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Exploring Factors that Contribute to STEM Transfer Student Sense of Belonging

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SHORTLIDGE BIOL GY EDUCATION RESEARCH GROUP PDX

Exploring Factors that Contribute to STEM Transfer Student Sense of Belonging

INTRODUCTION

- > There is an ongoing disconnect between the number of students who enter college intending to earn a STEM degree and those who persist to degree, this is particularly true for **community college transfer students.**^{2,3}
- > Sense of belonging can support the persistence of students in the STEM fields, yet how that belonging develops, in particular for transfer students, is largely unknown.⁴
- > Here, using a mixed methods approach, we aim to understand how a group of community college transfer students developed a sense of belonging and if involvement in a STEM Intervention Program (SIP) impacted this belonging.

METHODS

- Using a survey and semi-structured interviews we investigated the experiences of STEM community college transfer students (n=38) at Portland State University (PSU).
- > Survey questions were designed to measure the students' levels of belonging to the university and a sub-community within the university.⁵
- > Interview questions were designed to understand if and how S-STEM Scholars developed sense of belonging post-transfer.
- > Non-SIP/1 SIP/2 SIP identifies how many SIPs students were involved in
- > We are using a framework by T. Strayhorn: **7** Core Elements of Sense of Belonging (SOB)⁴ as a guide as we iteratively develop a codebook.

"I would say really impactful, 'cause I feel like I wouldn't be in this position I was in right now without the support of them [SIPs]. I feel like they really did help me out a lot." -2+ SIP, Male, Latino, LSAMP[§]/SSTEM[#].

"I don't really participate with anything in the community. I tried getting into the satellite thing, but that was also right at the start of COVID, so then I, kind of, fell off of that entirely." – Non-SIP, Female, White, None.

"PSU faculty and others faculty, and then just, yeah, networking has really helped a lot with this group." -2+ SIP, Male, Latino, LSAMP[§]/SSTEM[#].

"Like minded folks. I feel like the people that volunteer at the SSC are passionate. And I like that energy. 'Cause I'm not really passionate about anything. But when I'm with folks that are really into stuff, then it helps me get in to things." –Non-SIP, Male, White, None.

¶EXITO - Enhancing Cross-disciplinary Infrastructure and Training at Oregon; **§LSAMP** – Louis Stokes Alliances for Minority Participation; ||PCCMenofColor – Portland Community College Men of Color Leadership Program; #SSTEM – National Science Foundation Scholarships in Science, Technology, Engineering, Mathematics Program

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SURVEY RESULTS

Survey Questions on Sense of Belonging at PSU⁷

1) I am enthusiastic about PSU

2) I feel that I am a member of the PSU community

3) I am happy to be at PSU

4) I feel a sense of belonging to PSU

5) PSU is an excellent school for me

6) I see myself as part of the PSU community

A) Questions asked regarding Sense of Belonging (SOB) Within PSU B) Sum of Likert-scale responses of Sense of Belonging at PSU by SIP status (\pm SD)

^C Survey Questions on Sense of Belonging Within a Sub-Community at PSU⁷

1) I am enthusiastic about this group at PSU

2) I feel that I am a member of this community at PSU

3) I am happy to be part of this group at PSU

4) I feel a sense of belonging to this group at PSU

5) PSU has an excellent community for me

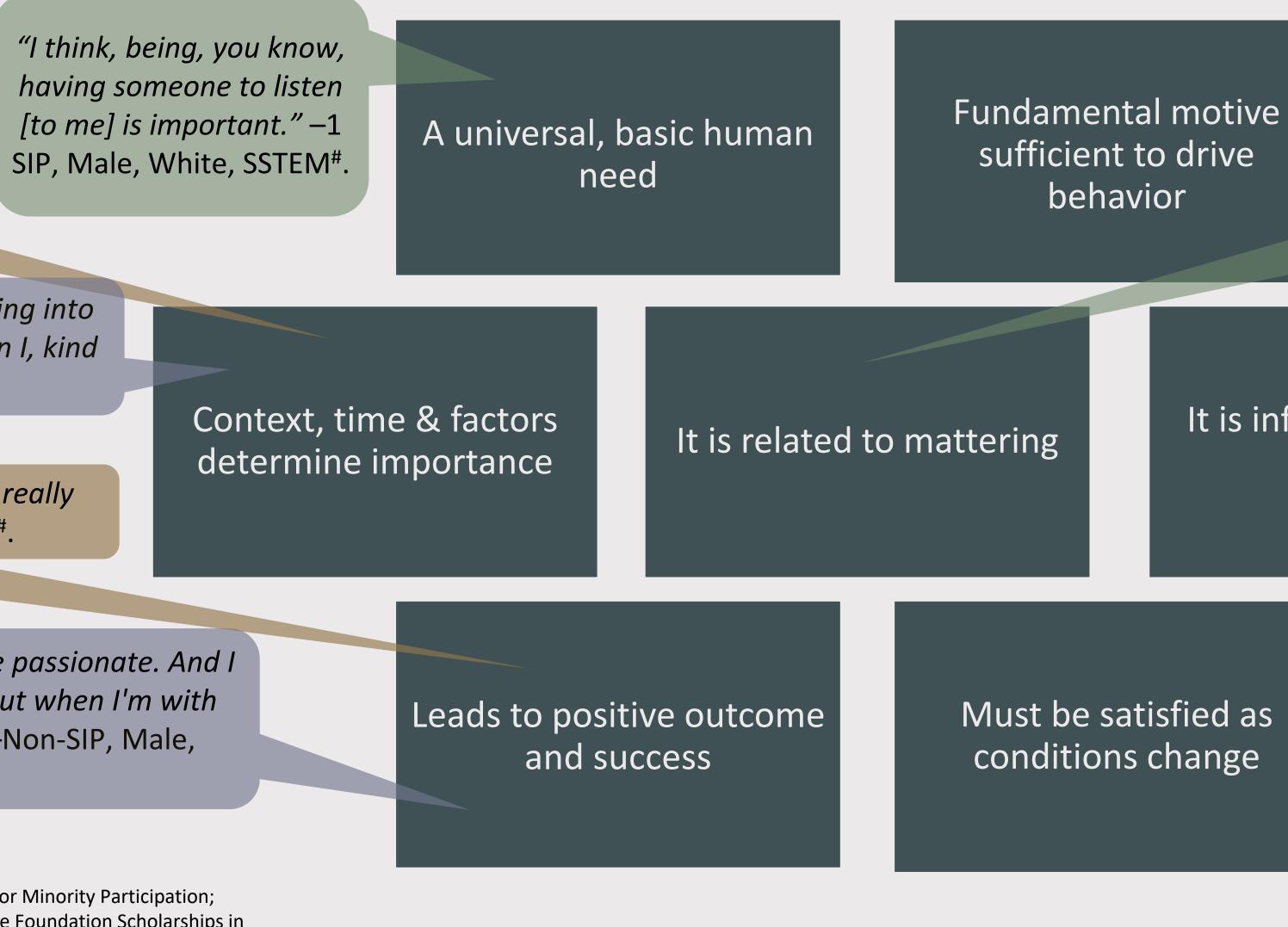
6) I see myself as part of this community at PSU

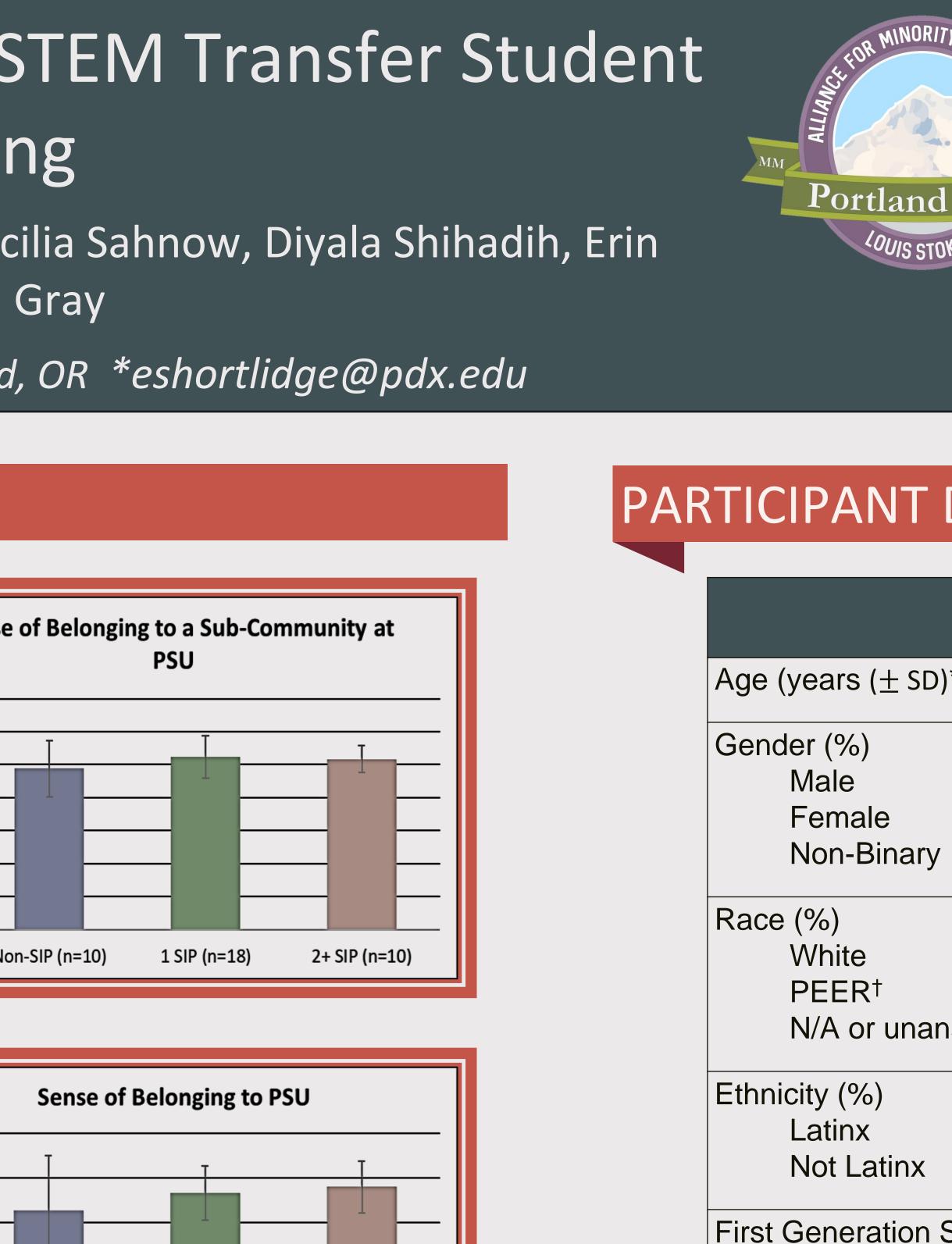
C) Questions asked regarding Sense of Belonging (SOB) Within a Sub-Community at PSU D) Sum of Likert-scale responses of Sense of Belonging to a Sub-Community at PSU by SIP status (\pm SD)

	В	S	ense
		35	
	Sum Score	30	
		25	
		20	
		15	
		10	
		5	
		0	
			No

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-	Ŭ	Non-SIP (n=10)

STRAYHORN'S 7 CORE ELEMENTS OF SENSE OF BELONGING





First Genera Continuing

SIP[‡] Status (%) No SIP 1 SIP 2+ SIP

*SD – standard deviation; †PEER – persons excluded due to ethnicity or race; **‡SIP** – STEM Involvement Programs

"the shared experience of going through this program, you know, is pretty bonding. You know, we had struggling classes, we had difficult professors, we had great professors. We're all going through this pandemic together. So, I think having that shared experience kinda helps create some glue." -1 SIP, Male, White, SSTEM[#].

sufficient to drive behavior

> It is influenced by one's identities

2+ SIP (n=10)

1 SIP (n=18)

"And there's a group of people who like had similar backgrounds that are understanding how frustrating it is to read through certain topics. I'm like, all right, well, this is a group that I belong to." -2+ SIP, Male, Black/Native American/White, LSAMP[§]/SSTEM[#].

Must be satisfied as conditions change

"So that's what I wanted to do for a while. Like, for a long time, I've wanted to do research. I wanted to be that image of a scientist that I've always had in *my head."* -2+ SIP, Male, Latino, EXITO[¶]/LSAMP[§]/PCCMenofColo

of Sense of Belonging Framework to develop

codebook Analyze interviews using the finalized codebook

Acknowledgements: NSF DUE S-STEM Award #1742542 PI, Shortlidge We thank the students for participating in the interviews and the LSAMP program for supporting our project. Study approved by the Portland State University Institutional Review Board (Protocol #217285-18).



PARTICIPANT DEMOGRAPHICS

	Participants (n=38)
)*)	27 ± 6
	55 42 3
nswered	37 37 26
	40 60
Status (%) ation Generation	71 29
	26 47 26

MOVING FORWARD

Continue to analyze survey data

 \blacktriangleright Continue to utilize Strayhorn's 7 Core Elements