

# Latina/o Students in STEM: An Examination of Navigational and Social Capital

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## Purpose of Study

- Explore the use of Yosso's (2005) community cultural wealth framework to examine Latina/o undergraduate experience within STEM fields.
- Through a Critical Race Theory (CRT) lens, this perspective on capital sheds light to the valuable, but often cited as “deficit”, culture of minority communities.
- **Research Question:**
- **How does Community Cultural Wealth help us understand the capital Latina/o students bring to and cultivate within the STEM fields?**



# Community Cultural Wealth

- For the purpose of this study we examine the following:
  - **Social Capital:** network of peers and community resources that provide instrumental emotional and cultural support necessary to navigate society's institutions (e.g. lifting as we climb)
  - **Navigational capital:** developing social and psychological skills to maneuver through social institutions not created with communities of color in mind (e.g. negative campus climate at universities)



# STEM

- Need to increase educated workforce in Science, Technology, Engineering, and Mathematics
  - Innovation
  - Economy
  - Human Capital
  - National Security
  - Social Justice
- Developing talent among historically underrepresented racial/ethnic populations is critical



# Latina/os in the United States

- Fastest growing minority population
- Increase in postsecondary enrollment
- Projected to comprise 37% of college-age population by 2050
- Accounts for only 4% of STEM-workforce in 2007
- Obtained 8% of S&E degrees in 2007
- High STEM aspirations
- Persistence rates for students entering college with intentions to major in S&E is lowest among African Americans and Latinos



# Postsecondary Obstacles

- Pre-college preparation
  - high drop-out/ push-out rate
  - Disproportionately tracked out of AP/Honors
  - Rarely exposed to rigorous/engaging STEM-curriculum
- Persistence
  - Disproportionally start out at 2-year institutions
  - Placed into remedial coursework-lengthens time to degree



## Postsecondary Obstacles

- Large proportion of Latino students come from low-income households
- Have financial responsibility at home
- Rise in tuition cost + STEM tuition differential
- First generation status
- Racial Campus Climate- departmental climate



# Data & Methodology

- **Project STEP-UP**
- Online student survey conducted at 9 large, public research universities in 2011
  - 2,141 total respondents
  - Survey instrument includes socio-demographic, academic preparation, experiences, self-efficacy, etc.
- **Analysis included descriptive statistics and cross-tabulations**
- **Focus on Social and Navigational Capital**
  - *Family support has been instrumental to my success*
  - *Family has encouraged me to stay in college*
  - *Most of my friends expect me to do well in college*
  - *Knowledge and skills gained in my major will help others*





# Limitations

- Self-reported data
- Generalizations to the broader public are limited
  - Large, Public, Research I, PWI
  - Limited to self-identifying Latina/o students
  - Items serve as proxies for social and navigational capital



# Profile of Respondents

	<b>Latina/o</b>	<b>White</b>
Race	4% (107)	55.7% (1497)
STEM	79.4% (85)	85.6% (1281)
"Hard" STEM	71.8%	65.9%
Female	52.9%	64.6%
Father's Education	53%	65.20%
Mother's Education	44.70%	59.30%
Income < 50k	30.30%	10.70%
First Generation	29.40%	11.30%



# Social Capital

	Latina/o	White
Family expected me to go to college	90.5%	93.1%
Reports self: most influenced choice of major**	28.2%	12.4%
Parent: influenced initial major**	56.5%	66.5%
Interest in field: Influenced initial major	89.4%	90.70%
Community is counting on them to do well in college: strongly agree	30.6%	18.3%
Importance of family support in ensuring success*	78.8%	85.3%
Importance of family in persistence	88.2%	89.7%
Importance of setting a good example for their peers and siblings*	55.3%	39.3%
Most of friends expect them to do well in college: strongly agree	45.9%	36.5%
Employed	69.5%	71.7%
Employment: related to major	57.6%	56.7%



# Navigational Capital

	Latina/o	White
Involved in STEM related high school program	23.5%	23.2%
Participates in community service	63.6%	71.0%
Participates in STEM related events or activities	57.6%	64.2%
Involved in culturally-based STEM organizations/events	68.4%	
Works with students outside classroom: 3 or more times a week	40.0%	30.8%
Frequency in participating in own cultural group events	42.3%	
Frequency of participating in religious or spiritual activities: very often	20.0%	11.2%
Discusses major, classes, homework with family & friends at home*	71.8%	87.4%



# Discussion

- STEM programs at Research I institutions may privilege ‘traditional forms’ of capital
- While students indicate traditional sources of capital for access and initial entry, sources of cultural community wealth appear to be connected with continued persistence.
- Students identify cultural community wealth external to the campus – their siblings, peers, and community – as sources of support and inspiration to succeed.

