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Zone of Proximal Self: A Sociocultural Framework for Examining the Development of Possible Selves and Social-Emotional Competencies

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Abstract: This study introduces a conceptual framework called the zone of proximal self which conceptualizes how interactions within a higher education learning ecology support students' progress towards their possible selves and the development of both academic and social-emotional competencies. Employing a case study approach with semi-structured interviews and surveys, the study presents findings on how the zone of proximal self impacts the experiences of undergraduate computer science mentors and students at a U.S. public, research-one university on the West Coast. Findings show how feared selves highlight inequities and reveal the importance of community. Additionally, mentors' socialization impacted their mentorship practices. This framework has significance for understanding the learning mechanisms and processes of mentors, which can inform equity-oriented programs that support all students.

Conceptual framework and literature review

In higher education university settings, students' future goals become salient, and students develop their academic and social-emotional competencies in pursuit of these goals. This study introduces a zone of proximal self (ZPS) framework to contextualize how students work with others to pursue their vision for their future. The ZPS framework draws upon Lev Vygotsky's (1978) sociocultural theory of human learning which emphasizes how learning is a social process. Vygotsky (1978) described how children's learning exists within a zone of proximal development, or "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p.86). Since higher education is a time where students are thinking about future opportunities, ZPS synthesizes the zone of proximal development with possible selves, i.e., the selves that we could become, and also the selves that we are afraid of becoming (Markus & Nurius, 1986). ZPS also acknowledges how academic and social-emotional competencies are developed in a learning ecology, defined as "the set of contexts found in physical or virtual spaces that provide opportunities for learning," which in higher education can include classrooms, programs, residential/dorm spaces, and peer groups (Barron, 2006).

Research questions

To study the conceptualization of ZPS, this paper examines the following research questions within a computer science mentorship context: 1) How do computer science undergraduate student mentors and mentees frame their possible selves? and 2) How do mentors' socialization of the computer sciences field impact their own future pathways and the way they mentor different mentees?

Methods

This study employs a qualitative case study approach (Yin, 2007) to unpack examples from a real-world computer science context. Undergraduate student mentors were recruited from a computer science graduate-level teaching course. 5 undergraduate student mentors participated in the study. 14 undergraduate computer science students were recruited from a student success program. The program selects students with little to no exposure to computer science that identify as a member of one or more of the following groups: first-generation, low-income, historically underrepresented in the field (i.e., Black/African American, Chicanx/Latinx, and Native American), and/or female. Two mentors were Chinese American, one Korean American, one Japanese American, and one

Chinese Australian. Three of the mentors identified as female, while two identified as male. Of the fourteen students in the program, 71.4% were female and 64.3% were first-generation. Their race/ethnic background was 42.9% Latinx/Chicanx, 14.3% Southeast-asian, 14.3% South Asian, 14.3% East Asian, 7.1% Middle Eastern, and 7.1% White.

Five undergraduate mentors were paired with two mentees: one in the student success program and one not in the program. The mentors were not given instructions on how to mentor their respective mentees. The mentors met with their mentees for at least eight times each in a 14-week-long semester. At the semester's end, the mentors participated in a semi-structured interview virtually on Zoom about their mentorship beliefs, practices, and experiences. Students from the student success program took an online survey via Qualtrics which had a total of 26 questions with Likert-scaled and open-ended response options about their current academic and social-emotional competencies, possible selves, social networks, and future goals. The mentor interviews were audio-recorded and transcribed. To analyze the interview transcripts and survey responses, deductive and inductive thematic coding was done using a codebook with common definitions to guide a ZPS analysis (Saldana, 2015).

Findings

When describing their possible selves, students described their ideal selves in terms of their dream occupation and desire for financial stability. A topic emerged, however, within feared selves that did not come up for ideal selves: the role of social environments and communities. Students described social-related concerns including gentrification, leading a team, and familial obligations. A student in the success program wrote in the survey, "I don't want to be a gentrifier, ESPECIALLY in my community/communities like mine." Another student in the program expressed the following: "[I have concerns with] confidence in myself and nervousness during interviews/while leading a team." Similarly, in the mentor interviews, Esther and Colette (pseudonyms) expressed concerns with the support they would receive from the social environment in their future workplace. Esther described how she wanted a working environment with "no one picking on your ideas and asking questions without being ridiculed." Esther's word choice focuses on what she does not want, which sheds light on a feared possible self in relation to interactions with others. Colette also hints at similar thoughts in her interview when she says, "I don't think I'm looking for a place that's cut-throat, a lot of companies with reputations for being not so great for being working there..." The findings show how feared selves reveal stories of what students fear not only for themselves, but for their immediate family, community, and workplace culture. Feared selves reveal issues of equity within higher education STEM structures and institutions. Students' feared selves are connected to the messages they receive about computer science being cutthroat, unsupportive, and technically focused.

Based on their socialization, the undergraduate student mentors' mentorship practices varied on a spectrum of non-adaptive to adaptive academic and social-emotional practices. Academic mentorship practices focused on the development of academic competencies, such as problem solving and technical skills. Social-emotional mentorship practices are defined as those where mentors focus on the development of mentees' social-emotional competencies such as building social networks and confidence in one's strengths. The degree to which mentors adapt does not seem to be related to the quantity of interactions they have within their learning ecology; rather, it is impacted by the quality of the interactions they had with perceived legitimate figures in their field. Therefore, mentors have been culturally shaped within a zone of proximal self and actively shape the zone of proximal self for other students. This research has significant implications, including the contribution of a conceptual framework that college administrators, mentors, and faculty can use to understand FLI and URM students' experiences and development in novel ways that guide equity-oriented programs.

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