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Experiences and Perspectives of African-American, Latina/o, Asian-American and European-American Psychology Graduate Students: A National Study

Kenneth I. Maton,
University of Maryland, Baltimore County

Harriette E. Wimms,
University of Maryland, Baltimore County

Sheila K. Grant,
California State University, Northridge

Michele A. Wittig,
California State University, Northridge

Margaret R. Rogers, and
University of Rhode Island

Melba J. T. Vasquez
Independent Practice, Austin, Texas

Abstract

A national, web-based survey of 1,222 African-American, Latina/o, Asian-American and European-American psychology graduate students revealed both similarities and differences in experiences and perspectives. Mentoring was found to be the strongest predictor of satisfaction across groups. Academic supports and barriers, along with perceptions of diversity were also important predictors of satisfaction. Students of color differed from European-American students in perceptions of fairness of representation of their ethnic group within psychology, and in aspects of the graduate school experience perceived as linked to ethnicity. Limitations of the study and implications for future research and action are discussed.

In 1997, the American Psychological Association's Commission on Ethnic Minority Recruitment, Retention, and Training issued a call for psychology to increase the representation and numbers of ethnic minority students at every level of psychology's educational pipeline (CEMRATT, 1997). Since that time, grave concerns remain in terms of ethnic minority student representation, particularly at the higher levels of the educational pipeline (e.g., Maton, Kohout, Wicherski, Leary, & Vinokurov, 2006). Of note, as ethnic minorities and multiracial persons continue to constitute an ever-increasing percentage of our citizenry, all sectors of our society will increasingly be affected. Many professionals, including psychologists (involved in practice or research), will be called to address the changing needs of our increasingly diverse population (American Psychological Association, 2003). To better understand the paucity of growth in psychology doctoral training among students of color in recent years (Maton et al., 2006), the current study focused on African-American, Latina/o and Asian-American students of color, and the

similarities and differences between their experiences and perspectives and those of European-American students of psychology.

Prior Theory and Research

Empirical research focused on undergraduate students has supported the importance of multiple variable domains that influence student achievement and retention. These include student background, student learning and cognitive development; quality of the student effort; institutional environment; interactions with faculty and peers; and structural characteristics of the institution. A summary of this literature suggests three conclusions (Wimms, 2008). First, negative experiences and circumstances that hinder student progress include feelings of stress; a lack of academic preparation; lack of family and peer-support for college-going behaviors; experiences of alienation, discrimination, and prejudice on campus; pressures involved in biculturalization; difficulty making connections with mentors and academic peers; and institutional policies which fail to promote an inclusive atmosphere (cf. Pascarella & Terenzini, 1991, 2005). Second, issues of race and ethnicity are folded into these experiences of challenge and encouragement in terms of recruitment, perceptions of merit, feelings of belonging and validation, perceptions of campus diversity, campus racial and cultural climate, and recommendations for institutional missions and practices that embrace or invalidate the varied backgrounds and experiences of students (e.g., Hurtado, Dey, Gurin, & Gurin., 2003; Hurtado & Ponjuan, 2005). Third, for ethnic minority students, campus racial climate, diversity, and belonging/validation regarding their cultural backgrounds were also identified as core experiences related to satisfaction, integration, and retention (Rodriguez, Guido-DiBrito, Torres, & Talbot, 2000).

Some theorists have suggested that the mechanisms at play for graduate students are different than those for undergraduates. Tinto (1993) proposed a developmental framework of doctoral persistence as an appendix to his general theory of college experience. He conceptualized student retention at the doctoral level as being a function of departmental norms and mores as well as those of the field of study. Programmatic and professional socialization were viewed as helping students transition from initiation into graduate school, through graduate school requirements, and on to induction into their professional fields upon graduation. Academic and social integration were theorized to be closely aligned with academic experiences for graduate students for whom the social and academic links between peers and faculty overlap (Tinto, 1993).

The empirical literature regarding the experiences and perspectives of graduate students in general, and graduate students in psychology in particular, including students of color, is scant. The research that has been done highlights a number of challenges faced by graduate students in general, including stress, debt and funding issues, low salaries when funding is available, and the long time commitment involved in obtaining a degree (Golde & Dore, 2001; Lovitts, 2001). The challenges for psychology graduate students that appear in the extant literature include the financial burden associated with graduate school, concerns about changes in the field related to managed care, extensive licensure requirements, competition for training sites, the perceived absence of supports, and difficulty balancing educational and personal life responsibilities (Braxton et al., 2004; Morton & Worthley, 1995; Pope-Davis, Stone, & Nielson 1997).

Underrepresented minority graduate students have been reported to face the same challenges as European-American students, along with additional ones associated with their ethnic backgrounds. The latter include negative perceptions of their academic merit, stereotyping, alienation and isolation, cultural bias, and prejudice (Gonzalez, Marin, Figuerosa, Moreno, & Navia, 2002; Johnson-Bailey, 2004; Lewis, Ginsberg, Davies, & Smith, 2004; Vazquez et

al., 2006; Williams, 2000; Williams et al., 2005). However, studies to date have not explored differences across ethnic groups on the relative importance of these various challenges, nor linked them to satisfaction with graduate education among a national sample of psychology students.

Regarding supports, a number of studies have suggested that mentoring is an important educational and interpersonal support for graduate students, including psychology students, and a few have linked mentoring with satisfaction (e.g., Clark, Harden, & Johnson, 2000; Hollingsworth & Fassinger, 2002; Johnson, Koch, Fallow, & Huwe, 2000; Tenenbaum, Crosby, & Gliner, 2001). Mentoring in psychology education represents a source of support for students in a number of important ways, including training and supervision, guidance with independent research projects, assistance in making the transition to professional careers, and emotional support (Clark et al., 2000; Tenenbaum et al., 2001).

Beyond mentoring, additional supports noted in the literature include social contact with peers, financial assistance, academic preparation, and academic integration into departments and professional integration into the field (Lewis et al., 2004; Lovitts, 2001; Williams et al., 2005). The latter include efforts made to encourage students to take part in research, present their work, co-author articles, and interact with faculty members both on and off campus. Also important for minority students are various initiatives to increase cultural diversity and the numbers of students and faculty of color in graduate programs, a desire to gain knowledge and use that knowledge to “give back” to the community, development of supportive peer groups, and improvements in campus cultural climate (Cherwitz, 2005; Gandara, 1995; Walker, Wright & Hanley, 2001; Williams et al., 2005). Additional studies are needed to identify specific academic and non-academic supports for graduate students, their relative importance to the graduate student experience, and their relationship to satisfaction. Beyond mentoring, the literature has not explored the relationship between academic and non-academic supports and student satisfaction across ethnic racial groups utilizing a national sample. Nor have previous investigations utilized a national study to explore the meaning and value of supports in doctoral psychology and their relationship to student satisfaction.

Based on existing theory and research, the current study examined the following hypotheses:

1. Ethnic minority students in comparison to European-American students will report:
 - a) higher levels of academic barriers, b) higher levels of linkage between barriers faced and their ethnicity, c) lower levels of cultural diversity in the academic environment, d) higher levels of linkage between career aspirations and ethnicity, and e) higher levels of psychology having something special to offer their ethnic group
2. Ethnic minority students in comparison to European-American students will report lower levels of fairness in how they are represented in psychology.
3. Independent of ethnicity, graduate students' satisfaction with their studies in psychology will be associated with: a) higher levels of mentoring; b) higher levels of academic support; c) higher levels of non-academic support; d) lower levels of academic barriers; e) lower levels of non-academic barriers; f) higher levels of encouragement related to research; g) higher levels of encouragement to interact with faculty; and h) confidence in obtaining a desired job upon graduation. Also, ethnic group differences in satisfaction will be examined.
4. Perceptions of cultural diversity in the academic environment will be more strongly related to satisfaction for ethnic minority than for European-American students.

5. Exploratory analyses will examine whether ethnic minority and European-American students differ on career aspirations.

Method

Participants

A total of 3,509 graduate and undergraduate students completed a web-based survey from March to May 2005. The current sample includes the 1,222 graduate students who were in Ph.D. (N=983, 80.4%) or Psy.D. (N=239, 19.6%) programs, and of African American (N=62, 5.1%), Asian American (N=48, 3.9%), Latina/o (N=63, 5.2%), or European-American (N=1,049, 85.8%) racial/ethnic status. In terms of gender, 1010 (82.7%) were female, and 209 were (17.1%) male (three students did not indicate their gender).

Procedure

Participants were recruited using e-mails, letters, and flyers sent to national psychology organizations, psychology listservs, and national conferences (Appendix A). The recruitment information included a web address where the web-based survey could be accessed. Department chairs, program directors, and faculty contacted were encouraged to distribute the information about the study to all students in their departments. Students who completed the entire survey could enter a lottery (\$25 prize; 50 winners).

Measures

The web-based survey was composed of 66 items, a subset of which are examined in the current study. The survey contained both close-ended and open-ended survey items. The items have suitable face validity. However, reliability estimates and information about construct validity are not available for these items. Unless otherwise indicated, the items used in the study, described below, included Likert-type response categories.

Ethnic/racial group was derived from the survey item: *With what racial/ethnic group(s) do you identify?* A graduate research assistant reviewed each description (ranging from a single word to several sentences) and assigned all unambiguous self-designations into one of nine codes: 1) African-American, 2) American Native/Alaskan Native (only a handful in the current sample), 3) Asian American, 4) Latina/o, 5) European-American, 6) Multiracial, 7) International of Color, 8) International White (e.g., Canadian), and 9) Nonresponsive/uncodable (e.g., "I do not believe in ethnicity"). In cases where the coding decision was ambiguous, the self-description was reviewed by the six-member, mixed ethnicity faculty research team and a designation assigned by consensus. The ethnic groups included in the current study are African American, Asian American, Latina/o, and European-American.

Gender was assessed with a single survey item: *Indicate your gender.*

Type of program was derived from the survey item: *What degree are you currently pursuing?* Participants were provided with four choices: Masters degree, Ph.D., Psy.D., Ed.D. Given that there were only nine Ed.D. students in the sample and the study's focus on doctoral studies in psychology, only Ph.D. and Psy.D. were retained as categories.

Satisfaction with studies was assessed with the survey item: *What degree of satisfaction do you feel right now, in general, with your studies in psychology?* Participants were provided with four response options: 1) very satisfied, 2) moderately satisfied, 3) not too satisfied, 4) very unsatisfied.

Academic and non-academic supports were assessed using a single survey item stem, with prompts to answer "yes" or "no" for a number of domains. The survey item stem is: *Have*

you encountered encouragement and special assistance? The Academic Supports measure in the current study is the sum of student “Yes” responses to support received from four domains: Peers, Professors, Advisor, School or department staff or policies. The Non-Academic Supports measure is the sum of “Yes” responses from six domains: Parents, Siblings, Friends back home, Community groups, Current partner or spouse, Religious/spiritual group.

Relationship between support and ethnicity was assessed with a single follow-up to the previous question: *Do you associate any of these with your ethnicity (being a person of color; being White/European-American)?* Participants were provided with four response options: 1) very much, 2) a good deal, 3) somewhat, 4) not at all.

Academic and non-academic barriers were assessed by a single survey item stem, with prompts to answer “yes” or “no” for a number of domains. The survey item stem is: *Have you encountered special negative challenges, barriers, or unpleasant reactions in relation to your undergraduate or graduate education from?* The Academic Barriers measure in the current study is the sum of student “Yes” responses for the following four domains: Your peers? Your professors? Your advisor? School staff or administration? The Non-Academic Barriers measure is the sum of “Yes” responses for the following five domains: Your parents? Any of your siblings? Your friends back home? Your current partner or spouse? Your religious/spiritual group?

Relationship between barriers and ethnicity was assessed by a follow-up to the previous question: *Do you associate any of these with your ethnicity (being a person of color; being White/European-American)?* Participants were provided with four response options: 1) very much, 2) a good deal, 3) somewhat, 4) not at all

Extent of Mentoring was assessed with the survey item: *In your present graduate program, to what extent have you been mentored by a faculty member?* Participants were provided with four response options: 1) great extent, 2) somewhat, 3) little, 4) not at all.

Research encouragement was assessed by summing student responses to three survey items: *In your present graduate program, to what extent have you been encouraged to 1) Participate in research? 2) Present papers at professional meetings? 3) Co-author research articles or book chapters?* Participants were provided with three response options: 1) great extent, 2) somewhat, 3) little or not at all.

Faculty interaction encouragement was assessed by summing student responses to two survey items: *In your present graduate program, to what extent have you been encouraged to interact with faculty members 1) On-campus? 2) Off campus?* Participants were provided with three response options: 1) great extent, 2) somewhat, 3) little or not at all.

Confidence in obtaining desired employment was assessed with the survey item: *How good do you think your chances are of getting the kind of job you want?* Participants were provided with four response options: 1) Excellent, 2) Very Good, 3) Pretty Good, 4) Not Good.

Cultural diversity was assessed with the survey item: *How extensive is the cultural diversity in your current academic environment?* Participants were provided with four response options: 1) very, 2) moderately, 3) a little, 4) not at all.

Representation of racial/ethnic group in psychology was assessed with the survey item: *How do you think your racial/ethnic group is generally presented within psychology (e.g., in textbooks, course materials, lectures, etc.)?* Participants were provided with three

(categorical) response options: 1) fairly and accurately, 2) stereotypically, 3) I feel that my race/ethnic group isn't represented.

Career aspirations was assessed with the open-ended survey item: *What kind of employment would you like to have once you graduate (with whatever degree you are currently pursuing)?* Four response categories were developed for this survey item based on a review of responses provided, and two undergraduate research assistants were trained to 80% interrater reliability. The categories are: Direct Service, Academic, Special Populations, and Miscellaneous.

Relationship between career aspirations and ethnicity was assessed with the survey item: *How much do you think your current employment aspirations are related to your ethnicity (being a person of color; being White/European-American)?* Participants were provided with four response options: 1) Very much, 2) A good deal, 3) Somewhat, 4) Not at all.

Psychology's pertinence to ethnicity was assessed with the survey item: *Did you feel that psychology would offer something special to you as a member of a particular ethnic group?* Participants were provided with five response options: 1) Not at all, 2) A Little, 3) Somewhat, 4) Very Much, 5) Not Sure. Mean substitution was used for the 110 individuals who answered "not sure."

Results

Analyses

For each analysis, no more than 30 participants were removed due to missing cases, all assumptions were met, there were no outliers and covariates were judged to be adequately reliable for covariance analysis. As appropriate, items were reverse coded so that higher scores indicated higher levels. Also, there were no significant ethnicity-by-program type, ethnicity-by-gender, or program-type-by-gender differences. Correlations among study variables, and item means, are presented in Table 1.

Hypothesis 1—A one-way between-subjects MANCOVA was performed on: (1) accumulated academic barriers encountered, (2) relationship between barriers and ethnicity, (3) extent of cultural diversity in current academic environment, (4) relationship between career aspirations and ethnicity, and (5) psychology's pertinence to one's ethnic group. The independent variable (IV) was ethnicity with four levels: African American, Asian/Asian American, Latina/o American, and European American. The covariates were gender and type of graduate program (Ph.D. or Psy.D.).

As indicated in Table 2, ethnicity was significantly related to each of the five criterion variables, in both univariate and Roy-Bargmann stepdown analyses, with covariates controlled. As shown in Table 3, as hypothesized, African-Americans, Asian Americans and Latina/o Americans, compared to European Americans, each reported a greater relationship between barriers and ethnicity, a stronger relationship between career aspirations and ethnicity, and psychology as more likely to offer something special to their ethnic group. Furthermore, partially consistent with the hypotheses, African Americans (but not Asian Americans or Latina/o Americans), compared to European Americans, reported more barriers, and perceived less cultural diversity. Also of interest, several differences emerged between minority groups: 1) African Americans reported a greater relationship between barriers and their ethnicity than Asian Americans and Latina/o Americans and 2) African Americans reported a stronger relationship between career aspirations and ethnicity than Asian Americans.

Hypothesis 2—The percentage of students indicating that their group is represented stereotypically, not represented at all, and presented fairly and accurately in psychology are reported in Table 4. A multinomial regression was conducted (with fair and accurate representation as the reference category), with gender and doctoral program included as covariates (Table 5). As hypothesized, each minority group, compared to European Americans, reported significantly more stereotypical representation, and greater non-representation, than fair and accurate representation. Specifically, African Americans were 12.6 times more likely, and Asian American and Latina/o American each 5.1 times more likely to report stereotypical than fair and accurate representation compared to European American students. In turn, Asian Americans were 49.0 times more likely, African Americans 23.7 times more likely, and Latina/o Americans 19.9 times more likely to report that their group was not represented at all than represented fairly and accurately than European American students. Secondary analyses did not reveal any significant differences in representation across the three ethnic minority groups. In terms of covariates, males and females did not differ, but students in doctoral programs were 1.6 times more likely than students in Psy.D. programs to report that their ethnic group was represented stereotypically rather than fairly and accurately.

Hypothesis 3—Sequential multiple regression was employed to examine the relationship between psychosocial predictor variables and satisfaction, with gender, doctoral program, and ethnicity included as covariates (Table 6). Independent of covariates, 25.8% of variance in satisfaction was explained by the predictor variables. With all variables entered, five of the eight predictors achieved significance. Specifically, students who reported more academic support, fewer academic barriers, more mentoring, more encouragement to interact with faculty, and greater confidence in obtaining employment were more satisfied with their studies. Non-academic supports and non-academic barriers were not significant; research encouragement was significant when initially entered, but dropped below significance in the final equation. In terms of covariates, females reported less satisfaction when first entered into the equation, but the effect dropped below significance with all variables entered. Conversely, there was no effect for doctoral program when first entered, but in the final equation doctoral students reported significantly less satisfaction than Psy.D. students. Concerning ethnicity, an overall effect was not found. However, African Americans, but not Asian Americans or Latina/o Americans, reported significantly less satisfaction than European American students (though the effect drops below significance when all variables are entered).

Hypothesis 4—Sequential multiple regression was employed to examine the moderating effect of ethnicity on the relationship between cultural diversity and satisfaction (Table 7). The covariates, gender and doctoral program, were entered first, followed by ethnicity, cultural diversity, and the three ethnic group by cultural diversity interaction terms. Perceived cultural diversity was significantly and positively related to satisfaction, explaining 2.5% of the variance. Although the interaction of ethnicity and cultural diversity did not explain a significant, additional amount of variance overall, the interaction between African American ethnic status in particular and cultural diversity was significant. Specifically, when graphed, as hypothesized there was a stronger positive relationship between perceived cultural diversity and satisfaction for African American students than for European-American students. In terms of covariates, females reported less satisfaction than males students (both when initially entered and in the final equation), whereas there was no effect for doctoral program.

Hypothesis 5 (exploratory)—The percentage of students indicating direct service, work with special populations, miscellaneous and academic career aspirations is depicted in Table

8. A multinomial regression was conducted to examine, in exploratory fashion, whether students of color differed from European Americans in career aspirations, with Academic as the reference category, and gender and doctoral program as covariates. As indicated in Table 9, one significant difference emerged: European American students were 2.3 times more likely than Latina/o students to report that their career aspirations were Academic in contrast to Direct Service. Secondary analyses were conducted, changing the reference group, to examine differences among the minority groups. Several significant differences emerged. Asian American students were 3.6 times more likely, and African American students 2.5 times more likely than their Latina/o American counterparts to indicate that their career aspirations were Academic in contrast to Direct Service. In terms of the covariates, female graduate students were 1.5 times more likely than male graduate students to indicate their career aspirations were direct service rather than academic. Similarly, Psy.D. graduate students were more likely than their Ph.D. counterparts to say that their career aspirations were to work with special populations (odds ratio=57.2), Direct Service (odds ratio=26.1) and Miscellaneous (odds ratio=13.8) than their Ph.D. counterparts.

Discussion

This nationwide investigation of graduate students in psychology provides an important picture of student's experiences as they prepare to become psychologists, and of their career aspirations. Several key findings emerge. First, when considering the factors that students report as most related to their satisfaction with their studies in psychology, more satisfied students reported greater academic supports, access to more mentoring, more cultural diversity in their academic environments, and were more confident in their ability to obtain their desired position upon graduation, than were less satisfied students.

In the present academic supports included support from advisors, professors, peers, and school/department staff or school policies. Thus, the academic supports primarily involved those people found within the graduate school environment who are available to share in the academic experiences and pressures confronting students, and help them to face the hurdles and challenges posed by graduate school. This is consistent with earlier research by Williams (2000) who found that students across different doctoral programs in the Arts and Sciences, irrespective of ethnic background, were satisfied with various academic supports available to them, including their advisors, and working with a mentor. Other researchers have found that students believed that their connections to like-minded peers while pursuing undergraduate degrees (Rodriguez et al., 2003) and advanced degrees (Gandara, 1995; Johnson-Bailey, 2004) was a tremendous source of support that sustained them during their studies, while some have also noted the importance of connections with department staff (Johnson-Bailey, 2004). In the present study, students of all ethnic backgrounds found such support from their peers, advisors, professors and departmental staff to be instrumental in helping them to feel connected and fulfilled about their pursuits in psychology.

In the present investigation, the findings about access to mentoring as one of the factors related to satisfaction with studies in psychology occurred irrespective of student's ethnic background, and are consistent with earlier studies about the importance of mentoring (Daniel, 2009; Hollingsworth & Fassinger, 2002; Paglis, Green, & Bauer, 2006). Past research has shown that mentoring serves a particularly important function of support, including guidance, emotional support, opportunities to network, and information (Daniel, 2009; Green & Hawley, 2009). Research confirms that mentored individuals are consistently more satisfied and committed to their professions than non-mentored individuals (Wanberg, Welsh, & Hezlett, 2003). The finding in the present study is consistent with research that recognizes that mentoring has long been recognized as a powerful tool in career development (American Psychological Association, 2008).

Perceived cultural diversity was also related to satisfaction, and was more strongly related to satisfaction for African American students than for European American students. For the African American students, their perceptions about the cultural diversity in their academic environments may have been influenced by a number of environmental factors (e.g., presence of faculty, staff, and students of color, number of diversity issues courses, access to clients of color during applied training, etc.) and helps to confirm the relationship between the institution/program climate and perceptions of satisfaction. Student satisfaction is one important outcome of a culturally diverse training environment. Other research has shown that exposure to racial and ethnic diversity at one's college campus affects important learning outcomes such as intellectual engagement (Gurin, Dey, Hurtado, & Gurin, 2002). Other studies have shown that multicultural experiences enhance creativity, both cognitively and behaviorally, for students (Leung, Maddux, Galinsky, & Chiu, 2008). The importance of cultural diversity within graduate preparation programs has been recognized by the APA Suinn Minority Achievement Awards which honor graduate programs that exemplify culturally diverse training models.

Another factor that students report as most related to their satisfaction with their studies in psychology was confidence in their ability to obtain their desired position upon graduation. Perhaps the confluence of training opportunities provided them with a window into their career options, which combined with a sense of their ability to accomplish the tasks associated with their desired job, and a self-assurance in their ability to secure that position when they graduate with their doctoral degrees.

Some differences emerged between students of color and European American students in their graduate school experiences. African American students perceived more academic barriers than European American students, and all three ethnic minority groups were more likely to report a link between academic barriers they encountered and their racial and ethnic status than European American students. These results are consistent with those of Reid and Radhakrishnan (2003) in finding that students of color and European American students have different worlds of experience while they pursue advanced degrees.

Students of color, in contrast to European American students, also perceived that their ethnic background was represented stereotypically in psychology, or was not represented at all (in the readings assigned for courses, other course materials they were exposed to, and during course meetings in class lectures). In stark contrast, European American students were many times more likely than their student of color counterparts to perceive that psychology represented their ethnic group fairly and accurately. These different perceptions, of students of color seeing stereotyping, and European American students seeing fairness, must be considered within the context of research and theorizing about stereotype threat (Steele, 1997) and racial microaggressions (Sue et al., 2007). When students of color feel stereotyped or treated in a negatively differential way (i.e., left out, demeaned), stereotype threat theory predicts that they will disengage from that academic domain. The climate in which students of color regularly experience microaggressions results in a burden that is often difficult to identify and articulate. Perhaps one reason that students of color leave psychology prior to completing their advanced degrees concerns the academic and psychological climate that many encounter during their studies.

Interestingly, European American students also perceived more cultural diversity in their academic environments than was observed by students of color. Together, these findings are critical in helping trainers and those who teach in graduate preparation programs to understand the differential perceptions and needs of students of color. This points to the importance of promoting efforts and strategies to reduce academic barriers. It also suggests

that faculty need to critically consider the canon they expose their students to, and need to be mindful of the explicit and implicit messages they communicate in their classrooms.

Another key finding was that students of color, more than European American students, saw psychology as offering something special for minority group members. This is a very positive finding in that students see that the psychological study of human behavior can help address key issues faced by the nation's increasing racial, ethnic, and cultural diversity. Perhaps, as Gonzalez et al. (2002) have suggested, the students of color recognized both the shortcomings, and the strengths of their studies in psychology and viewed their experiences with stereotyping in the classroom as "not something to accept and internalize, but rather something to challenge and negotiate. [Their] goal was not to become socialized members within the academy, but rather to be change members within it" (p. 554). In other words, these authors suggest that their role as students of color is not to fit into academia, but rather to affect change within the academic environment so that it adjusts its "fit" to include students from varying cultural backgrounds. Gonzalez and colleagues conclude that a bidirectional model is needed which calls for the university and the individual both to adjust and appreciate the cultural identities of each other (Gonzalez et al., 2002). Psychology would do well to heed this call.

Limitations, future research directions, and conclusions

One limitation of this investigation is that web-based studies may be difficult for students without easy access to computers. More generally, it is not clear if our recruitment procedure produced a nationally representative sample. We also acknowledge that the measures were based on a survey developed for the present study rather than based on the use of validated measures. Another limitation is that the cross-sectional nature of the study does not allow for causal inferences to be made. Furthermore, in terms of future research, it is important to determine the impact of the factors studied here in a longitudinal fashion. Does satisfaction with one's program translate to successful completion of their studies and integration into the profession? Finally, an important topic for future research is exploring the meaning of a student's ethnic heritage and the salience of their ethnic identity in relation to their experiences in studying psychology.

The present study serves as a rich source of information about how the discipline of psychology is perceived by those who are highly invested in its future. It supports the assumption that students of color bring added value to the educational program and institution, and ultimately to society. At the 1999 National Multicultural Conference and Summit, hosted by Divisions of the American Psychological Association, the 550 attendants unanimously agreed on the importance of implementing multicultural competency in all psychological endeavors and of making multicultural competence a defining feature of psychological practice, education, training, and research (Sue, Bingham, Porche-Burke & Vasquez, 1999). The matriculation of psychologists of color who go on to conduct research, and provide teaching, training, service and administration in a variety of settings is critical to contributing to a leadership corp of persons of color in society, and to the enhancement of sensitivity and creativity (Leung et al., 2008).

This study also provides clues about strategies that academic programs can pursue to provide a more satisfying experience resulting in retention of students of color in psychology graduate programs. This study confirms the model strategies identified by others (American Psychological Association, 2008; Rogers & Molina, 2006) for ethnic minority recruitment and retention in psychology, including the structuring of mentoring and other academic supports, and the importance of the development of a culturally diverse environment.

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Appendix A

List of Organizations Contacted for Recruitment

The following organizations and associations were contacted during recruitment efforts: The American Psychological Association Graduate Students, the Council of Graduate Departments of Psychology (COGDOP), Council of National Psychological Associations for the Advancement of Ethnic Minority Interests, Psi Beta, Psi Chi, members of APA Division 16 (School Psychology), APA Division 27 (Society for Community Research and Action), APA Division 45 (Society for the Study of Ethnic Minority Issues), the APA Minority Fellowship Program, APA Adult Health and Development Program, APA training programs and divisional leadership, and the network of ethnic minority committees. This latter network included the Association of Asian American Psychologists, the Association of Black Psychologists, the Association of Hispanic Psychologists, and the Association of Native American Psychologists. Additionally, flyers were distributed and a poster was displayed at the 2005 National Multicultural Conference and Summit.

Table 1

Study Variables: Correlations, Means, Item/Scale Range, and Standard Deviations

Variables	S	G	DP	AS	NAS	AB	NAB	EM	RE	EFI	CE	CD	LB	LC	PP
Satisfaction	---														
Gender (female)	-.06 [*]	---													
Doctoral Program (PhD)	-.02	-.02	---												
Academic Supports	.23 ^{**}	.01	.05	---											
Non-Academic Supports	.14 ^{**}	.01	-.07	.52 ^{**}	---										
Academic Barriers	-.28 ^{**}	.05	-.04	-.04	.09 ^{**}	---									
Non-academic Barriers	-.07 [*]	.07	-.04	-.03	-.09 ^{**}	.25 ^{**}	---								
Extent Mentoring	.33 ^{**}	.01	.24 ^{**}	.28 ^{**}	.13 ^{**}	-.15 ^{**}	-.03	---							
Research Encouragement	.25 ^{**}	.00	.44 ^{**}	.22 ^{**}	.07 [*]	-.12 ^{**}	-.01	.54 ^{**}	---						
Encourage Faculty Interaction	.35 ^{**}	-.02	.07 ^{**}	.27 ^{**}	.18 ^{**}	-.12 ^{**}	.02	.47 ^{**}	.39 ^{**}	---					
Confidence Employment	.25 ^{**}	-.04	-.05	.10 ^{**}	.13 ^{**}	-.04	-.08 ^{**}	.12 ^{**}	.07 [*]	.10 ^{**}	---				
Cultural Diversity	.17 ^{**}	-.04	-.08 ^{**}	.11 ^{**}	.09 ^{**}	-.07 ^{**}	.01	.04	.01	.13 ^{**}	.06 [*]	---			
Link Barriers/Ethnicity ^b	-.06 [*]	.01	.01	-.05	.03	.21 ^{**}	.10 ^{**}	-.02	-.08 ^{**}	-.03	.00	-.03	---		
Link Career Asp./Ethnicity ^c	-.08 ^{**}	-.00	-.05	.01	.07 [*]	.15 ^{**}	.06 [*]	-.03	-.10 ^{**}	-.05	.05	-.04	.35 ^{**}	---	
Psych's Pertinence/Ethnicity ^d	.00	-.03	-.03	.03	.06 [*]	.09 ^{**}	.03	-.00	-.07 [*]	.01	.05	-.03	.33 ^{**}	.38 ^{**}	---
Means	3.27	1.83	1.80	2.82	2.90	0.71	0.53	3.19	6.81	3.80	2.90	2.76	1.30	1.47	1.48
Item/Scale Ranges (theoretical)	1-4	1,2 ^a	1,2 ^a	0-4	0-6	0-4	0-5	1-4	1-9	1-6	1-4	1-4	1-4	1-4	1-4
Standard Deviations	0.72	0.38	0.40	1.17	1.58	1.01	0.82	0.77	2.01	1.19	0.81	0.85	0.72	0.80	0.88

Note. N=1219.

^{*}
p < .05^{**}
p < .01^aDichotomous variable.^bRelationship between barriers and ethnicity.^cRelationship between career aspirations and ethnicity.

Table 2
Tests of Ethnicity on Criterion Variables After Adjustment for Differences on Covariates and Stepdown

Criterion Variable	Univariate <i>F</i>	df	Partial η^2	95% CI		Stepdown <i>F</i>	df	Partial η^2	95% CI	
				<i>LL</i>	<i>UL</i>				<i>LL</i>	<i>UL</i>
Academic Barriers	6.38**	1/1215	.021	.00	.04	11.83**	1/1215	.010	.00	.03
Relationship Between Barriers & Ethnicity	76.95**	1/1215	.203	.15	.25	70.38**	1/1214	.055	.03	.09
Cultural Diversity in Academic Environment	54.87**	1/1215	.153	.11	.20	9.25**	1/1213	.008	.00	.03
Psychology's Pertinence to Ethnicity	7.98**	1/1215	.032	.01	.06	27.58**	1/1212	.022	.01	.05
Relationship Between Career Aspirations & Ethnicity	14.98**	1/1215	.058	.03	.09	7.72	1/1211	.006	.00	.02

Note: CI = confidence interval; *LL* = lower limit; *UL* = upper limit; N=1219;

**
p < .01

p < .001.

Table 3

Ethnic Group Differences on Criterion Variables

Dependent Variable	Ethnic Group	Mean [/]	S.D.	SE of M	95% CI LL UL
Academic Barriers	African-American	1.25 ^a	1.31	.13	0.92 1.58
	Asian-American	.90	1.15	.14	0.53 1.27
	Latina/o	.89	1.14	.13	0.56 1.21
Relationship between Barriers and Ethnicity	European-American	.66 ^b	.96	.03	0.58 0.74
	African-American	2.30 ^a	1.17	.08	2.08 2.51
	Asian-American	1.83 ^{b,c}	1.01	.10	1.59 2.08
	Latina/o	1.81 ^{b,c}	1.12	.08	1.60 2.03
Cultural Diversity in Academic Environment	European-American	1.18 ^{b,d}	.55	.02	1.13 1.24
	African-American	2.45 ^a	.91	.11	2.17 2.72
	Asian-American	2.48	.90	.12	2.17 2.79
	Latina/o	2.74	.98	.11	2.47 3.01
Psychology's Pertinence to Ethnicity	European-American	2.80 ^b	.82	.03	2.73 2.94
	African-American	2.61 ^a	1.14	.10	2.36 2.86
	Asian-American	2.44 ^a	1.11	.11	2.15 2.73
	Latina/o	2.44 ^a	1.18	.10	2.19 2.70
Relationship between Career Aspirations and Ethnicity	European-American	1.31 ^b	.69	.02	1.25 1.37
	African-American	2.49 ^{a,c}	1.18	.09	2.25 2.73
	Asian-American	1.95 ^{a,d}	1.02	.11	1.67 2.22
	Latina/o	2.18 ^a	1.09	.09	1.94 2.42
	European-American	1.34 ^b	.66	.02	1.28 1.40

Note.

[/] Superscripts that differ from each other represent statistically significant differences (e.g., a versus b; c versus d).

CI = confidence interval; LL = lower limit; UL = upper limit; N=1219;

**
p < .01

p < .001.

Table 4

Ethnicity and Representation of One's Ethnic/Racial Group in Psychology

	Stereotypically		Not Represented At All		Fairly & Accurately	
	%	N	%	N	%	N
<u>Ethnicity</u>						
African-American	60.66	37	24.59	15	14.75	9
Asian-American	27.08	13	56.25	27	16.67	8
Latina/o	41.94	26	33.87	21	24.19	15
European-American	24.00	245	5.00	51	71.01	725
<u>Gender</u>						
Female	26.93	265	9.35	92	63.72	627
Male	26.92	56	10.58	22	62.50	130
<u>Doctoral Program</u>						
Ph.D.	25.08	240	10.03	96	64.89	621
Psy.D.	34.47	81	7.66	18	57.87	136

Note. N=1192. Twenty-seven individuals did not respond and were excluded from the analysis.

Table 5

Ethnicity and Ethnic/Racial Group Representation: Multinomial Logit Regression Results

Predictor Variable	Overall Effect χ^2 (df=2)	CONTRAST					
		Stereotypically vs. Fairly & Accurately		Not Represented at All vs. Fairly & Accurately		95% CI	
		B	Odds Ratio	95% CI	B	Odds Ratio	95% CI
<u>Ethnicity</u>							
	223.90 ***						
African-Am vs. European-Am		2.53	12.57 ***	5.97	26.46	3.16	23.66 **
Asian-Am vs. European-Am		1.63	5.09 ***	2.08	12.45	3.89	48.98 **
Latina/o vs. European-Am		1.63	5.11 ***	2.66	9.83	2.99	19.94 **
<u>Covariates</u>							
Gender: Female vs. Male	0.70	-0.04	0.96	0.67	1.38	-0.24	0.78
Doctoral Program: Psy.D. vs. Ph.D.	9.02 *	0.49	1.64 **	1.18	2.26	0.05	1.05
							1.88

Note. N=1192; Twenty-seven individuals did not respond and were excluded from the analysis;

* p < .05

** p < .01

*** p < .001.

Nagelkerke Pseudo R-squared for Ethnicity = .206; Nagelkerke Pseudo R-squared for Entire Model = .215.

CI = confidence interval; LL = lower limit; UL = upper limit.

Table 6

Multiple Regression Results: Predictor Variables on Satisfaction with Graduate Studies

Variables	B At Entry	B Final	R ² Change	F Change	df1	df2
<u>Step 1</u>			.004	2.72	2	1216
Gender (female)	-.12 *	-.09				
Doctoral Program (PhD)	-.04	-.18 **				
<u>Step 2</u>			.006	2.46	3	1213
African-American	-.21 *	-.16				
Asian-American	-.16	-.01				
Latina/o	-.08	-.06				
<u>Step 3</u>			.052 **	33.91	2	1211
Academia Supports	0.13 ***	0.05 **				
Non-Academic Supports	0.01	0.01				
<u>Step 4</u>			.072 **	50.51	2	1209
Academia Barriers	-.20 ***	-.16 ***				
Non-Academic Barriers	0.01	-.00				
<u>Step 5</u>			.067 **	101.00	1	1208
Extent Mentoring	0.26 ***	0.15 ***				
<u>Step 6</u>			.007 *	10.01	1	1207
Research Encouragement	0.04 *	0.02				
<u>Step 7</u>			.026 **	41.62	1	1206
Encourage Interact Faculty	0.12 ***	0.11 ***				
<u>Step 8</u>			.034 **	56.37	1	1205
Confidence Employment	0.17 ***	0.17 ***				
$R^2 = .269$						
Adjusted $R^2 = .261$						
$R = .519$						

Note. N=1219.

$p < .001$.

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

Table 7

Multiple Regression Results: Ethnic Status and Cultural Diversity on Satisfaction with Graduate Studies

Variables	B At Entry	B Final	R ² Change	F Change	df1	df2
<u>Step 1</u>			.004	2.72	2	1216
Gender	-.012 *	-.011 *				
Doctoral Program	-.004	-.001				
<u>Step 2</u>			.006	2.46	3	1213
African-American	-.021 *	-.067 *				
Asian-American	-.016	-.003				
Latino/a	-.008	-.031				
<u>Step 3</u>			.025 **	31.52	1	1212
Cultural Diversity	0.14 **	0.12 **				
<u>Step 4</u>			.004	1.65	3	1209
African-Am X Cultural Diversity	0.21 *	0.21 *				
Asian-Am X Cultural Diversity	-.004	-.004				
Latina/o X Cultural Diversity	0.09	0.09				
$R^2 = .040$						
Adjusted $R^2 = .032$						
$R = .199$						

Note. N=1219.

* $p < .05$ ** $p < .001$

Table 8

Ethnicity and Career Aspirations

	Career Aspirations							
	Direct Service		Special Populations		Miscellaneous		Academic	
	%	N	%	N	%	N	%	N
<u>Ethnicity</u>								
African-American	36.54	19	3.85	2	15.38	8	44.23	23
Asian-American	25.58	11	4.65	2	18.60	8	51.16	22
Latina/o	58.62	34	3.45	2	6.90	4	31.04	18
European-American	39.94	377	5.83	55	11.65	110	42.58	402
<u>Gender</u>								
Female	41.40	373	5.88	53	11.99	108	40.73	367
Male	34.69	68	4.08	8	11.23	22	50.00	98
<u>Doctoral Program</u>								
Ph.D.	32.56	281	3.13	27	11.59	100	52.72	455
Psy.D.	68.38	160	14.53	34	12.82	30	4.27	10

Note. N=1097. One hundred and twenty-two individuals did not respond and were excluded from the analysis.

Table 9

Multinomial Logit Regression Results: Ethnicity and Career Aspirations

Predictor Variable	Overall Effect χ^2 (df = 3)	CONTRAST											
		Direct Service vs. Academic				Special Populations vs. Academic				Miscellaneous vs. Academic			
		<u>B</u>	Odds Ratio	95% CI	<u>LL</u> <u>UL</u>	<u>B</u>	Odds Ratio	95% CI	<u>LL</u> <u>UL</u>	<u>B</u>	Odds Ratio	95% CI	<u>LL</u> <u>UL</u>
Ethnicity													
African-Am vs European-Am	13.52	-0.09	0.92	0.47	1.81	-0.40	0.67	0.15	3.10	0.27	1.31	0.56	3.05
Asian-Am vs European-Am		-0.47	0.63	0.29	1.36	-0.15	0.86	0.18	3.99	0.38	1.46	0.63	3.43
Latina/o vs European-Am		0.81	2.25*	1.21	4.19	-0.03	0.97	0.21	4.45	-0.14	0.87	0.29	2.64
Covariates													
Gender: Female vs. Male	5.28	0.40	1.49*	1.02	2.17	0.59	1.81	0.80	4.07	0.27	1.31	0.78	2.20
Doctoral Program: Psy.D. vs. Ph.D.	236.98***	3.26	26.08***	13.52	50.32	4.05	57.20***	25.53	128.13	2.62	13.79***	6.52	29.15

Note. N=1097. One hundred and twenty-two individuals did not respond and were excluded from the analysis.

* p < .05

** p < .01

*** p < .001

Nagelkerke Pseudo R-squared for Ethnicity = .011. Nagelkerke Pseudo R-squared for Entire Model = .233.

CI = confidence interval; LL = lower limit; UL = upper limit.