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Article 80

Implementing Ethical Social Advocacy: Enhancing Latino Student Interest in Careers and Higher Education

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With social advocacy having been characterized as an increasingly powerful "fifth force" in counseling, the role of counselor as social advocate has received renewed emphasis within the counseling profession (Ratts, D'Andrea, & Arredondo, 2004). Affirming the necessity of counselors adopting a social justice orientation, the American Counseling Association (ACA) adopted a set of advocacy competencies (Lewis, Arnold, House & Toporek, 2002), that delineates six domains of advocacy intervention: client/student empowerment, client/student advocacy, community collaboration, systems advocacy, public information, and social/political advocacy. Counselors have come together to form new organizations, such as Counselors for Social Justice within the ACA and Psychologists for Social Responsibility, that focus on the use of social advocacy to end injustice in communities, schools, workplaces, governments, and other social and institutional systems that negatively affect the psychological and physical health of clients, students, counselors, and families (Counselors for Social Justice, 2010). Additionally, the ethical codes of both ACA and the American Psychological Association (APA) identify social advocacy as an ethical responsibility (ACA, 2005;

APA, 2002). Although social advocacy has now become a professional ethical imperative (Grace, 1998, 2001; Shore, 1998), there are few examples of the practical application of ethical social advocacy action in the literature (Arredondo & Perez, 2003; Bemak & Chung, 2005; Bemak & Chung, 2008; Dinsmore, Chapman & McCollum, 2000; Hof, Scofield, & Dinsmore, 2006; Kiselica & Robinson, 2001; Lewis & Bradley, 2000; Lewis, Lewis, Daniels, & D'Andrea, 2003).

Ethical advocacy action taken to address barriers and obstacles that inhibit access and/or the growth and development of clients/students includes identifying barriers to the well-being of individuals and vulnerable groups, identifying potential allies for confronting the barriers, developing a plan of action for confronting these barriers, and carrying out the plan (Lewis et al., 2002). Toporek and Liu (2001) suggest when developing goals to address environmental or systemic barriers, an ethical approach should involve consultation and collaboration with community groups to better understand the issues underserved groups face and to ensure that any actions taken are primarily to increase the self-efficacy and skills of those the advocacy is designed to benefit.

One example of this collaborative approach to ethical advocacy practice is the Educational Access Project (EAP), a program designed by counselor education and other faculty/staff in the College of Education (COE) at the University of Nebraska at Kearney (UNK) in partnership with K-12 school counselors/educators, community leadership, and parents in participating communities, to increase preparedness for and access to post-secondary education for students from underrepresented groups. The EAP contains five components: (1) student tutoring program, (b) summer camps, (c) family education sessions, (d) campus visits, and (e) multicultural programming on the UNK campus. This article describes the organization and implementation of the summer camp component of the program, which was designed to increase career counseling support and enhance access to higher education for students from underrepresented groups, primarily recent immigrants from Hispanic backgrounds. Described in detail are staffing, logistics, and activities involved, with the hope that those interested can replicate this type of component in their own settings.

Societal and Community Context for the EAP Advocacy Initiatives

A recent report by the Education Commission of the States (2004) projects that by the year 2015, nearly 21% of the school age population (0-24 years of age) will identify themselves as Hispanic (U. S. Census Bureau, 2000). Although the percentage of non-White students continues to grow, as a group they lag behind in several educational categories, including college attendance, bachelor degree completion, and graduate/professional school enrollment (Brown, Santiago, & Lopez, 2003; Frey, 2002; Garcia, 2001). For example, recent studies indicate 53% of Hispanics have less than a high school education, and only 11% of Hispanics have a college degree (Education Commission of the States, 2003). Clearly, this is a social justice issue; the full benefits of the public education system are still not reaching these students. The ability of these youth to thrive and become future community and society leaders rests in good part on access to education and level of educational attainment. Innovative community-based solutions are needed to improve the quality of academic preparation so students succeed

at the secondary school level and are prepared for a college education (Brown et al., 2003).

Over the past 15 years in Nebraska, the general Latino population has increased 262% (U. S. Census Bureau, 2000) and the Latino student population has increased 527%. In addition, high levels of immigration have dramatically increased the number of new students whose first language is not English. In central Nebraska, where UNK is located, the number of students receiving English-language learner (ELL) services rose by 970% in the 5 year period between 1995 and 2000 (U. S. Census Bureau, 2000). The university is surrounded by counties where 15-25% of the population is non-White and up to 18% are foreign-born (U. S. Census Bureau, 2000). As is true nationally, the full benefits of the public education system, both K-12 and higher education, have not been reaching the non-White student population in Nebraska. Non-White students constitute 25.3% of the student population, yet represent 54% of the dropout population (N. Rowch, personal communication, February 10, 2010). Latino students, in particular, represent 13.5% of the K-12 student population, yet they constitute 20.1% of the dropout population. These statistics translate to non-White students constituting only 7% of the student population on the University of Nebraska system's four campuses (Nebraska Department of Education, 2003). Clearly the statistics show Latino and ELL students in Nebraska are experiencing barriers to educational attainment and access to higher education.

EAP Summer Camp Component

As an advocacy initiative, the EAP Summer Camp Component was designed to address these barriers by actively engaging counselor education and other faculty at UNK and school counselors/educators in K-12 partner schools as allies in a collaborative process to support achievement of non-White students and ELL learners. Educators/counselors in the university's K-12 partner schools were best situated to understand the academic and personal needs of the students. Not only did they have a comprehensive view of their school achievement, they had access to parent input from other components of the EAP program, primarily the parent education sessions and the Parent/Community Advisory councils that were established in each community. They identified the sciences as the curricular area most challenging for their ELL learners. Latino students in general, and their ELL students in particular, were not achieving at a level consistent with White peers in the sciences. Historically, the majority of scientists in the education and private sectors in the U.S. have been White. Among private sector scientists and engineers 77% are White, while 74% of scientists employed in higher education are White. In contrast, Latino individuals represent only five percent of all employed scientists and engineers in the U.S., just 4.8% of scientists employed in higher education, and less than 2%of the nation's chemistry, physics, and biology teachers (National Science Foundation, 2003).

Recognizing that in order to pursue a career in sciences, students needed interest in and motivation to take science coursework, strong 7-12 science preparation, and access to higher education, the K-12 educators/counselors suggested these camps focus on increasing science literacy and enhancing awareness and interest in science careers on the part of these students. The outcome of this collaborative needs assessment process was

development of a three-year academic science day camp program initiated to provide exposure to middle school students from underrepresented groups, most specifically Latino students who are ELL, to a broad range of science-related activities and careers. The component was designed to engage student in challenging curriculum using culturally and linguistically relevant pedagogical approaches, to enhance students' self-esteem as learners, and to introduce the idea that higher education could be an option for them and a gateway to an exciting career.

Participants

The one-week summer science camps targeted 4th- through 6th-grade students from seven partner school districts. Over the course of the science camp project, 570 students participated. Eighty-percent of participants were Latino and the majority were ELL students. Although there were repeat participants in the second and third years, most students each year were first-time attendees. The camps utilized university science facilities whenever possible; otherwise they were held in either a high school or middle school science classroom. Each year the camp staff included at least one university professor with expertise in the sciences, two K-12 science teachers, a K-12 teacher from a partner school with experience in working with ELL students, a bilingual member of the program staff, and four university students majoring in education, two of whom were bilingual. The student to teacher ratio averaged four to one and the total number of contact hours per week per student was 30.

Program Curriculum

Research suggests there are several factors that help promote Latino student involvement and interest in science: (a) a shift in curriculum to a constructionist approach that promotes interactive discovery learning and emphasizes application activities, (b) nurturing pedagogy and high expectations on the part of teachers, (c) connecting instructional style to salient aspects of home culture, (d) allowing students to use their primary language as needed during instruction, and (e) instilling in students a belief they can achieve (Gibbons, 2003; Hadi-Tabassum, 1999; Lockwood & Secada, 1999; Luft & Roehrig, 2005). These five factors were intentionally integrated into the curriculum and pedagogical approaches used during the science camps. The curriculum was designed to incorporate discovery learning approaches and application level activities while emphasizing science as inquiry and problem based. It reflected high expectations for student achievement, with content presented that was several grade levels above the average grade level of participants. Students were allowed to use their primary language as needed during instruction and a family atmosphere was promoted through close teacher/student involvement and collaborative learning structures.

The first year summer camp curriculum focused on biological science, the second year targeted physical science, and the third year centered on anatomy and physiology. The purpose of the camps was three-fold: (a) to provide opportunities for students to explore a variety of science-related career possibilities, (b) to help students view themselves as capable of being successful in the field of science, and (c) to introduce middle grade students to the higher education environment in an exciting and engaging manner to build motivation to attend college in the future. To accomplish these objectives, each of the week-long day camps included an internet-based science career

exploration activity and a variety of experiments that engaged the students in implementing the scientific method through a hands-on process that promoted a "learning is fun" atmosphere.

Year One: Biological Science

Career exploration activity. Students conducted an internet search on a specific career that interested them to identify the educational requirements for and main activities involved in that career, as well as how the biological sciences were utilized in that career. Findings were summarized on a poster and presented to the rest of the students. Discussion expanded students' understanding of how science was a part of many careers and helped them see the connection between their education, specifically science education, and their career goals.

Scientific method activities. The first year curriculum focused on identifying factors that affect a particular organism's environmental preferences or habitat through the use of games and/or experiments. One of the specific activities conducted was building a variety of different habitats within an enclosed container for Madagascar hissing cockroaches. This activity was one of the most popular experiments conducted in any of the camps. Students enjoyed handling the insects and would often ask to play with them during periods of free time. Another favorite experiment examined how organisms use pheromones as a means of communicating and/or tracking using a Bic brand blue or black ink pen that contains a preferential pheromone of termites. Students also conducted a take-home experiment that required them to chart growth patterns of different seed types. On the last day of the camp, they graphed their results and compared them to those of the other participants. Doing so reinforced the importance of the steps of the scientific method and how variance could impact experiment findings. Several other activities were used to exhibit characteristic behavior of various organisms and their surrounding environment.

All of the activities included a hands-on component and some type of mathematical component, either an equation or graphing problem students had to complete. Throughout the week-long camp, the use of scientific equipment, such as balance scales, microscopes and magnifying glasses, were incorporated into activities. Much of the scientific equipment used throughout the week was given as gifts or rewards to students at the completion of the camp.

Year Two: Physical Science

Career exploration activity. The primary focus of the second camp was the physical sciences and career exploration incorporated activities central to the fields of chemistry and physics. Students used the internet-search format from the first year to identify a career of interest that could be used as a starting point for discussion about how the physical sciences were connected to their career interests.

Scientific method activities. Staff dubbed this camp "the summer forensics science camp" because many of the concepts related to chemistry and physics are used within the field of forensics. It gave the opportunity for students to have fun while learning core concepts that would help them solve "the summer science camp mystery." To provide examples of how chemistry is a part of our lives, activities used everyday products that could be classified as being acidic, basic, or neutral. Another activity taught

students about color spectrometry by exploring how different inks could be identified through analyzing their color fingerprint.

As was true in the first year, the majority of the activities in which students participated were hands-on and collaborative. Instructional design emphasized the use of critical thinking skills to plan a research design and anticipate consequences. Students had the opportunity to use a variety of scientific equipment, including lasers, graduated cylinders, beakers, scales, mirrors and prisms.

Year Three: Anatomy and Physiology

Career exploration activity. During the third year, the initial career activity was completion of a College and Career Planning Journal. Students recorded present and future goals that were important to them, what they wanted to know about college, and how education connected to their goals. Science-specific career activities focused on the life sciences, especially those related to the health care industry. Students researched a career available in the health care industry and presented information about that career in a creative way to their peers.

Scientific method activities. Activities related to the life sciences centered on genetics and the function of body systems, specifically the skeletal, muscular, respiratory, renal and cardiac systems. Experiments such as genotyping and taste tests to determine genetic traits were of high interest to students and allowed them to apply scientific concepts to themselves and family members. Dissection of a lamb's heart and chicken leg quarter were popular hands-on activities that allowed students to explore the structure and functions of the cardiac, skeletal, and muscular systems. An understanding of disease processes was explored through a test tube "fluid-sharing" activity that created an awareness of how infections such as AIDS are spread within a population.

The high-involvement discovery learning activities allowed students to get a concrete sense of what careers in the life sciences could involve. They also helped students understand the precautions necessary to avoid cross-contamination, exposure to toxic substances, and spreading of disease. This year's activities provided many "firsts" for students in the use of scientific equipment. Blood typing equipment, instruments used in dissection and anatomical software used to explore body systems were all new to students and contributed to their ability to develop a concrete vision of what a career in the life sciences could involve.

Method

Instrumentation

A survey was developed by the researchers each year to measure the impact of the camps on participants' beliefs in two categories: 1) science as a content area and potential career, and 2) the importance of education. Items in the first category gathered information about participant beliefs about science in general, and the specific area of science on which the camp focused, skills in science, and career interest in the sciences. Items in the second category focused on participant attitudes about high school and college attendance and graduation, goal setting, and writing abilities. The first year survey had ten items, two that measured beliefs about science, six that measured perceptions of skill in science, one that measured desire to pursue a career in science, and

one that measured perception of writing abilities. The second year survey had twelve items. Three items measured beliefs about science, two measured perceptions of skill in science, one measured desire to pursue a career in science, four measured ability to set goals, and two measured attitudes about graduating from high school and attending college. Lastly, the third year survey had ten items. Two items measured beliefs about science, four measured perceptions of skill in science, one measured desire to pursue a career in science, one measured attitudes about school, and three measured attitudes about graduating from high school and attending college. Triangulation was used through multiple survey developers and reviews to attempt to eliminate bias (Gall, Gall, & Borg, 2006).

Data Collection

In each of the three years, pre/post surveys were administered to participants. Using a 5-point Likert scale, students responded to a set of questions before attending the week-long camp and then responded to the same set of questions at the end.

Results

Data was analyzed using the paired sample t-test to determine if there was significant change in the participants' beliefs about themselves, the importance of education, and their beliefs about science as a content area, and potential career choice. Results, as shown in Table 1, indicated there was a significant positive impact on the participants' enjoyment of school, and their plans to attend and graduate from college. Additionally, there was a significant positive impact on their beliefs about their writing skills and the importance of setting goals. Regarding participants' beliefs about science, there was a significant increase in their belief that science was fun and significant increases were shown each year on all items that assessed skill in the specific science content areas covered in the camps. Participation in the camps did have an influence on participants' career development. Significant increases were shown on items that asked if participants knew the career they wanted as an adult and if they would consider science as a career.

Discussion

The EAP Summer Camp Component provides a concrete example of how counselor educators and school counselors can collaborate to translate ethical imperatives for social advocacy into action. It incorporated consultation with community groups to better understand the issues underserved groups were facing (Toporek & Liu, 2001). Barriers and obstacles that were inhibiting the growth and development of students and access to resources were identified. Allies were engaged and a culturally-relevant plan of action for confronting these barriers was developed and carried out (Lewis et al., 2002). Instructors held high expectations for student performance and presented challenging curriculum, yet students performed well. Instructional methods complemented Latino collective cultural values and relational communication styles by emphasizing interaction, collective effort, discovery learning, and mentoring relationships. Providing core materials in the students' preferred language, and

explanations of terminology led to increased comprehension and involvement on the part of ELL students.

Results indicate that actions taken did increase the self-efficacy and skills of those students the advocacy was designed to benefit (Toporek & Liu, 2001). The program was successful in increasing Latino students' interest in science, enhancing their confidence as learners of science content, and building a vision of a future that includes higher education as a gateway to careers in science. Implementing these approaches also enhanced the students' self-concept as learners and increased their motivation to pursue higher education. For many of these students, awareness that higher education was a possibility was a new idea. Promoting and implementing culturally competent instructional methods helped change student perceptions about the attractiveness of a career in the hard sciences and increased student interest in continuing their learning in science disciplines.

If a series of these types of summer enrichment activities are offered on a regular and recurring basis, they not only have the potential to support Latino entry into a variety of career paths, but to perhaps support achievement and retention of Latino students in the education system. Future researchers interested in replicating this study could consider tracking students through the academic year to monitor if the impact carried over from camp to secondary school performance. Longitudinal tracking, such as following participants' enrollment in science courses, high school graduation rates, enrollment in and retention at college, and choice of science as a career, would also be helpful indicators of the sustained impact of these types of activities.

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Table 1
Mean Differences of Pre-Test Score vs. Post-Test Scores

Item	*M*	*SD*	*n*	*t*
Year 1				
Beliefs About Science				
I have the ability to work in science	0.15	0.79	124	2.17*
Science is fun	0.13	0.86	124	1.68
I can write scientific hypotheses	0.86	1.14	123	8.38**
I can conduct scientific investigation	0.49	0.96	124	5.72**
I understand how behavior helps things survive/grow	0.27	0.87	124	3.52**
I can describe how living things sense environment	0.57	1.01	124	6.20**
I know how to write lab report	0.65	1.11	124	6.90**
Scientists use math often	0.24	1.00	123	2.70**
I would consider a career in science	0.14	0.99	123	3.54**
Beliefs About Self: Education/Career				
I am a good writer	0.42	1.08	124	4.31**
Year 2				
Beliefs About Science				
Science is fun	0.30	0.78	184	5.17**
Science is important in my life	0.03	0.81	182	0.46
I know about chemistry and physics	0.85	1.05	183	10.97**
Science is one of my best subjects	0.25	0.90	183	3.72**
I have done many science experiments during school	0.08	0.93	182	1.12
I want a job involving science	0.35	1.08	183	4.34**
Beliefs About Self: Education/Career				
I know what it means to set goals	0.19	0.80	184	3.21**
I set goals often	0.19	0.92	184	2.77**
I have questions about college	-0.11	1.24	183	-1.19
I know why college is important	0.10	0.77	184	1.82
I want to graduate from college	0.38	1.00	184	5.11**
Year 3				
Beliefs About Science				
I like science and math	0.19	0.86	142	2.64**
Science and math are fun	0.34	0.97	145	4.21**
I know a lot about anatomy	0.95	1.25	145	9.18**
I know a lot about physiology	0.90	1.20	143	8.94**
I know about muscles and bones	0.81	1.22	145	8.00**
Beliefs About Self: Education/Career				
I like school	0.18	0.93	145	2.33*
I plan to graduate from high school	0.14	0.53	145	-0.32
I know the career I want as an adult	0.33	1.27	142	3.11**
I plan attending college	0.10	0.57	143	2.22*
I plan to graduate from college	0.09	0.47	143	2.30*

Note. * indicates significance $p < .05$ and ** indicates significance $p < .01$.