

Recruitment and Training of Underrepresented Students in Nutrition: The HANDS Program Experience¹

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Abstract

One of the ways to increase minority participation in nutrition and agricultural sciences is to recruit, retain and mentor diverse populations in college and beyond. The UMass Health and Nutrition Diversity Scholars Program (HANDS) was designed to recruit and mentor university nutrition majors from underrepresented groups. From 2005-11, we recruited 14 Scholars into this USDA-funded scholarship program. Recruitment activities included a website, blog, promotion in residence halls, class presentations and referrals from campus advisors and multicultural program support staff. Weekly Scholars Seminars included academic development, mentorship, professional development, and community service activities, plus addressed culture, health disparities and nutrition research. The number of underrepresented nutrition majors in the university grew from 14 in 2005 to 32 in 2011. Overall, most Scholars were very satisfied with HANDS, and all found the Scholars Seminar to be at least somewhat useful. Qualitative data indicated that HANDS helped students become exposed to the profession and post-graduation opportunities, but Scholars requested additional professional development activities and field trips. Scholars also remarked on the academic skills they developed. Institutional changes as a result of HANDS included ongoing collaboration for recruitment and support among campus advisors and multicultural student affairs offices, and program continuation beyond the grant-funded period.

Introduction

Minority populations experience poorer health than the majority non-Hispanic white population in the US (Johnson-Askew et al., 2011). The incidence of certain nutrition-related chronic diseases is higher in many minority populations, with concomitant disparities in

health care utilization (Johnson-Askew et al., 2011). To reduce health disparities, a key recommendation for educators in nutrition and other health professions is to prioritize recruiting and mentoring of traditionally underserved students (Johnson-Askew et al., 2011; Institute of Medicine, 2003).

Despite the expectation that the Hispanic population will grow to 25% of the US population by 2050; the African American population rise to 15.7% and the Asian American and Pacific Islander population increase to 10.3% of the US population by 2050 (US Census Bureau, 2011), only 3% of registered dietitians are Hispanic/Latino, 2% are black and 5% are Asian (American Dietetic Association, 2009). Similarly, 96% of US farm operators are white (U.S. Department of Agriculture, 2009). Expanding mentorship programs aimed at recruiting, retaining and supporting underrepresented students can lead to increasing racial and ethnic diversity within the field of nutrition and other agriculture-related sciences (Fletcher and Himburg, 1991; Ralston, 2000).

Recruitment of underrepresented minority students into university nutrition or agriculture programs can include activities to build relationships with community colleges, participation in career fairs, collaboration with campus diversity offices, conducting special summer programs and outreach to high schools with high proportions of minority students (Fletcher and Himburg, 1991; Taylor et al., 2003; Greenwald and Davis, 2000). Attending career fairs, participating in minority organizations and speaking with students, faculty and staff in the major can also be influential in decisions about a student's choice of major (Outley, 2008). Scholarships and other financial incentives are also cited as a very important recruitment tool (Colson, Palan, and Smith, 1992; Greenwald and Davis, 2000; Outley, 2008).

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Mentorship programs can take many forms, including mentored research, service learning, or professional development programs. Faculty/student mentorship in research can enhance the academic experience of students (Moss, 2011). Undergraduate research can facilitate self-confidence, independence, career preparation and degree completion (Good et al., 2013). Mentorship in agricultural research has also been shown to enhance student perceptions of agriculture as a field of study (Moss, 2011). Mentorship in the form of service learning can enhance academic performance, student interest, social responsibility and cultural competence, while building critical-thinking and problem-solving skills, teamwork and leadership skills (Kessler and Burns-Whitmore, 2011; Pierce et al., 2012). A mentorship program emphasizing professional development, social support and recognition was highly effective in recruiting and retaining minority nutrition students (Ralston, 2000).

To help streamline the process of training students and nutrition professionals in diversity, the Academy of Nutrition and Dietetics (AND) offers tools to assist college faculty to implement mentoring programs for underrepresented students and to help create outreach programs to interest students in a dietetics career (Fitz and Mitchell, 2002). To feed the pipeline of underrepresented students entering college, AND also offers the Building Our Future Mentor Program Toolkit, which includes guidelines for mentorship programs, such as marketing, training mentors and recruiting students in various age groups (American Dietetic Association, 2001). Despite these tools and models, progress in developing a diverse dietetic workforce has been slow, with minority participation in 2008 only slightly above levels seen in 1997 (ADA, 2009; Greenwald and Davis, 2000). Thus, it continues to be important for educators to build on prior experiences and models, and share successes and recommendations for future university diversity initiatives.

The University of Massachusetts Amherst adapted these models in developing the Health and Nutrition Diversity Scholars (HANDS) program to increase the recruitment and mentoring of underrepresented minority nutrition majors, and to improve the infrastructure for serving diverse students. Beginning in 2006 through a 5-year multicultural scholars program grant from the U.S. Department of Agriculture (USDA), the HANDS program offered funded scholarships and supports to five undergraduate students from traditionally underrepresented groups in the nutrition field. The purpose of this article is to share HANDS activities and outcomes and discuss recommendations for future university diversity mentorship programs in nutrition and related agricultural sciences.

Program Description and Methods

The HANDS program consisted of a set of intentional activities to recruit and train underrepresented students new to the nutrition major. Efforts to recruit HANDS Scholars from off-campus consisted of strengthening relationships with area community colleges and

participating in a regional project to expand the pipeline of students pursuing college study. The primary source for recruiting HANDS Scholars was from on-campus non-nutrition majors and incoming students, as there was a large pool of ALANA students on campus, and ALANA students were underrepresented in the nutrition major relative to the campus itself. Recruitment activities on-campus included development of posters and outreach to advisors in residence halls, development of relationships with campus academic advisors and multicultural program support staff, presentations on campus by faculty and students, and announcements in classes with non-nutrition students. A website was developed with application materials and information about the program. Application criteria included a minimum of 2.75 grade-point average, statement of interest and status as a non-nutrition major or incoming student. Underrepresented ALANA (African-American, Latino, Asian and Native American) and first generation college students were eligible to apply. An interview with program directors was required and a commitment to stay with the program while pursuing nutrition as a major was requested.

All HANDS Scholars were required to participate in a 1-credit Scholars Seminar each semester, with the main purpose of fostering professional skills and career preparation. Through the seminar, Scholars met weekly or biweekly with independent and group activities along with regular discussions or reflections. HANDS activities centered around seven major themes (Table 1):

Recruitment

Every semester, Scholars organized recruitment initiatives for attracting students to the HANDS program, including posting fliers on campus, hosting recruitment tables at campus events and highly visible areas and announcing the program in introductory nutrition courses. Scholars contributed to the HANDS website regularly, adding highlights of Scholar accomplishments and posting in a Scholars' blog.

Personal Assessment and Academic Development

Scholars assessed their personal development and learning needs each year and identified strengths and professional development goals for the semester. Sessions for new Scholars included library skills, time management and study skills, and learning about the different resource communities on campus.

Mentorship

Scholars read about and discussed the mentor/mentee relationship and had opportunities to have professional mentors in the field as well as to mentor other nutrition students and high school students. Scholars met with nutrition faculty and alumni on and off campus to learn more about the profession. Off-campus mentors were introduced to the Scholars, gave a brief overview of their career and experiences

Recruitment and Training

Table 1. Examples of HANDS Program Activities.

Recruitment	Personal Assessment and Academic Development	Mentorship	Professional Development	Culture, Nutrition and Health Disparities	Community Service, Nutrition Education and Communication	Nutrition Science and Research
Posted HANDS fliers on campus	Maintained study log	Learned about the mentor/ mentee relationship	Attended state Dietetic Association Conference	Attended workshops and seminars on race, class, gender	Presented nutrition education programs in residence halls	Presented research on nutrition topics
Staffed recruitment tables at campus events	Attended Diversity in Learning and Introduction to Campus Resources workshops	Met with guest speakers re. their experiences in the field	Attended annual department and college research conferences	Invited guest speakers on health disparities	Volunteered at a campus health fair	Observed work in nutrition and food science labs
Introduced the program in nutrition courses	Developed library skills	Met with E-mentors from around country	Prepared cover letters, resumes, and personal statements	Shared weekly snacks of cultural foods	Presented nutrition workshops to children and adults	Reviewed literature on nutrition topics
Developed HANDS website	Assessed personal development and learning needs	Hosted panel discussion about the nutrition profession to high school students	Conducted mock interviews	Wrote papers and presented topics addressing culture and foods	Maintained HANDS Blog with reflections, experiences and advice	Shared summer research in nutrition and health studies
	Set time management goals	Presented academic tips and resources to other nutrition majors		Attended seminar, reflected on social identity	Drafted journal manuscript on HANDS	
				Hosted multicultural breakfast		

and answered questions via Skype. This E-mentorship allowed Scholars to learn about different specialties and career opportunities in the nutrition field from diverse professionals from outside of the local area, with the option of continued connection via E-mail.

Professional Development

Professional skill development of junior and senior Scholars differs from those of freshman and sophomore students. As a result, the focus on professional development activities, such as writing resumes, cover letters and personal statements, varied each semester according to the need and level of the student. Scholars participated in mock interviews in which they were interviewed by practitioners for a variety of professions. Scholars also interacted regularly with professionals in the field by attending meetings of the state and regional dietetic associations and other professional conferences on and off campus.

Culture, Nutrition and Health Disparities

Each year, Scholars explored nutrition, culture and health disparities through seminars, guest speakers, literature reviews, presentations and discussions. Scholars also hosted multicultural breakfasts for other nutrition students where they researched the role of breakfast in different cultures and prepared foods from diverse areas of the world.

Community Service, Nutrition Education and Communication

To gain nutrition education and communication skills, Scholars presented nutrition-related programs in small group projects in residence halls, at campus events and with community organizations such as at a local soup kitchen. Scholars shared experiences through the blog posted on the HANDS webpage. Senior Scholars also

contributed to the present article as a way to experience writing for professional groups.

Research

Research was an ongoing theme of the HANDS program, either through literature reviews of current topics, seminar presentations, discussions with university faculty, or participation in research projects.

Scholars were administered a brief program evaluation at the end of each semester assessing usefulness of the Scholars Seminar and satisfaction with the HANDS program. Items were based on a 3-point scale (very useful/satisfied; somewhat useful/satisfied; not useful/satisfied). Beginning 2010, a fourth point (useful/satisfied) was added to the scale based on student feedback. The frequency of responses was summed over all semesters, resulting in 30 survey responses for the 14 Scholars who participated during the period evaluated. Comments on usefulness and satisfaction were solicited, along with general suggestions for improvement. As Scholars could provide more than one comment per evaluation survey, the 30 surveys collected contained 34 comments regarding usefulness of the Scholars Seminar or HANDS, and 40 suggestions for the future. Each open-ended comment was categorized by the themes addressed in seminar, along with additional themes that emerged.

Results

Over the period from 2005-10, a total of 12 Scholars from diverse backgrounds who were new to the nutrition major were enrolled, ranging from two Scholars in the early semesters, to six to eight Scholars after the program became more established. In 2011, after the funded period ended, an additional two underrepresented minority nutrition students joined the HANDS program. Of the 14 who participated in HANDS over the evaluation

period, two had transferred to another major and two had left the university, three graduated in 2011 and seven remained active in the program by the end of 2011. The number of underrepresented nutrition students in the major had more than doubled from 14 students in 2005 (12% of majors) to 32 in 2011 (15% of majors).

Data from the end of semester evaluations (n=30) show that the program was rated positively by all Scholars each semester (Table 2). The Scholars Seminar was rated very useful by 40% of Scholars and somewhat useful or useful by 60% of the students. Over half of the Scholars were very satisfied with the HANDS program (60%) and 40% of Scholars found the program somewhat satisfactory or satisfactory.

Scholars provided 34 comments in response to questions about the usefulness of the seminar or satisfaction with the program. Another 40 comments were provided in response to open-ended suggestions for improvement (Table 3). Most of the comments on usefulness or satisfaction with the program related to the professional development activities offered. Students noted that the course helped them become exposed to the real-world setting and post-graduation opportunities, but requested additional time for shadowing professionals, volunteering, or attending conferences. Other frequent comments related to the course structure, professor, or were affirmations that the program was going well. Many Scholars also remarked positively on the personal assessment and academic skills they developed as a result of the program activities. Suggestions

for the future included the recommendation to include additional fieldwork activities to engage Scholars off campus through trips, nutrition education, and service projects, or noted a general desire to have more activities. Scholars had suggestions for recruiting new Scholars and increasing awareness of the program on and off campus, as well as the need to address academic development skills, such as improving speaking skills or offering tutoring services.

Institutional changes as a result of the HANDS program included ongoing collaboration for student recruitment and support among campus advisors in the premedical and new student programs, multicultural student affairs offices, and student support offices such as the Learning Resources Center. The program continued after the grant-funded period, providing the Scholars Seminar and supports to students without scholarship funding, and expanding to serve a broader range of diverse students, including individuals from an immigrant/refugee population and reserve military personnel.

Discussion

Over the five-year period funded by the USDA, the number and percentage of ALANA nutrition majors increased. While HANDS Scholars were a subset of the total number of ALANA students in the major and the increase cannot be directly attributed to the HANDS program, the activities used to recruit Scholars to the major also served to attract minority students who chose not apply to become HANDS Scholars. As a result of the HANDS outreach, the multicultural activities of students in the major were regularly highlighted through the website, blog and special functions open to all majors. The ongoing recruitment activities on campus as well as connections with multicultural offices and campus advisors also served to promote the nutrition major as an excellent choice for academic study. The HANDS

Table 2. Student Perceptions of the Scholars Seminar and the HANDS Program¹.

Item	Very Useful/Satisfied	Useful/Satisfied or Somewhat Useful/Satisfied	Not Useful/Satisfied
Usefulness of Scholars Seminar	12 (40%)	18 (60%)	0
Satisfaction with the HANDS Program	18 (60%)	12 (40%)	0

¹ The 14 Scholars provided 30 survey responses over the period evaluated.

Table 3. Categorization of HANDS Scholar Comments and Suggestions ¹.

Category	Number of Comments on Usefulness of Scholars Seminar or HANDS (%)	Number of Comments on Suggestions for Future (%)	Sample Quote
Recruitment	0	4 (10.0%)	"Get T-shirts, hoodies, etc., to represent our program."
Personal Assessment and Academic Development	3 (8.8%)	3 (7.5%)	"I developed useful study habits and was able to set up a way to manage time efficiently."
Mentorship	0	1 (2.5%)	"Mentorship (not just meeting for scheduling, etc.)"
Professional Development	7 (20.6%)	2 (5.0%)	"I now have an idea on what I need to do after I graduate."
Culture, Nutrition, and Health Disparities	2 (5.9%)	1 (2.5%)	"We really need this type of program because I feel it is important to have minorities in the nutrition and science field."
Community Service, Nutrition Education, and Communication	1 (2.9%)	3 (7.5%)	"Become more active in the community, such as the Survival Center."
Nutrition Science and Research	2 (5.9%)	2 (5.0%)	"Possibly include more help with research skills and presentation skills."
Fieldwork/Trips	0	8 (20.0%)	"We should have scheduled more field trips."
Social	2 (5.9%)	1 (2.5%)	"The multicultural breakfast helped us become closer as a group." "Find time for more activities to build connection within the group; such as trips and projects."
Professor/Course Comments	5 (14.7%)	3 (7.5%)	"Our professor is very supportive. Always help us." "I feel some assignments were more useful than others."
General Activities	1 (2.9%)	4 (10.0%)	"We should have more activities."
Miscellaneous	8 (23.5%)	6 (15.0%)	"More training and test of our knowledge."
Affirmation	3 (8.8%)	2 (5.0%)	"I think it is going in a good direction."

¹ The 14 Scholars provided 30 survey responses over the period evaluated, including 34 comments on usefulness of the Scholars Seminar or HANDS and 40 comments on suggestions for the future.

Recruitment and Training

program has been institutionalized in the Department, continuing after the funded period has ended, and expanding to include a range of diverse students. Continuing features of the HANDS program include regular recruitment contacts with campus advisors, special functions such as the multicultural breakfast, acknowledgement at the annual department awards dinner, offering Scholars seminars each semester, and modest departmental financial support.

Overall, Scholars were very satisfied with the HANDS program and found the Scholars Seminar to be useful. The HANDS program included many of the elements that were noted as factors contributing to success in minority and male dietitians, such as work/study skill development, peer support, mentorship, and scholarship support (Greenwald and Davis, 2000). The program also contained service learning and research components, which can enhance academic experience, performance and career preparation (Good et al., 2013; Moss, 2011; Kessler and Burns-Whitmore, 2011). Recognition of Scholars was in the form of highlighting Scholar expertise through programs they planned and delivered for other majors and acknowledgement at the annual Department alumni lecture event. Scholar activities and work were also promoted through the Scholars' blog. While the Scholars did not comment specifically on the usefulness of the blog, a student blog with reflections was found to be a useful component of an undergraduate research mentoring program (Good et al., 2013). Scholars highlighted the professional development and personal assessment and academic development activities in their comments about usefulness and satisfaction. The most frequent suggestions were for additional recruitment and field trips, activities, and nutrition education or community service projects. As a result, two "regular" activities were built into the HANDS program: a community service project in which Scholars planned and prepared a meal together at a local soup kitchen, and the planning and implementation of a multicultural breakfast open to other nutrition majors and faculty. These served to increase meal planning and cultural food skills, while promoting HANDS and enabling group work with a social experience.

While Scholars were satisfied with the HANDS program overall, there were some challenges in simultaneously addressing the different academic and professional needs and time availabilities of Scholars in lower and upper levels. We have begun to offer two different Scholars Seminar courses - one for upper division and one for lower division students, focusing on different academic and professional activities according to the year in which a Scholar is enrolled. For example, a senior Scholar might focus on writing cover letters and revising resumes, searching for job opportunities after graduation or researching and/or applying to graduate programs, while a freshman or sophomore Scholar may focus on time management, study skills and career exploration. To facilitate Scholars working on a group project or outreach program together, we used

an overlapping Scholar's Seminar time slot for planning and to enable senior Scholars to mentor junior students. Scholars also commented on the need for more field experiences, but it was very difficult to schedule group activities off campus given their heavy and varied course and work commitments. Meetings, outreach programs and shadowing of professionals were scheduled in the evenings and early mornings if possible. Another challenge was continuing the program after the funded period had ended, which was also noted as a challenge in the undergraduate research mentorship program by Good et al. (2013). Yet, students find that financial scholarships for minority college students is one of the most important strategies to promote diversity in the field of agriculture and natural resources (Outley, 2008). Although we had some challenges in recruiting new students without financial incentives once the funding period ended, prospective Scholars were still interested in joining the HANDS program for its focus on diversity, small group dynamic and professional benefits and interactions. Without financial incentives or scholarships, it was important to publicize the other perceived benefits of the mentorship program, including academic and peer support, experience in outreach programs, individualized attention, networking opportunities and professional development. Even without scholarship support, the HANDS program requires funding to provide recruitment incentives, supplies for community outreach programs and functions such as the multicultural breakfast and registrations for conferences and special programs. Without grant funds, administrative support is critical to address these modest expenses.

Summary

Since the inception of the HANDS program, the diversity in the nutrition major has increased. This multicultural scholarship program and its affiliated seminar were useful to the Scholars, providing academic support, career preparation, mentorship and professional and community service opportunities in nutrition, while addressing issues in nutrition research, culture and health disparities. Institutional changes included ongoing collaboration for recruitment and support among campus advisors and multicultural student affairs offices, and program continuation beyond the grant-funded period. With academic preparation, exposure to the nutrition field and support from fellow students, mentors and advisors, undergraduate nutrition diversity mentorship programs can help prepare students to enter the field ready to address the nutrition-related medical conditions and dietary preferences, habits, and needs of a growing minority and culturally diverse population.

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