among different institutional types though further studies on this issue are certainly needed.

Considering that the frequency of contact has been identified as an important aspect of the student-mentor relationship (Levin and Levin 1991) and that it is reported to be positively related to students' adjustment to college (Santos and Reigadas 2004–05) and persistence (Brown and Robinson Kurpius 1997), it is somewhat surprising to find that the number of meetings with college mentors is not significantly related to the probability of persisting by the WSA recipient in this study. It is uncertain whether this result arises from the combination of the nature of the college mentoring programs affiliated with the WSA program and the distinct feature of the sample used in the study. In addition, all the mentees in this study are high-achieving, low-income students. They are different from the "at-risk" mentees in many mentoring programs sponsored by individual institutions. This should be taken into consideration in understanding the findings of this study.

Student persistence is also positively affected by the extent to which WSA recipients turn to their mentors for support and encouragement. Moreover, the extent of turning to mentors for support and encouragement appears to be the most important mentoring factor in promoting desirable outcomes for WSA recipients. A higher extent of turning to the mentor for support may represent a higher quality of the relationship between the mentor and the mentee in that it suggests a higher level of motivation and initiative on the part of the student to interact with the mentor. Clearly, higher quality interactions between the mentoring partners will produce more productive mentoring outcomes such as better perceived adjustment with the college environment and higher likelihood of persistence.

A relevant issue is the difference between two aspects of mentoring: the extent of turning to mentors for support and encouragement and the number of meetings with mentors. If we believe that the quality of student-mentor interaction correlates positively with student persistence, it follows that turning to mentors for support and encouragement is more important than the number of meetings with mentors in impacting student retention. Perhaps the former represents the quality of student-mentor interaction better than does the latter. Put in another way, the extent of turning to mentors for support is a measure of the quality of mentoring whereas the frequency of contact is an indicator of the quantity of the interaction. It is not surprising that these two related yet different mentoring components have different impacts on persistence in this study. The frequency of contact with college mentors does not affect student persistence whereas the extent to which students turn to their mentors for support does.

The perceived importance of the overall experience with mentoring is also positively related to the probability of persisting by WSA recipients. It is possible that the perceived

importance of the overall experience with mentors reflects students' satisfaction with the positive impact of the mentoring program on their social and academic integration. Enhanced integration, in turn, increases their chance of persistence at the institution (Tinto 1993). This finding can have practical implications on the assessment of mentoring programs. It is true that the goal of most mentoring programs is to promote student persistence, but it is practically difficult for many institutions to evaluate their mentoring programs solely based on retention statistics. In many cases, the impact of a mentoring program on persistence may be indirect rather than direct, so that the linkage between the program and student persistence can be rather ambiguous or even invisible. Therefore, it is useful to consider how mentees perceive the importance of their overall experience with mentoring as an indicator of the effectiveness of a mentoring program.

Given that the mentoring program examined in this study is not one sponsored by an individual institution, but rather a component of a state-wide scholarship program with the support of a private foundation, caution should be exercised in generalizing the findings of this study. As already noted, the WSA scholarship program encourages that scholarship recipients participate in the college mentoring program at their institution during the freshman and sophomore years and that the recipients and faculty/staff mentors meet regularly. In mentoring programs sponsored by a single institution, participation may not be mandatory, frequency of contact may not be explicitly required, and mentors might be undergraduate or graduate students instead of faculty or staff members. Additionally, the sample in this study is somewhat distinct in that it consists of only college students who were low-income, high achievers in high school. Therefore, it is necessary to take into account the unique features of this study in interpreting the findings and generalizing them to institutionally-sponsored mentoring programs.

Conclusions

The findings from this study point to the following conclusions regarding the relationships between mentoring and student persistence. First, some student characteristics, including race/ethnicity, educational aspiration and parental education, are significantly related to various mentoring aspects. Even though the WSA program expects colleges and universities to provide mentors, not all WSA recipients had an assigned college mentor. This is evident from this study as well as other studies on the WSA program (Institute for Higher Education Policy 2010). Institutional type significantly affects the chance of whether or not a student has an assigned mentor. However, once the student has an assigned mentor, institutional type does not substantially affect student engagement in the three mentoring aspects identified for this study. Second, whether a student has an assigned college mentor or not is significantly related to the probability of persisting in college. Finally, various mentoring aspects affect student persistence differently.

These findings confirm the positive role of having a college mentor and various mentoring aspects in promoting persistence in college by WSA recipients. Since having a mentor in college is significantly related to student persistence, there appears to be a good reason for colleges and universities to consider formalized mentoring programs to help students succeed in college. However, simply requiring students to meet with their mentors may not be an effective approach for promoting student persistence in college. Instead, occasions when students turn to mentors for encouragement and support are valuable opportunities for mentors to make a difference in helping students succeed and persist in higher education.

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References

- Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- Barker, M. J. (2007). Cross-cultural mentoring in institutional contexts. *Negro Educational Review*, 58(1–2), 85–103.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485–540.
- Braxton, J. M. (Ed.). (2002). *Reworking the student departure puzzle*. Nashville, TN: Vanderbilt University Press.
- Brown, L. L., & Robinson Kurpius, S. E. (1997). Psychosocial factors influencing academic persistence of American Indian college students. *Journal of College Student Development*, 38(1), 3–12.
- Cabrera, A. F., Nora, A., & Castañeda, M. B. (1992). The role of finances in the persistence process: A structural model. *Research in Higher Education*, 33(5), 571–593.
- Cabrera, A. F., Nora, A., & Castañeda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *Journal of Higher Education*, 64(2), 123–139.
- Campbell, T. A., & Campbell, D. E. (1997). Faculty/student mentor program: Effects on academic performance and retention. *Research in Higher Education*, 38(6), 727–742.
- Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education*, 50(6), 525–545.
- Crisp, G. (2009). Conceptualization and initial validation of the College Student Mentoring Scale (CSMS). *Journal of College Student Development*, 50(2), 177–194.
- Freeman, K. (1999). No services needed?: The case for mentoring high-achieving African American students. *Peabody Journal of Education*, 74(2), 15–26.
- Girves, J. E., Zepeda, Y., & Gwathmey, J. K. (2005). Mentoring in a post-affirmative action world. *Journal of Social Issues*, 61(3), 449–479.
- Institute for Higher Education Policy. (2010). *Expanding access and opportunity: The Washington State Achievers program*. Washington, DC: Institute for Higher Education Policy.
- Jacobi, M. (1991). Mentoring and undergraduate academic success: A literature review. *Review of Educational Research*, 61(4), 505–532.
- Levin, M. E., & Levin, J. R. (1991). A critical examination of academic retention programs for at-risk minority college students. *Journal of College Student Development*, 32(4), 323–334.
- Luzzo, D. A., & McWhirter, E. H. (2001). Sex and ethnic differences in the perception of educational and career-related barriers and levels of coping efficacy. *Journal of Counseling and Development*, 79(1), 61–67.
- Mangold, W. D., Bean, L. G., Adams, D. J., Schwab, W. A., & Lynch, S. M. (2003). Who goes who stays: An assessment of the effect of a freshman mentoring and unit registration program on college persistence. *Journal of College Student Retention*, 4(2), 95–122.
- Nora, A., & Crisp, G. (2007). Mentoring students: Conceptualizing and validating the multi-dimensions of a support system. *Journal of College Student Retention*, 9(3), 337–356.
- Pagan, R., & Edwards-Wilson, R. (2003). A mentoring program for remedial students. *Journal of College Student Retention*, 4(3), 207–226.
- Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco, CA: Jossey-Bass.
- Pope, M. L. (2002). Community college mentoring: Minority student perception. *Community College Review*, 30(3), 31–45.
- Roberts, A. (2000). Mentoring revisited: a phenomenological reading of the literature. *Mentoring and Tutoring*, 8(2), 145–170.
- Salinitri, G. (2005). The effects of formal mentoring on the retention rates for first-year, low-achieving students. *Canadian Journal of Education*, 28(4), 853–873.

- Scisney-Matlock, M., & Matlock, J. (2001). Promoting understanding of diversity through mentoring undergraduate students. In A. G. Reinartz & E. R. White (Eds.), *New Directions for Teaching and Learning: No. 85. Beyond teaching to mentoring* (pp. 75–84). San Francisco, CA: Jossey-Bass.
- Swail, W. S., Redd, K. E., & Perna, L. W. (2003). *Retaining minority students in higher education: A framework for success. ASHE Higher Education Report* (30th ed., Vol. 2). San Francisco, CA: Wiley Periodicals.
- Tinto, V. (1975). Drop out from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89–125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL: University of Chicago Press.
- Tinto, V. (1993). *Leaving college: Rethinking causes and cures of student attrition* (2nd ed.). Chicago, IL: The University of Chicago Press.
- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *Review of Higher Education*, 21(2), 167–177.

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