Integration outcomes and cultural capital in a NSBE Chapter

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Overview

- Motivation
- Context
  - NSBE mission
- Study Overview
  - Research Questions
  - Theoretical frameworks
    - Integration outcomes
    - Cultural capital
- Preliminary insights: Integration outcomes & cultural capital
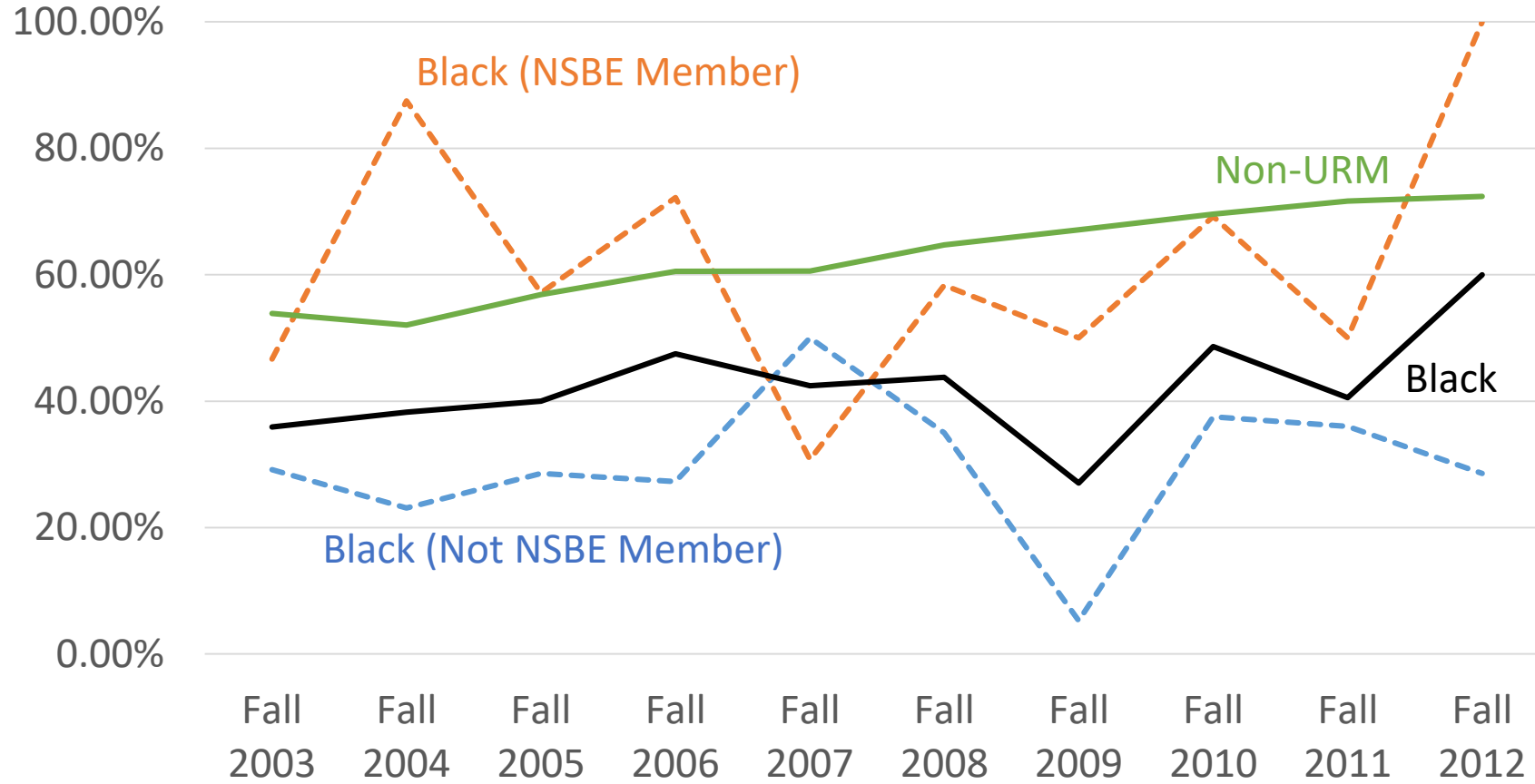- Implications/Discussion

Systemic challenges in the graduation rates of undergraduate engineering students from underrepresented groups
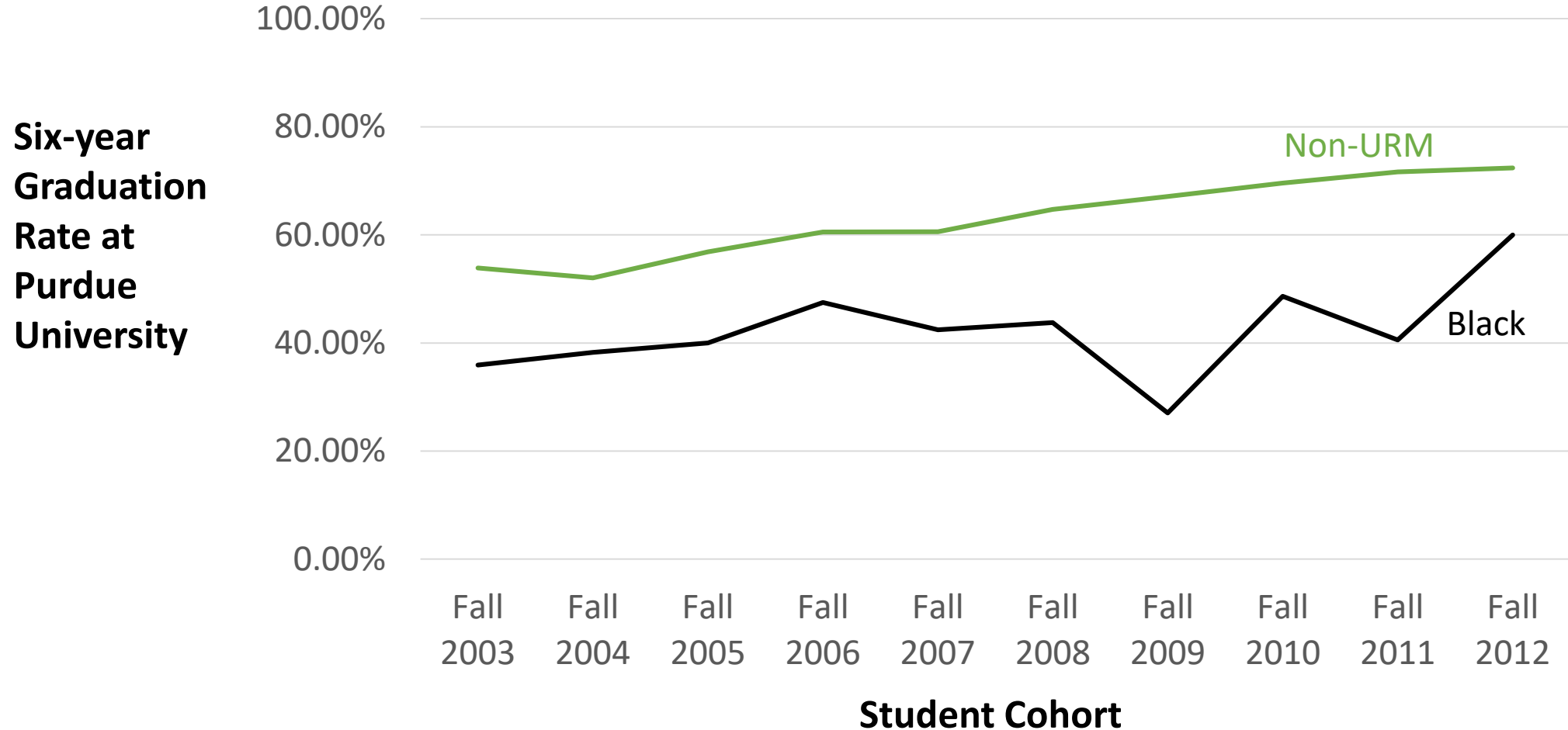
Systemic challenges in the graduation rates of undergraduate engineering students from underrepresented groups

"...very few studies explored why some co-curricular or extracurricular programs have the effects they do" (Yu & Simmons, 2015)

4

NSBE as a cultural student organization supports members' academic, social, and professional development and encourages positive community impact

- National Society of Black Engineers (NSBE)
  - **"To increase the number of culturally responsible Black engineers who excel academically, succeed professionally and positively impact the community"**
  - Non-profit, student-led, US-based organization
  - Approx. 30,000 members globally
    - Pre-college (NSBE Jr)
    - Collegiate (undergraduate and graduate)
    - Professional
  - Founded at Purdue University in 1975
    - Predominantly White Institution (PWI)

Current presentation draws from a broader research study of a student chapter of NSBE and will highlight preliminary analysis insights from seven interviews

- Single, exploratory, qualitative case study (Unique Case) (Yin, 2008)
- Phenomenon of interest: Role of a local chapter of NSBE at a PWI in engineering experience of students
- Unit of analysis:
  - NSBE Chapter @ Purdue University
    - Programs, activities, services, resources (including capital)
    - Fall 2014 – 2017
    - Involved stakeholders
- Context:
  - Purdue University
  - National Organization [NSBE]
  - NSBE Historical context

Understanding NSBE

Importance of a cultural lens as seen through participants description of its mission

Well, the mission of increasing the number of culturally responsible black engineers who excel academically, succeed professionally, and positively impact the community. ***I think [pause] … it's the ideal engineer. You don't just want to increase the number of black engineers, period.*** Like that does nothing for the community.

So you want black engineers who will be ***culturally responsible*** and that piece could be the ones who are making sure that our black culture, where we're not … Just because we're an engineer, ***we're not going to forget about who we are, where we came from, and we acknowledge what's going on in our communities*** and stuff like that. ***We are also going out and doing community service and stuff like that***.

[…expands on "excelling academically" and "succeeding professionally"…]

So I really think that mission is like a footprint or a blueprint, I would say, to the type of path that we want our members to take in terms of the things that they should be striving for when it comes to striving to be an engineer.

- Black female, Senior

…So, you know, *whenever I say the mission, it's kind of funny, 'cause sometimes I say amen at the end, 'cause I feel like it's kinda like a prayer.* Because sometimes I feel that NSBE really is like that kind of organization. It means so much to me because I've gotten so much from it. I've seen so many people benefit and thrive through it, that you know, it kind of means just everything. Everything about being a Black engineer. So everything about my career, and my future, the people I've met. The people who have impacted me and pulled me forward. The people that I've brought along with me and every single person that they've touched.

So NSBE is an organization…for me, the NSBE mission statement really means how can you be better than the person before you and how can the person after you be better than you? And so what can you do to be better? You know, can you go help 10,000 students realize their dreams and get into schools? Okay cool, you did that. *The person after you, what are they going to do? What are they going to do that is better than that? So its continuous improvement and the three main areas are excelling academically, succeeding professionally, and positively impacting the community, of course. But, you know, those are more suggestions and guidelines. Those are not limitations. Because you can do so much more through that and that's where the culturally responsible part comes in.*

- Black male, MS Student

So I think for me it's basically, apart from really culturally aware, I think it's almost everything the school does generally, outside of NSBE. But I think, talking more about the ***culturally aware part, I would say for me it's more...I think that means like, being aware of I guess "me" but also other people. But like expectations, stereotypes, but also how to navigate through those.***

I think...so yeah, why I started with that was that I think, yea school, I'm going through school to become professionally skilled and things like that. ***But NSBE adds that, "We know who you are and where you're coming from. We know what the world expects of you, or what the world might think of you, or what the situation is on the ground."*** Maybe not necessarily what people are thinking, but the statistics or the numbers, or whatever. Just basically like, letting me know, or letting the chapter know, "This is where we're coming from or this is where you're going to, but this is also how like you can exceed in this...or excel in this environment." For me, that's one of the most imp...like, um, positive things for me.

I'm not really involved in a lot of like black support communities on campus. ***So NSBE really does do that for me as a Black student. But I think one thing is, not as an international student. [...]***

- *Black female, Sophomore*

I think the NSBE mission translated means that NSBE should be an organization that **strives towards changing the dynamics of the country so that the engineering profession looks like and feels like the population**, so that black people are no longer underrepresented as far as engineering is concerned, and are successful at all levels. And beyond that, it means that the organization has a **social responsibility**. It has the onus within its exempt purpose to ensure that all black people are successful in some way or have the opportunity to be successful, and it's outreach must do that. **It's members must be public about the things that they do and the ways that they utilize the engineering knowledge and skills that they have to uplift the community.**

- NSBE Chapter Advisor

Study Overview

Research Questions

- How does a cultural engineering student organization provide co-curricular support for engineering students at a predominantly white institution?

    - How does the Purdue NSBE chapter influence engineering student members academically, socially, and professionally?

    - In what ways does the Purdue NSBE chapter facilitate community cultural wealth in engineering student members?

Frameworks provide language for the institutional experience of a student and provide a lens to explore how cultural capital may shape members' experiences
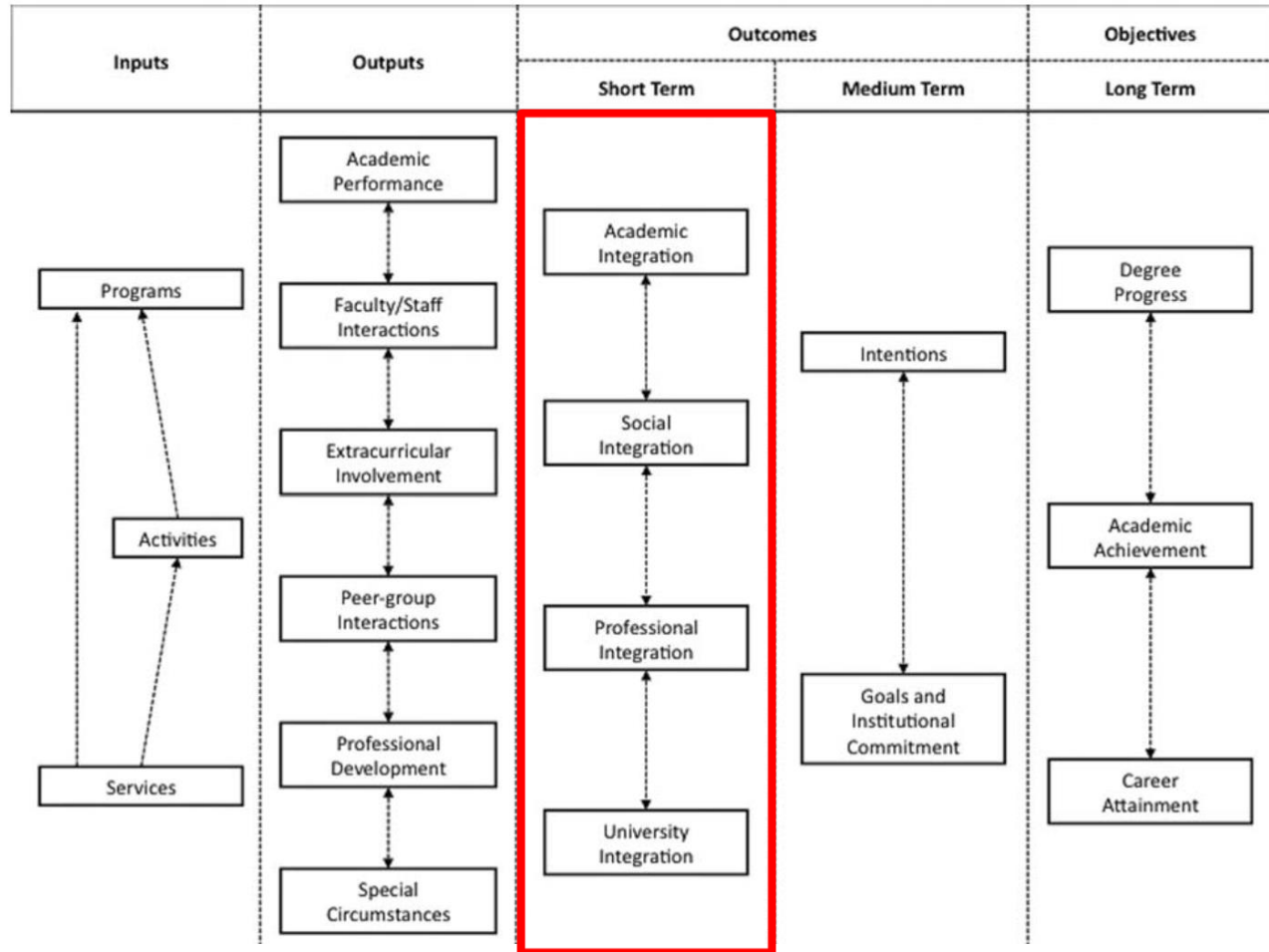
Model of Co-curricular Support (MCCS)

(Lee, W. C., & Matusovich, H. M., 2016)

Community Cultural Wealth (CCW)

(Yosso, 2005)
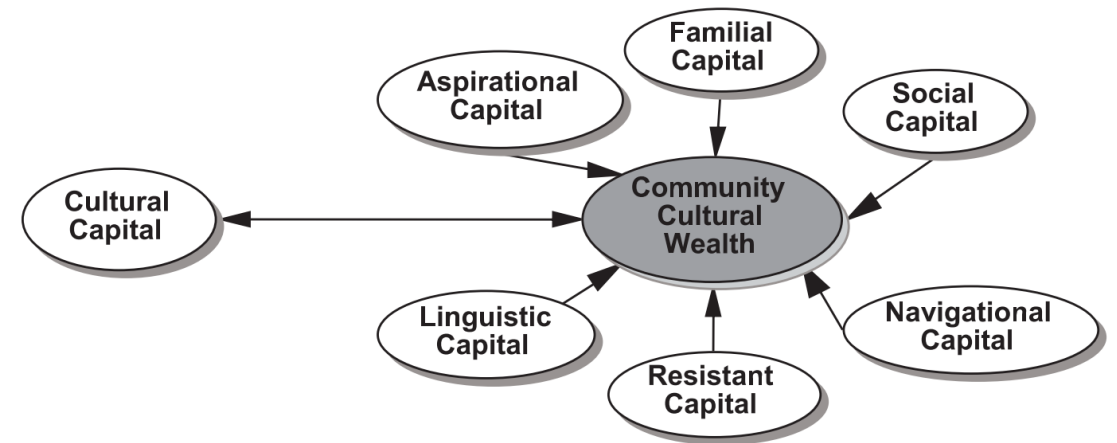
Model of Co-Curricular Support (MCCS) – Integration

Integration refers to the qualifications and personal attributes (i.e., knowledge, skills, and abilities [KSAs] needed to be a successful engineering student and is associated with having sufficient *awareness* and *access* to the resources necessary to be successful within a given domain in the context of engineering education (Lee et al., 2018, p. 2)

Academic integration	Students' perception they have the KSAs to be successful within **academic subsystems** in engineering education. KSAs in the academic domain can include sufficient access to faculty/staff/resources that can help a student succeed academically
Social integration	Students' perception they have the KSAs to be successful within **social subsystems** in engineering education. KSAs in the social domain can include positive interactions with engineering students.
Professional integration	Students' perception they have KSAs to be successful within **professional subsystems** in engineering education. KSAs in the professional domain can include technical, leadership, and other professional skills that help a practicing engineer perform and succeed
University Integration	Students' perception they have the KSAs to be successful within **the broader university context.** KSAs in the university domain can include awareness of and access to resources that result in feeling welcomed at and acclimated to the university.

Community Cultural Wealth (CCW)

"Array of knowledge, skills, abilities and contacts possessed and utilized by communities of color to survive and resist macro and micro-forms of oppression" (Yosso, 2005, p.77)

Aspirational capital	"The ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers"
Navigational capital	"Skills of maneuvering through social institutions" that historically were not created for a particular community
Social capital	"Networks of people and community resources" and the knowledges and support provided by social contacts
Familial Capital	"Cultural knowledges nurtured among familia (kin) that carry a sense of community history, memory and cultural intuition...expands the concept of family to include a more broad understanding of kinship"
Linguistic capital	"Intellectual and social skills attained through communication experiences in more than one language and/or style"
Resistant capital	"Knowledges and skills fostered through oppositional behavior that challenges inequality"

Current presentation draws from a broader research study of a student chapter of NSBE and will highlight preliminary analysis insights from seven interviews

- Interview participants (7)

	P4	P7	P8	P14	P15	PE2	E1
Male		x		x		x	x
Female	x		x		x		
Black (non-National)			x				
Black (National)	x	x		x		x	x
Latinx					x		
Undergraduate (1st/2nd yr)			x				
Undergraduate (3rd/4th yr)	x	x			x		
Graduate				x			
Alumni						x	
Faculty/Admin							x
Outside University						x	
National leadership	x						x
Regional Leadership	x						x
Chapter Leadership	x	x		x			
General Member Only			x	x	x		

- Data Analysis
  - Inductive/deductive simultaneous coding process using inductive and deductive (Zephirin, T., & Jesiek, B. K. ,2018)
  - Deductive codes
    - Integration (MCCS)
    - Cultural Capital (CCW)

- Researcher positionality

Preliminary insights

Examples of interplay between select CCW elements and academic and professional integration outcomes

[NSBE helped me overcome the] challenge of passing my first year of classes! Definitely got me through that one because I had to get over that whole, "I don't want to ask for help." And everyone was struggling, and once I realized everyone's struggling, I mean we might as well try to struggle together, help each other get through versus you do this by yourself and drown miserably when they're at least helping you stay afloat. In my first year I learned, you really have to learn to lean on the people who are also going through the same experiences as you are.

– Black female, Senior

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– Black female, Senior

Community Cultural Wealth (CCW)

Model of Co-curricular Support (MCCS)

"Skills of maneuvering through social institutions" that historically were not created for a particular community

Students' perception they have the KSAs to be successful within **academic subsystems** in engineering education

Navigational Capital

Academic Integration

NSBE chapter helps students develop academic success strategies & students perceive they can be successful in academic systems

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– Black female, Senior

Navigational Capital   Academic Integration

NSBE chapter provides social support to members and encourages persistence and academic achievement (i.e. "I will graduate")

I feel [Senior Send off is] like almost like a graduation from NSBE I guess. Um, and it's kind of like ... Like I guess like applauding their work throughout it, and kind of saying like, "Yeah you made it!" and we're going to have like an event for you. You know, "You did it!" **And it's kind of like also inspiring for like the other younger people, because maybe they might say, this is funny I can't wait for my Senior Send Off maybe. But then, you know that implies that they're going to make it to graduation.** *Because I know a big problem with minority students that isn't a problem with like maybe international or white students is retention rates. And so, by having Senior Send Offs which ... I don't know if this actually [is] the reason why they have Senior Send Offs or whatever.*

To me personally I think maybe like subconsciously or whatever, it has that role for retention, because people might look forward to it. And they're like, "Oh for our Senior Send Offs we're going to do this." **Like I hear people saying that, like "oh, for your Senior Send Off, we're definitely going to put this story in yours." You know, and so that um, says that you are going to have a Senior Send Off, and that implies that you are going to make it, and you are going to graduate um, as an engineer.**

- Latina, Junior

CCW Aspirational Capital	CCW Social Capital	MCCS Academic Integration

NSBE chapter fosters an ethos of academic and professional achievement as an engineering student and engineering professional

*I think there's a unique experience because we do a lot of professional development within NSBE. I think the one thing that really attracted me to Purdue NSBE was the fact that, **despite us being students we were professionals, like the goal was- it was almost like a standard that if you were involved with Purdue NSBE you represented Purdue NSBE well.***

*And it wasn't just I'm just a student and I'm going to go to a general body meeting and do this. It was, "well after this school years over with, all my other friends in Purdue NSBE, they're doing internships or they're doing research that's pretty cool over the summer, like I need to do the same thing." **And it kind of raises the standard of- or like raises the bar on what you need to do outside of just classwork.** Or you just see "hey all my friends got 3.0's this semester, and we're all taking the same classes, like I need to make sure that I got a 3.0 or better." And it kind of has that competition, but like kind of a safe competition because they're your friends, but you're trying to keep up with them.*

So seeing like how professional everybody is, it makes you want to do the same thing. And it gets to the point where it's kind of like infectious, like everybody wants to have an internship, or everybody wants to do that cool research over the summer, and that helps everybody in the long run.

Familial Capital	Aspirational Capital	Academic Integration	Professional Integration

- Black male, Alumni

26

NSBE chapter provides opportunities to learn skills that are useful as a professional engineer

And then participating in the Battle of Engineers, is there anything that you can learn from that experience that translates into your engineering classes, or being an aspiring engineer?

Mm-hmm (affirmative). Teamwork. And when you're in a job, when you're on a job, you're almost always going to be on a team, as an engineer. And so, you're going to have different skillsets that come in, and work together. You're going to have to work together, because you're going to know something, but you're not going to be an expert on everything. What you're an expert in, other people might not be an expert in. So, you got to know your strengths, and know how to accept your weaknesses. And how to work with others to kind of balance everybody out. I guess that's the best thing you could take from that game. To apply to classes when you're doing team projects, to jobs where you're working on actual projects that you have to be on teams for.

- Black male, MS student

CCW
Navigational Capital

MCCS
Professional Integration

Discussion

Implications – Research

- Extension of theories
  - CCW within an engineering student organization context
  - Integration outcomes of MCCS from the lens of an engineering student organization
  - Interplay between CCW and MCCS

- Underrepresented student experiences in cultural/affinity group engineering student organizations
  - Asset-framing
  - Lived experiences of students as it relates to theory (e.g., counterspaces, integration) and broader societal context
  - Role of organization as a bridge between engineering and Black community

Implications – Institutional Practice

Language to talk about how and why participation in a NSBE chapter benefits its members

- Faculty / Administrators
  - Improved understanding of why NSBE chapters exist and lived experience of NSBE members (especially faculty/admin who are not involved)
  - Targeted partnerships to help address student struggles and needs not met in current operations
  - Critical evaluation of why these counterspaces are still necessary

- Students
  - Improved understanding of reasons to participate in a NSBE Chapter and how participation can advance them as a *whole* individual
  - Recognize assets and untapped potential within NSBE community

Implications – Organization (Chapter/National) Level

"So I think NSBE is a phenomenal organization. I think there's potential for it to be even greater—at all levels. And that takes again, some real focus on what the organization is, what it truly should be doing. It takes really understanding what…or how things get done, how students succeed, what barriers do lie in front of them, and how the organization can really leverage its resources from the national organization towards the chapter to get them to overcome those barriers. And I think that the disconnect that occurs or the disconnect that exists really hinders that…hinders it from being able to reach its full potential."

- Chapter Advisor

"**Evidence-based research** should enable people to attain a **deeper conviction** of *how the thing works* and *what to do about it*." (Stake, 2010, p. 123)

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Questions?