

Improving Measures of Financial Literacy, Wellness, and Attitudes for a Diverse Population of Current and Prospective College Students

KATRINA BOROWIEC & ANGELA BOATMAN

BOSTON COLLEGE

Agenda

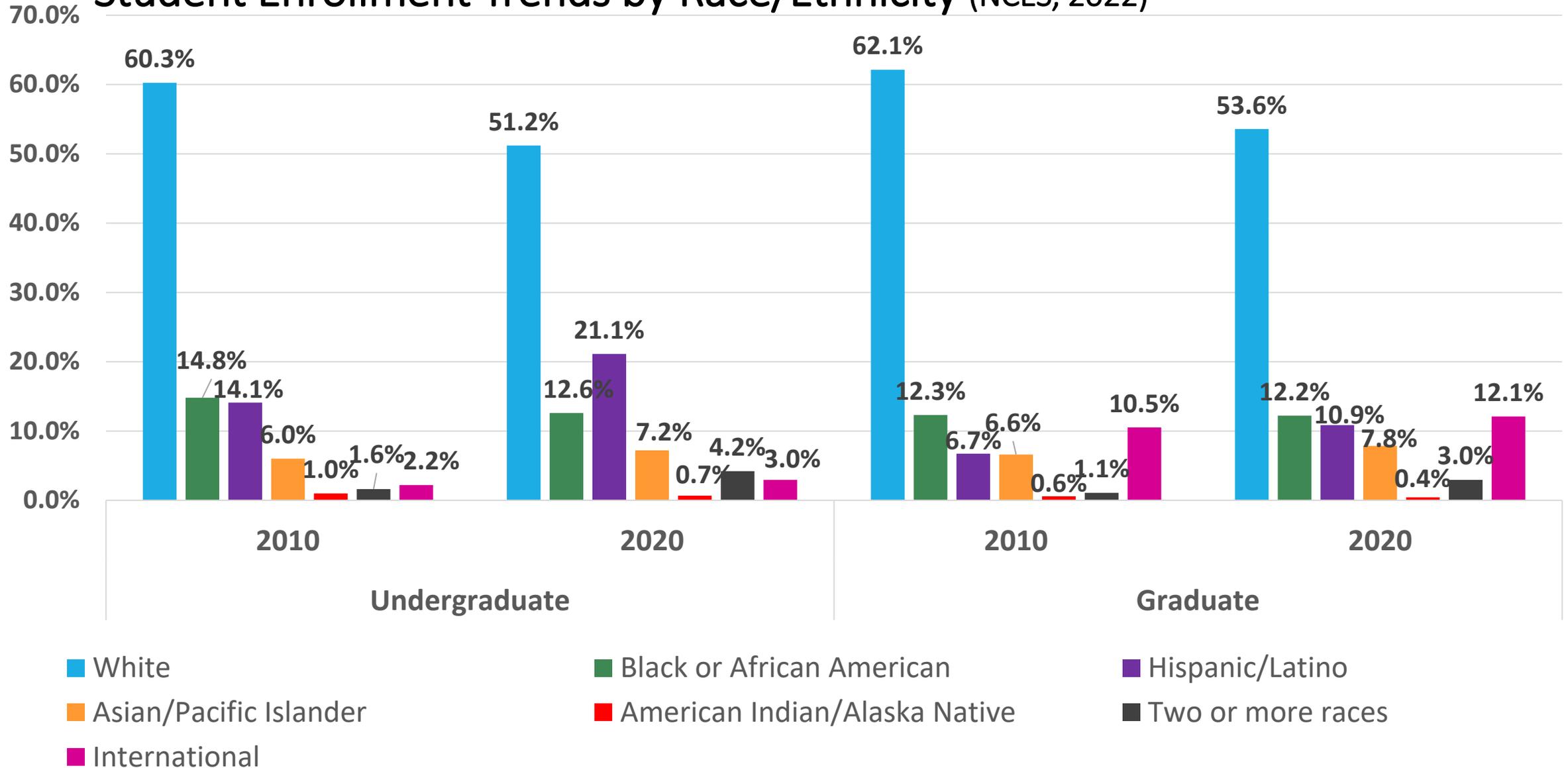
1. Diversity of College Student Population
2. Financial Literacy, Wellness, and Attitudes in the College Student Population
3. Research Project Overview
4. General Measurement Considerations
5. Preliminary Findings
6. Implications
7. Questions

1) Diversity of College Student Population

Diversity of College Student Population - Gender

- **56%** of undergraduates at four-year institutions were women in fall 2017 (U.S. Department of Education, 2019).
- In a fall 2018 survey (American College Health Association, 2018, p, 55):
 - 0.1% of undergraduates identified as trans women
 - 0.2% identified as trans men
 - 0.6% identified as gender queer
 - 1.0% identified with another gender identity

Diversity of College Student Population – Undergraduate & Graduate Student Enrollment Trends by Race/Ethnicity (NCES, 2022)



Diversity of College Student Population – Home Country

- In fall 2000, there were 288,000 international undergraduate students, compared to 575,000 in fall 2017 (McFarland et al., 2019).
- During the 2016-17 academic year, international students represented just over 5% of all college students in the United States (Zong & Batalova, 2018).
- The highest proportions of international students come from (Zong & Batalova, 2018):
 - China (33%)
 - India (17%)
 - South Korea (5%)
 - Saudi Arabia (5%)
 - Canada (3%)

Diversity of College Student Population – Language

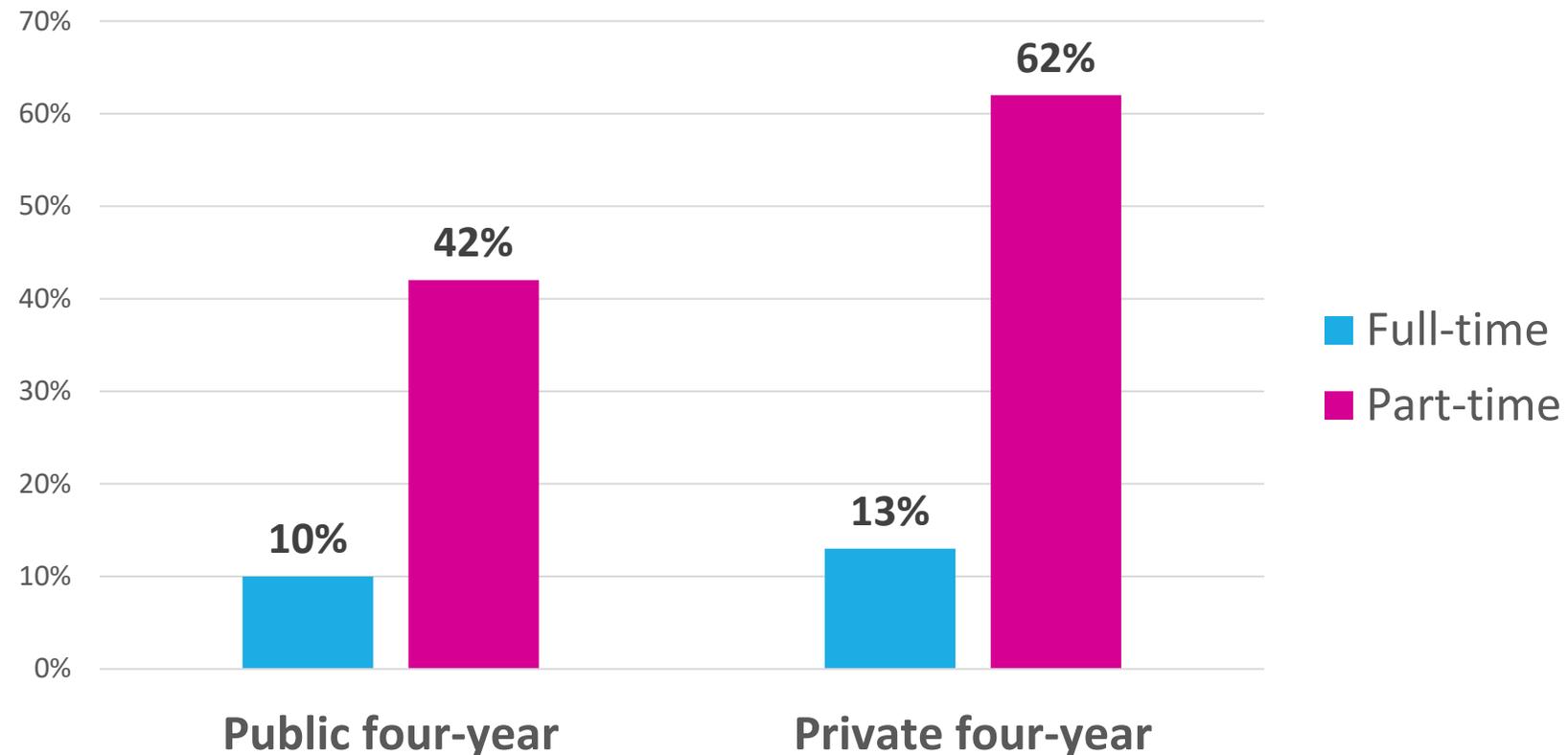
- In 2003-04, **90%** of entering four-year college students reported that English was their primary language (U.S. DOE BPS 2004/2009).
- In 2011-12 (U.S. DOE BPS 2012/2017):
 - **85%** of entering four-year college students reported that English was their primary spoken language
 - 5% reported Spanish as their primary spoken language
 - 2% reported English and Spanish equally
 - 5% reported another language
 - 3% reported a mix of English and another language

Diversity of College Student Population – Socio-economic Status

- The proportion of first-time, full-time undergraduates awarded financial aid at four-year institutions increased from 75% in the 2000-2001 academic year to 85% in 2016-17 (McFarland et al., 2019).
- *Note:* This change might reflect increasing socio-economic diversity. However, it might, at least partially, reflect that tuition is increasing at a higher rate than income, resulting in a higher share of families needing aid.

Diversity of College Student Population – Age

Percent of Undergraduates Ages 25 or Older (McFarland et al., 2019)



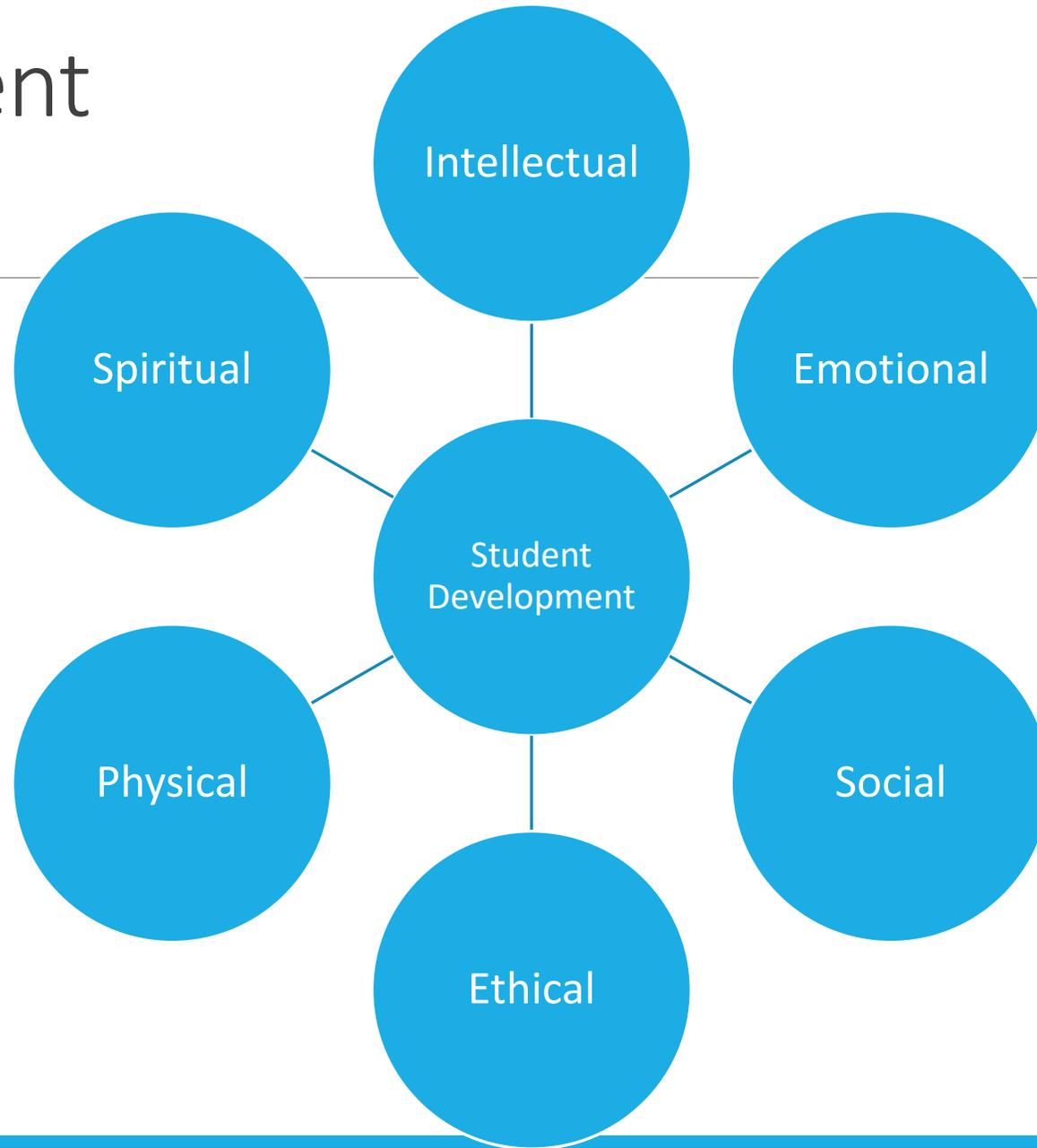
Diversity of College Student Population – Disability

- The share of undergraduates with a reported disability has increased over time.
- **11%** of undergraduates had a disability in 2003-04 (Snyder et al., 2008).
- **19%** had a disability in 2015-16 (Snyder et al., 2019).
- *Note:* These numbers may be under-reported, since some students may not disclose their disabilities.

2) Financial Literacy,
Wellness, and Attitudes
in the College Student
Population

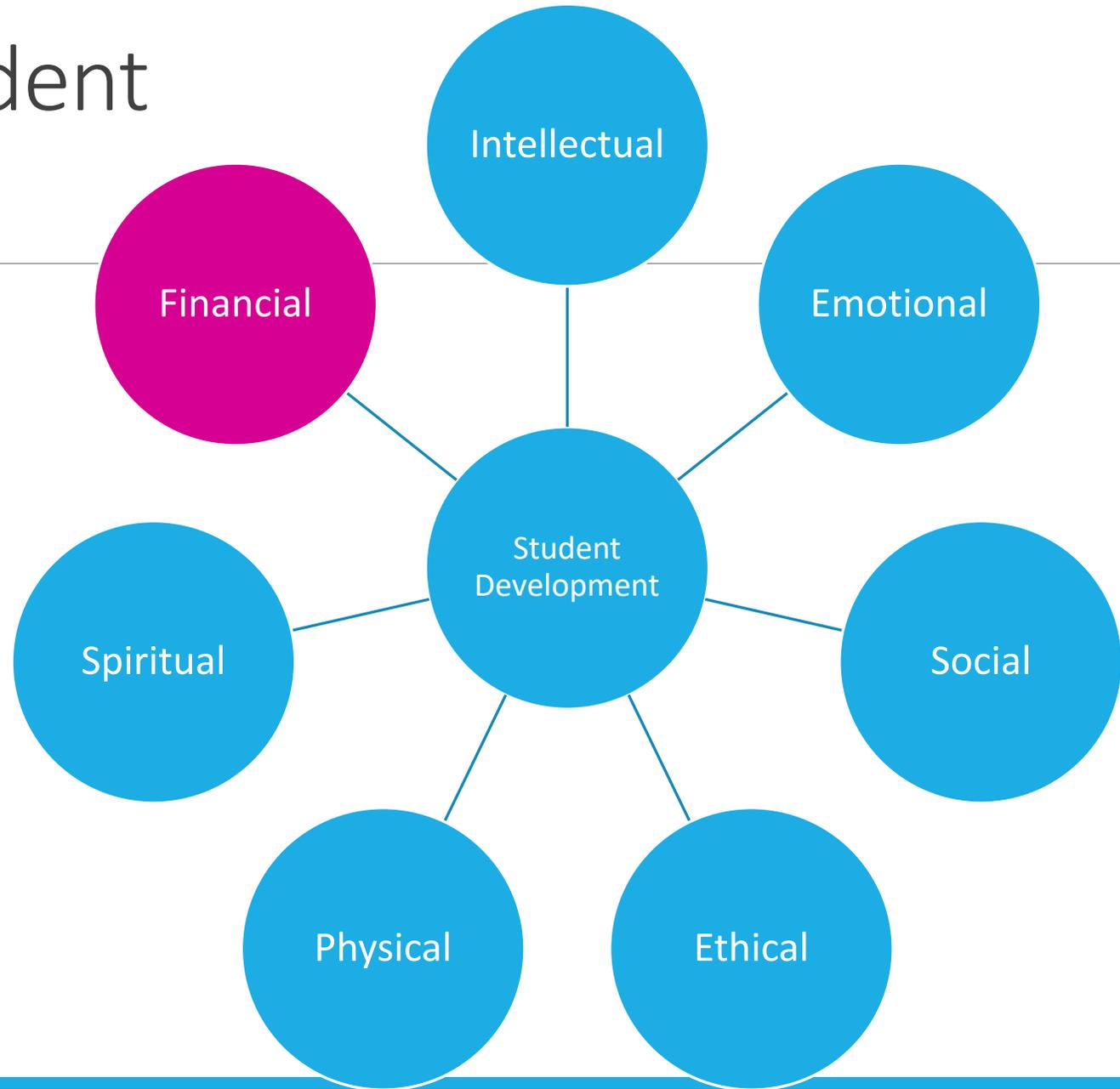
Background – Student Development

- Kuh's (2018) model of holistic student development includes six dimensions.



Background – Student Development

- A financial dimension was missing in Kuh's (2018) model.



Background - Financial Wellness or Well-being

JOO (2008)

- Objective financial status (income)
- Financial satisfaction
- Financial behavior (specific to particular financial management domains)
- Subjective perceptions (financial attitudes, financial knowledge)

BRUGGEN ET AL. (2017)

- Contextual factors (economic, legal, political, socio-cultural)
- Financial well-being interventions (financial education, financial counseling)
- Financial behavior (engaging in behaviors that encourage financial stability)
- Consequences of financial well-being (individual, organizational, societal)
- Personal factors (socio-demographic characteristics; skills, attitudes, and motivations)

Background – Financial Stress

- Finances are a top source of stress for college students (Robb, 2017).
- A 2017 financial wellness study (Montalto et al., 2019, p. 16) found that:
 - 69% of college students “feel stressed about [their] personal finances in general.”
 - 63% “worry about having enough money to pay for school.”
 - 59% “have experienced financial difficulties while enrolled at [their] current institution.”
- Students with higher financial stress tend to have poorer academic performance (Baker & Montalto, 2019).
- In fall 2021, 36% of undergraduate students and 35% of graduate students reported that finances negatively impacted their academic performance in the past year (ACHA, 2022a, p. 50; 2022b, p. 50).

Background – COVID Context

- The COVID-19 pandemic exacerbated the financial challenges that students routinely experience.
- Over 50% of undergraduates experienced some level of insecurity in their basic needs (e.g., housing, food) during the height of the pandemic in 2020 (Goldrick-Rab et al., 2020).
- In fall 2021, 53% of undergraduate and 49% of graduate students reported that the pandemic made their financial situation “a lot more” or “somewhat more stressful” (American College Health Association [ACHA], 2022a, p. 118; 2022b, p. 118).

Background – College Students' Financial Knowledge

- Research suggests that students have limited exposure to key financial concepts.
- One study found that less than one-third of college students answered three financial knowledge questions correctly (e.g., inflation) (Anderson et al., 2018).
- Similarly, another study found that 7% of undergraduates answered six financial knowledge questions correctly (Montalto et al., 2019, p. 14).

Background – College Costs & Loan Debt

- Over 44 million adults in the United States carry a student loan balance (Board of Governors of the Federal Reserve System, 2020).
- Student loan debt exceeds \$1.6 trillion in the United States (Board of Governors of the Federal Reserve System, 2020). Educational debt is the second highest source of consumer debt after mortgages, surpassing credit card and auto loan debt.
- Adults with student loan debt have lower household net worth and lower home ownership rates than adults without debt (Brown & Caldwell, 2013; Fry, 2014).

Background – College Costs & Loan Debt

- In 2015-16, undergraduates borrowed \$5,460, on average, compared to \$18,210 for graduate students (Baum & Steele, 2018).
- At the undergraduate level, students from lower-income families, students age 23 and older, Black students, and students attending for-profit colleges are more likely to borrow (The College Board, 2019).
- At the graduate school level, Black students, Hispanic students, women, and those with dependents are among those who tend to incur more debt in graduate school (Belasco et al., 2014).

3) Research Project Overview

Purpose

- To design new measures of financial literacy, wellness, and attitudes specifically for the undergraduate and graduate student populations.
- To use rigorous methods to analyze scale properties.
- To evaluate whether each scale functions similarly across diverse populations.
- To evaluate whether each scale functions similar across multiple contextual environments.
- To create both “long” and “short” versions of scales, where possible, that can be used in various research and practice contexts.

Research Design

Phase 1: Instrument Development	Phase 2: Pilot Studies	Phase 3: Final Survey Administration
<ul style="list-style-type: none">• Literature review• Qualitative interviews with students and financial educators• Initial item generation• Item review by content experts• Cognitive labs (“think alouds”) with students• Item revisions	<ul style="list-style-type: none">• Pilot Study 1 (~800 students)<ul style="list-style-type: none">○ Exploratory factor analysis○ Item revisions• Pilot Study 2 (~1000 students)<ul style="list-style-type: none">○ Exploratory factor analysis○ Item revisions	<ul style="list-style-type: none">• Full survey administration (~8,000 students)<ul style="list-style-type: none">• Confirmatory factor analysis• Item response theory analysis• Measurement invariance by gender and race/ethnicity

Key Populations & Demographics

Populations	Key Demographic 1: Race/ethnicity	Key Demographic 2: Gender
High school students	Asian/Asian American	Women
Community college undergraduates	Black or African American	Men
Four-year college undergraduates	Hispanic or Latinx	<i>Non-binary</i>
Graduate students	White or European American	<i>Genderqueer or gender non-conforming</i>
	<i>Native Hawaiian/Pacific Islander</i>	<i>Transgender</i>
	<i>Native American/American Indian/Alaskan Native</i>	
	<i>Middle Eastern or Arab American</i>	

Additional Student Demographics & Background Characteristics Collected

- Age
- Parent education
- Marital status
- Disability
- Income
- Primary language spoken at home
- Veteran
- Region of home state
- Domestic vs. International student
- Home country
- Academic major
- Institution type
- Employment
- Full/part-time enrollment
- Residence
- Dependents

4) General Measurement Considerations

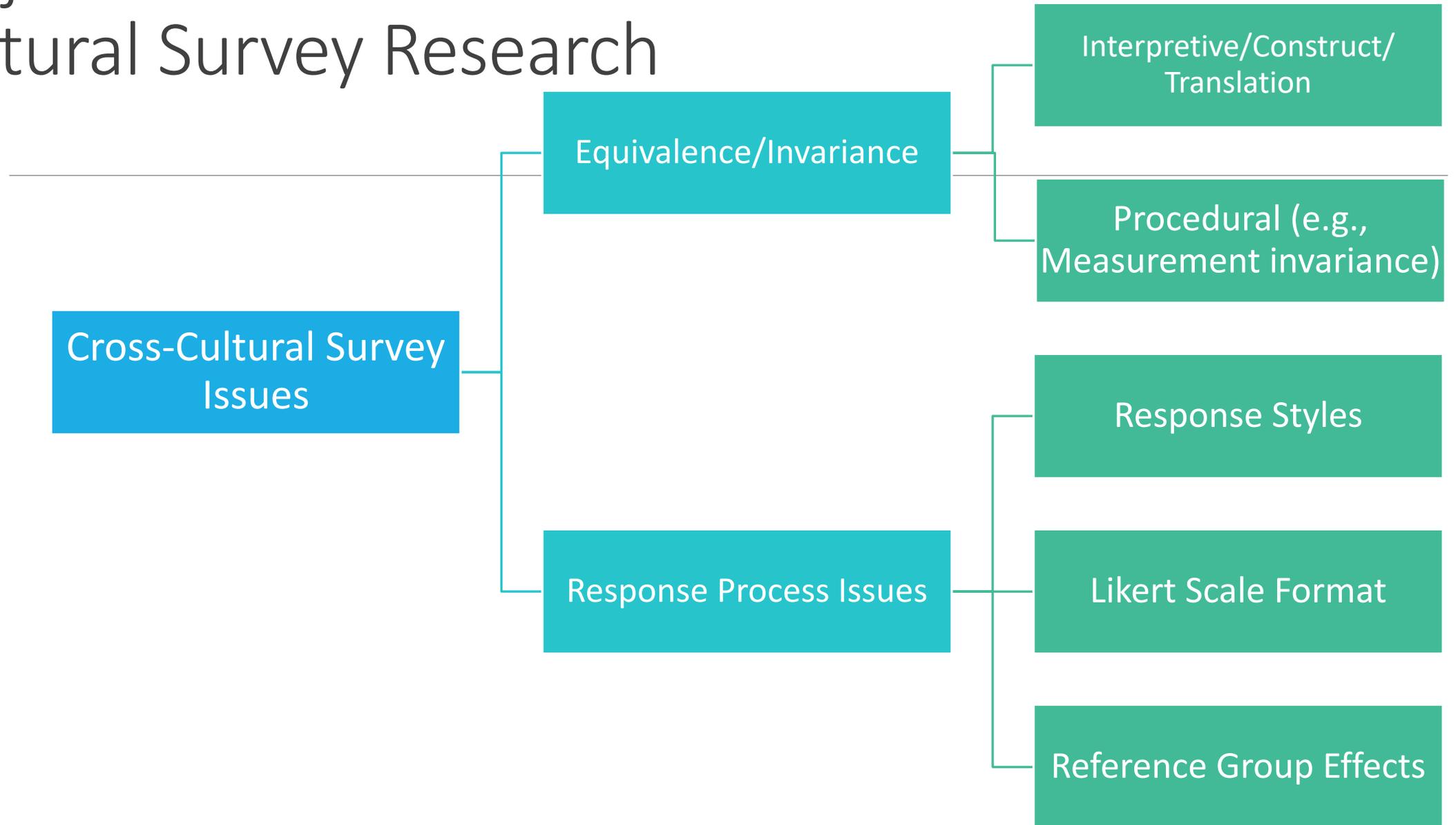
Designing Surveys for a Diverse Population

- The college student population is highly diverse with respect to race/ethnicity, gender, age, home country, disability, etc.
- To the extent possible, survey instruments should be designed with consideration of this diversity.

The Social Nature of Surveys

- Surveys can be thought of as a conversation between the survey taker and the designer.
- Surveys are impacted by the cultural environment of the respondent (Mushquash & Bova, 2007).
- The survey instrument itself originated from Western approaches to research (Johnson et al., 2018), which might make it difficult to use in some cultural contexts.

Major Bodies of Work in Cross-Cultural Survey Research



Measurement Considerations – Language

- Many undergraduate and graduate students in the United States are international students and may interpret certain English language terms differently than domestic students:
 - Cen (2013) conducted interviews with college students in China and found that they interpreted “college teacher” to include not only instructors, but also student affairs staff members, class counselors, advisors, and student organization supervisors.
- When possible, the number of words used in each survey question and the complexity of each survey item should be limited to avoid overburdening English language learners, as well as students with lower literacy levels.
- Avoid using idioms that may be unfamiliar to non-native English speakers.
 - “Better late than never.”
 - “Wrap your head around something.”
 - “Make a long story short.”

Measurement Considerations – Response Categories

- Use inclusive response categories.
- Which of the following represents your race/ethnicity? Select all that apply.
 - African American/Black or African descent
 - Asian/Asian American
 - Hispanic/Latinx
 - Native Hawaiian/Pacific Islander
 - Native American/American Indian/Alaskan Native
 - Middle Eastern/Arab American
 - White or European American
 - I prefer to self-identify as (in addition to or not listed above): _____
 - I prefer not to answer.

Response Style - Midpoint

Less Likely

Greece (Harzing, 2006)

France (Harzing, 2006)

More Likely

Asian respondents (Chen et al., 1995; Si & Cullen, 1998)

Austria (Harzing, 2006)

Bulgaria (Harzing, 2006)

China (Harzing, 2006)

Denmark (Harzing, 2006)

Germany (Harzing, 2006)

Hong Kong (Harzing, 2006)

Japan (Harzing, 2006)

Lithuania (Harzing, 2006)

To what extent do you agree or disagree with the following statement? *I am optimistic about my financial future.*

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree**
- Somewhat agree
- Strongly agree

Response Style – Extreme Positive

Less Likely

Japan (Harzing, 2006)

Netherlands (Harzing, 2006)

More Likely

United States (Chen et al., 1995)

India (Harzing, 2006)

Mexico (Harzing, 2006)

To what extent do you agree or disagree with the following statement? *I am optimistic about my financial future.*

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree**

Response Style – Extreme Negative

Less Likely

China (Harzing, 2006)

More Likely

United States (Chen et al., 1995)

Sweden (Harzing, 2006)

To what extent do you agree or disagree with the following statement? *I am optimistic about my financial future.*

- Strongly disagree**
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree

Measurement Considerations – Measurement Invariance

- A measure is “invariant” across Group 1 and Group 2 if two people with the same amount of the trait receive the same score (Millsap & Olivera-Aguilar, 2012).
- i.e., Our measure of financial knowledge will be invariant across gender, if male and female students with the *same amount* of financial knowledge receive the *same score*.

Measurement Considerations – Measurement Invariance

Why do problems with measurement non-invariance occur?

- The measure was not tested in all populations in which it is being used.
- There were problems with the translation.
- The construct “manifests” differently in different populations.
 - --i.e., The items needed to elicit a high degree of “financial knowledge” differ across groups.
- Different groups are interpreting the items differently.
- There are response style issues.

Measurement Considerations – Measurement Invariance

Why is measurement invariance important?

- To make valid comparisons across groups, the measure should have the same meaning across groups.

5) Preliminary Findings

Literature Review

- The literature review was the first step in providing the foundation for measures that would be valid and reliable across populations.
- We identified prior measures for our constructs and areas of possible construct underrepresentation.
- We developed clear definitions of each construct.
- The literature review (and interviews) identified areas where separate measures were needed for distinct populations.
- Through an iterative process, we identified 7 domains and 26 subdomains of financial wellness, underscoring the complexity of the construct.

Survey Domains

The boundaries that distinguish the constructs can be fuzzy, underscoring the importance of clearly defining each construct.



Student Background Characteristics

Financial Knowledge/Literacy

- Students' general (e.g., credit cards, budget, interest rates, inflation) and financial aid specific (e.g., student loans, expected family contribution, sticker price, Pell grants) knowledge.
- 7 subdomains:
 - Earning income
 - Budgeting
 - Managing monetary transactions
 - Saving and investing financial resources
 - Credit/debt
 - Managing risk
 - Financial aid knowledge

Financial Attitudes

- Ideas, opinions, or worries that students have about their finances.
- 6 Subdomains:
 - Financial stress/worry
 - Financial optimism
 - Debt aversion
 - Student loan worries
 - Financial self-efficacy (general)
 - Student loan self-efficacy (for those with student loans)

Financial Behaviors

- “Positive” and “negative” activities that students engage in related to finance.
- 2 Subdomains:
 - Positive financial behavior
 - Negative financial behavior

Financial Socialization

- Interactions that students have with family and peers around finance which are believed to ultimately influence students' financial attitudes, behaviors, and knowledge.
- 2 Subdomains:
 - Family financial socialization
 - Peer financial socialization

Support for College Finances

- Monetary support that students receive for postsecondary education and informal advising or other support that students receive from their institution.
- 2 Subdomains:
 - Monetary support
 - Other institutional support

Financial Hardship

- Financial challenges that students encounter, negative financial impacts on their educational experience, and strategies that students have used to save money while in college.
- 3 Subdomains:
 - General financial challenges
 - Negative financial impact on academics
 - Strategies to save money while in college

Student Background

- Demographics and other student characteristics, background experiences, and basic numeracy skills.
- 4 Subdomains:
 - Demographics
 - Student characteristics
 - Background experiences
 - Basic numeracy

Qualitative Interviews

- We conducted 30- to 45-minute semi-structured virtual interviews with **19 students** and **five financial educators** between December 2021 and January 2022.
- Students were purposively sampled (Merriam & Tisdell, 2015) to include a range of academic levels.

Table 1. Qualitative Interview Student Participant Characteristics

Characteristic	N	%	Characteristic	N	%
Level			Hispanic/Latinx		
High school	2	10.5%	Yes	7	36.8%
Community college	5	26.3%	No	12	63.2%
Four-year college	6	31.6%	Race		
Public	4	21.1%	American Indian	1	5.3%
Private	2	10.5%	Asian	2	10.5%
Graduate student	6	31.6%	Black or African American	2	10.5%
Public	3	15.8%	White	10	52.6%
Private	3	15.8%	Other	2	10.5%
Gender			Prefer not to answer	1	5.3%
Women	13	68.4%	No response	1	5.3%
Men	5	26.3%	Age		
Non-binary	1	5.3%	17 or younger	2	10.5%
One or more parents has a BA degree			18 to 22	12	63.2%
Yes	12	63.2%	23 to 24	1	5.3%
No	7	36.8%	25 to 29	3	15.8%
			30 to 34	1	5.3%

Sample Student Interview Questions

- The student interview questions focused on their understanding of financial concepts and how finances influenced their lives. For example, “What have your parents or other family members told you about managing a budget?”
- Some questions specifically targeted one subpopulation. For instance, we asked high school students, “How have finances influenced your decision to apply to certain schools?”

Financial Educator Interviews

- The five financial educators were purposively sampled to include individuals from institutions with well-developed financial wellness programs.
- Four educators worked at public universities, and one worked at a college scholarship program.
- The financial educator interview questions focused on students' understanding of finances and student loans, including their exposure to these topics and key sources of confusion. For example, "What concerns do your students have about finance, financial aid, and/or student loans?"

Qualitative Interviews – Student Insights

- The four populations varied in their overall familiarity with financial terms like financial literacy, credit, and debt. Graduate students demonstrated the highest overall familiarity with these concepts.
- On the one hand, community college students were hesitant to “buy in” to the current financial system, believing that “money” and “finance” are made up concepts.
- Graduate students learned about money and finance by observing their family and friends. Some families emphasized the importance of savings. In comparison, one student explained that his mother “loves to take out loans.”

Qualitative Interviews – Educator Insights

- Financial educators provided insight regarding students' common misconceptions about finance and financial aid (e.g., budgeting, Pell grants, college sticker price).
- Some students have limited exposure to budgeting and finance.
- Educators discussed the cultural and environmental element around attitudes toward debt. One educator noted that paying for college requires “buying into” the American Dream.
- In some areas of the country, there are more predatory lending practices which may impact students' attitudes toward borrowing.
- Another participant noted that in some cultures it is inappropriate to discuss money.

Here are some ways the interviews impacted the survey items:

- The Parent Financial Socialization Scale was reconceptualized as the Family Financial Socialization Scale.
- The Family Financial Socialization Scale questions account for the fact that sometimes students provide their families with financial advice or monetary resources while in school. In some cases, this is connected to students' cultural backgrounds.
- A demographic question about the region of the country where the survey respondent is from is included.

“Think Aloud” Interviews

- Think Aloud interviews were conducted with 18 students between February and March 2022.
 - In total, there were 5 high school students, 3 community college students, 4 four-year college students, and 6 graduate students.
 - Participants were diverse with respect to gender, race/ethnicity, parent educational attainment, and age.
- Students were given 25-30 minutes to complete the survey and were asked to take notes on survey questions or items that were confusing or notable for revision.
- The interviewer then asked seven questions pertaining to the clarity of the survey questions and response options, their comfort level with the survey questions, whether the survey length was appropriate, and whether the “don’t know” response option was useful for the financial knowledge questions.

“Think Aloud” Interview Insights

○ **Overall:**

- Students overall reported a positive experience completing the survey.
- In general, the questions were not too personal or uncomfortable to answer.

• **Response choices:**

- One or two participants gave suggestions to clarify certain words in order to be more inclusive.
- Students preferred “Somewhat agree/Strongly agree” over “Agree/Strongly agree.”
- Students found the “don’t know” response choice helpful for financial knowledge questions.

“Think Aloud” Interview Insights

- **Undocumented students:**

- Some of the questions were difficult to answer without fear that the way they answered may reveal certain aspects of their identity that they wanted to protect.
- The interviewee suggested to make it very clear at the beginning of the survey that names are not attached to survey results, in order to empower other undocumented survey takers to answer confidently.

- **Gender identity:**

- Students seemed to prefer “male/female” vs. “man/woman” terminology.

Pilot Studies

- Combined, the two pilot studies surveyed about 1,800 students.
- The sampling was conducted with respect to each of the four populations, by gender, and by race/ethnicity.
- The diverse sample ensures that the initial item exploration and refinement was not overly influenced by any population or demographic subgroup.

Full Scale Administration (Current Stage)

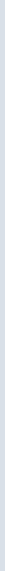
- Administer survey to ~8,000 participants.
- Sample with respect to each of the four populations, by gender, and by race/ethnicity.
- Matrix sampling approach due to high number of constructs.

Full Scale Administration (Current Stage)

- Part 1: Measurement invariance analyses by population and demographics:
 - Population (high school, community college, four-year college, graduate school)
 - Gender (male, female)
 - Race/ethnicity (White non-Hispanic, Black non-Hispanic, Asian non-Hispanic, Hispanic)

Full Scale Administration (Current Stage)

- Part 2: Additional measurement invariance analyses by demographics:
 - Intersectional (e.g., male White non-Hispanic)
 - Within population (e.g., by gender within the high school population)
- Part 3: Supplemental measurement invariance analyses by additional demographics, which may include:
 - English primary language (yes, no)
 - Domestic vs. international student



6) Implications

Implications for Researchers

- Financial wellness is a complex, multidimensional construct. To accurately measure it, multiple measures will be needed.
- Where possible, researchers should select measures that have been evaluated across diverse populations, or at minimum, in their target population.
- Ask students for feedback on survey items, even if not in the context of a formal interview.

Implications for Educators

- New psychometrically valid measures can be used in college programming--for instance, a program run by student affairs to help students develop financial literacy.
- Understanding college students' baseline knowledge, attitudes, and perceptions will help to design effective financial aid entrance and exit counseling.
- When discussing finance, educators must consider the cultural background of the student and how that may relate to their attitudes toward finances.

Implications for Policymakers

- Large scale federally funded studies of undergraduate and graduate students (e.g., NPSAS, BPS) include a measure of financial knowledge, but this measure under-represents the complexity of the construct and does not encompass the multidimensional nature of financial wellness.
- We suggest incorporating additional measures of financial wellness into these studies.

7) Questions?