

2014

Thinking Like a Scientist: A Thematic Analysis of Students' Experiences at the SACNAS Research Conference

Rosa Perez

University of Nevada, Las Vegas

Rachael D. Robnett

University of Nevada, Las Vegas, rachael.robnett@unlv.edu

Follow this and additional works at: http://digitalscholarship.unlv.edu/mcnair_posters

 Part of the [Community-based Research Commons](#), [Higher Education Commons](#), [Inequality and Stratification Commons](#), and the [Science and Mathematics Education Commons](#)

Repository Citation

Perez, R., Robnett, R. D. (2014). Thinking Like a Scientist: A Thematic Analysis of Students' Experiences at the SACNAS Research Conference.

Available at: http://digitalscholarship.unlv.edu/mcnair_posters/59

This Poster is brought to you for free and open access by the McNair Scholars Institute at Digital Scholarship@UNLV. It has been accepted for inclusion in McNair Poster Presentations by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact digitalscholarship@unlv.edu.

Thinking Like a Scientist: A Thematic Analysis of Students' Experiences at the SACNAS Research Conference

Rosa Perez, McNair Scholar, Anthropology Major
Faculty Mentor: Dr. Rachael D. Robnett, Department of Psychology

Abstract

The underrepresentation of minority students in STEM fields is a concern in today's society. Research suggests that identity plays a major role in students' ultimate success within these fields. Using identity theory as a theoretical framework, this study explores the ways in which identity affects the academic careers of underrepresented students in STEM. The participants of this study consisted of undergraduates from various colleges and universities around the United States that attended the SACNAS 2010 research conference. Thematic analysis was used to identify four overarching themes from a set of narrative responses collected after the event. The identified themes include (1) motivation and future endeavors, (2) networking, (3) experienced others, and (4) disadvantaged backgrounds. These themes were analyzed to further understand the importance that identifying as a scientist has on students in STEM.

Theories

The racial and ethnic diversity of the United States is not being reflected in fields related to science, technology, engineering, and mathematics (STEM).

Identity theory and salience: There are three types of identity, role, social, and person.

- Role: e.g. identity as a scientist
- Social: e.g. race/ethnicity
- Person: e.g. as a "good" person

Identity theory suggests that the links between social identity and role identity have a major part in deciding how individuals choose which identity to enact as well as its salience (Merolla & Serpe, 2013; Syed, 2010).

Social Structures:

- Large: race, ethnicity, class, and gender
- Intermediate: neighborhoods, schools, universities/colleges
- Proximal: cohorts, study groups, clubs

It is these three levels working in tandem that affects the development and salience of a science identity.

Entropic Career Identity Development Model (EnCID):

The EnCID model describes the steps that minority students must move through to successfully integrate into STEM fields. It includes four phases of development: (1) pre-encounter (2) encounter, (3) immersion, (4) fully integrated.

Each of these phases is pertinent to the complete integration or development of the individual's particular career identity.

Epistemological Reflection Model

This model describes four levels that individuals work through as they develop their way of knowing: (1) absolute, (2) transitional, (3) independent, and (4) contextual.

Each of these levels moves closer to a more independent way of thinking as well as shaping their knowledge based upon context. As related to identity, people move away from an outside belief of what is knowledge and identity. They finally end in a far more internal way of identifying ones' self, such as identifying as a scientist.

The Current Study

The current study aims to provide insight into the following research question:

Does participation in an academic outreach program have positive implications for underrepresented students' identity as a scientist?

This research question was considered in a sample of undergraduates who attended a research conference.



Moreno, René. (2012). "SACNAS hug." [Photograph]. Retrieved from <http://sacnas.org/about/stories/sacnas-news/summer-2012/sacnas-chapters-building-community-scientists>



SACNAS. "SACNAS logo." [Logo]. Retrieved from <http://sacnas.org/about/40th-anniversary/history-of-logo>

Method

Participants

The participants in this research consisted of 124 undergraduate students who attended the 2010 Society for the Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS) conference. Of these students, 55% reported being first-generation college students.

Ethnic identity:

- 71% identified as a member of at least one underrepresented group, i.e. did not identify as White or Asian American.

Major:

- Biology (38%)
- Math (11%)
- Biochemistry (10%)
- Chemistry (9%)
- Computer science (5%)

Procedure

Data were collected using a prompt given at the end of the conference. The prompt asked students to:

"Please think back to the SACNAS 2010 research conference [and] write a few sentences about the experiences at the conference that you perceived to be especially beneficial."

These responses were coded using Braun and Clarke's (2006) guide to thematic analysis and went through a preliminary round of reliability testing. The adjusted manual was then used to code the data.

Results

The data of this analysis was carefully reviewed and then coded into four meaningful themes, including:

(1) Motivation and future endeavors: 69% of responses

"...This conference provided an overwhelming amount of information that is very helpful towards my future endeavors in academia. Now I know that I have unlimited options in graduate school and I plan to take this information and apply it to my future goals."

(2) Networking: 50% of responses

"I felt that I could connect [with] my peers. I felt that I was supported and that around me were other successful Hispanics that would be my future colleagues. I left the SACNAS conference feeling inspired."

(3) Others' experiences, stories, and lectures: 30% of responses

"...It was the stories some of the professors had to share. Many of them came from such poor backgrounds; their parents were immigrants with little education and very little money. These stories were very empowering and humbling. I see their stories as motivation to succeed."

(4) Disadvantaged backgrounds: 26% of responses

"... Being a Mexican woman in science can be difficult, but this conference always seems to keep me motivated. I meet people who have overcome adversity and are doing amazing things. It inspires me to do more and never settle for less..."

The themes of this study highlight the role of identity in STEM. More specifically, it allows one to examine the positive effects of this conference on students' identity as a scientist.

Future Directions

Future studies are necessary for a more detailed understanding of the importance of identity as a scientist. As for this study, further directions could include:

- **Formal inter-rater reliability testing.** The present study went through a preliminary round of reliability testing. Therefore, this study would benefit from more formal testing.
- **Longitudinal study on the students who participated.** It would be interesting to observe the behavior, attitude, and identity changes of these individuals.
- **An Ethnographic approach** could be used to study the students while they are at the conference. The current study examines a self-reflection by the students. A closer observation of how the individuals behave, interact, and relate with one another during the conference could be compelling.