

Negotiating linguistic capital in STEM: Asian American students across cultural worlds

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Research overview:

University students in the United States who identify as Asian Americans draw on linguistic resources shaped by their home, school, and transnational communities to navigate STEM learning and career pathways. Here, we examine how linguistic capital helps them bridge cultures and co-create knowledge as they engage with STEM education.

Purpose of study:

Within U.S. higher education, Asian Americans are often treated as a monolithic group, with little recognition of the cultural, socioeconomic, and ethnic diversity that exist among subpopulations. Within science, technology, engineering, and mathematics (STEM) disciplines in higher education, implicit cultural norms often equate academic and professional success with standard English and focus on a narrow view of rational thinking and logic, devaluing creative endeavors such as music, art, and poetry. To explore how Asian American students in STEM bridge cultures across transnational contexts, we utilize the community cultural wealth (CCW) framework to explore the cultural capital of Asian American students in STEM. Specifically, we focus on linguistic capital, which includes communication through both language and artistic expression given that both can shape how individuals shape and convey meaning in educational spaces (Yosso 2005). Thus, our research question is: How does linguistic capital impact the experiences of Asian American undergraduates within their STEM disciplines and career aspirations?

Research methods:

We utilized interviews to capture the rich experiences of Asian American undergraduates in STEM. First, we generated interview questions aligned with CCW framework and iteratively refined the protocol through discussions and literature review. Next, we recruited students who self-identified as Asian American in STEM across three universities in the U.S. by emailing STEM student organizations and Asian American cultural groups. We interviewed 44 students, maximizing diversity of identities and majors. Interview recordings were transcribed, and we conducted thematic analysis of the transcripts. In brief, researchers independently read transcripts and coded for the CCW tenets, identifying places where students discussed linguistic capital. The researchers also developed a codebook to capture emergent patterns within linguistic capital, when students discussed their Asian American identities and cultural backgrounds, and how these influenced their STEM journeys. After establishing high interrater reliability, we divided and coded the transcripts among different members of the research team before iteratively discussing and identifying broader themes.

Results and discussion:

Our findings centered around three themes: 1) students' use of linguistic capital within their institutions and their career aspirations, 2) the pressure students faced in attempting to find time to explore their linguistic capital and balance their academic responsibilities in STEM, and 3) the importance of language and art in its connection to people, culture, and heritage.

First, students described wide variation in their multilingual abilities, characterizing themselves from fluent to culturally “broken” if they did not have the ability to speak their heritage language. Regardless of their multilingual abilities, many students emphasized that they communicated differently across contexts, such as codeswitching when speaking with parents and instructors versus speaking with peers. Several students noted greater ease when speaking with peers who shared similar Asian American backgrounds. Students likewise varied in how they perceived multilingualism impacting their careers. Some identified potential professional advantages, such as communicating with patients

in a medical setting or with global partners in engineering settings. Others – particularly from Asian American backgrounds that were less represented in STEM – expressed uncertainty about linguistic utility and value, noting that few people they encountered within STEM spoke their language.

Second, multiple students described sustained interest in artistic endeavors while balancing these pursuits with the demands of being a STEM major. Some described intentionally creating space to continue their interests, finding time between their studies to practice their skillsets. Others, in contrast, described abandoning their artistic passions to keep up with the demands of their degree. Students also differed in their responses on how, if at all, their artistic endeavors would impact their careers. For example, some students were working to incorporate aspects of their artistic skillsets, such as drawing, into ways to better communicate ideas within their STEM fields, while others felt that it was important to keep their artistic interests from pursuits within their STEM disciplines.

Finally, students described the importance of linguistic capital – including both language practices and artistic expression -- as a key connection between their identities, culture, and heritage. Students discussed traditions and described how learning languages and/or connecting with family via artistic expression created bonds that transcended physical location and time. However, students noted that the pressures of meeting STEM degree requirements often disrupted this connection and reduced the time they could dedicate to learning, maintaining, or practicing these artistic skills.

Our work highlights linguistic capital as an underexamined asset among Asian Americans pursuing STEM and adds to the growing body of scholarship showing how linguistic capital enables students of color in the United States to navigate educational spaces by drawing on resources from multiple cultural contexts (de la Torre and Dobis 2022, Lawson and Fong 2024). Our results also extend the nascent work that has explored Asian Americans' linguistic capital (e.g., Vang 2022) by illuminating the tensions Asian American STEM students face as they navigate different institutional, peer, and family worlds.

References

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