

Best Practices in Evaluation of Multi-Site LSAMP Programming to Diversify the STEM Talent Pool

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ALLIANCE
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Session Overview

BRIEF OVERVIEW OF THE
OHIO LSAMP ALLIANCE

REVIEW MAJOR CHALLENGES
IN COLLECTING AND
ANALYZING MULTI-SITE DATA

DISCUSS SOLUTIONS AND
STRATEGIES FOR DATA
COLLECTION AND ANALYSIS



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The Ohio LSAMP Organizational Chart




The Ohio LSAMP
PI and Co-PIs
McPherson,
Gallant, & Moore

Governing Board

Alliance Director
Dorinda Gallant

Project Manager
Nikki Johnson

External Advisory
Board

External
Evaluator

Steering
Committee

Cincinnati
State
Technical
and
Community
College

Columbus
State
Community
College

Cuyahoga
Community
College

Sinclair
Community
College

Central
State
University

University
of
Cincinnati

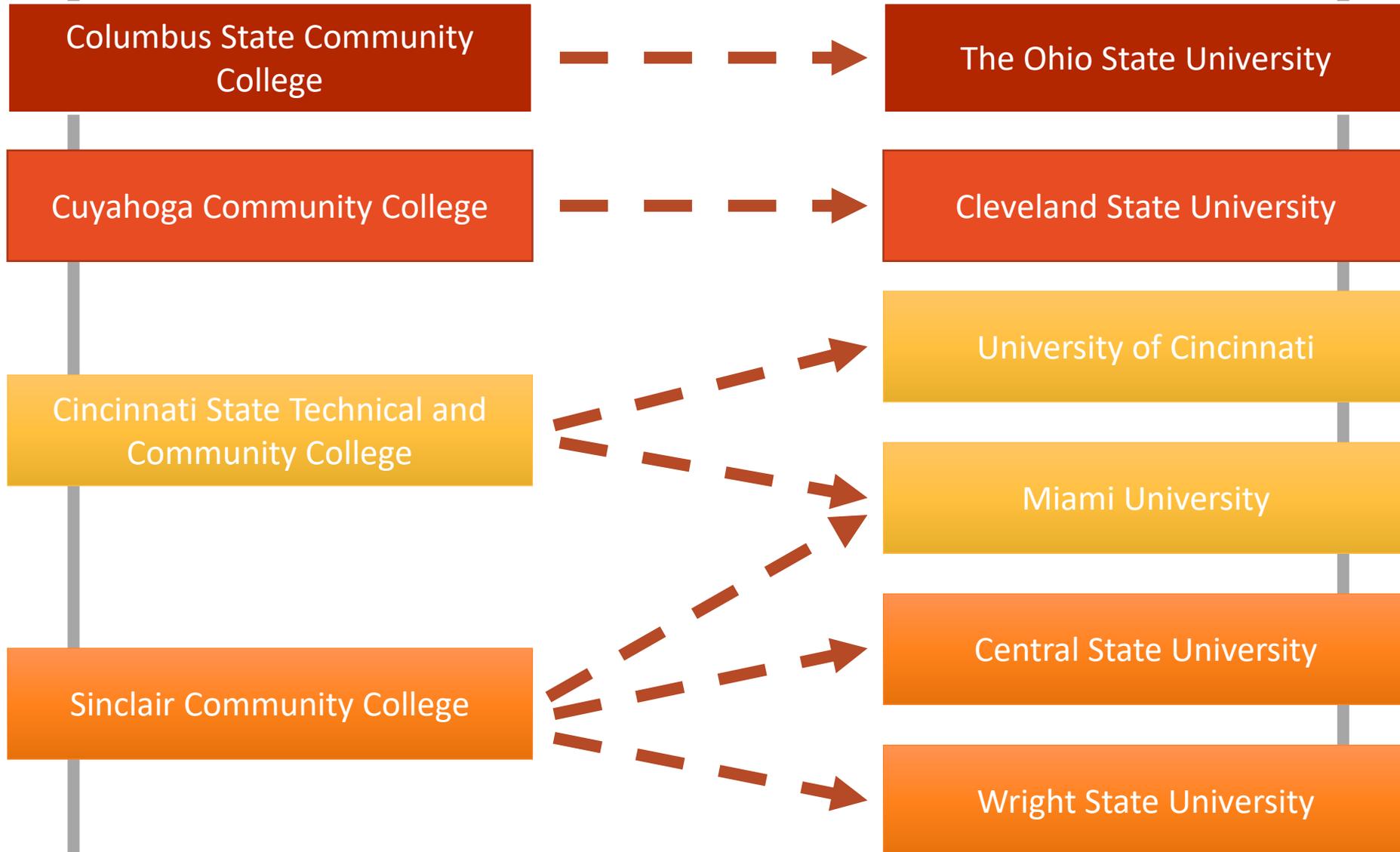
Cleveland
State
University

Miami
University

The Ohio
State
University

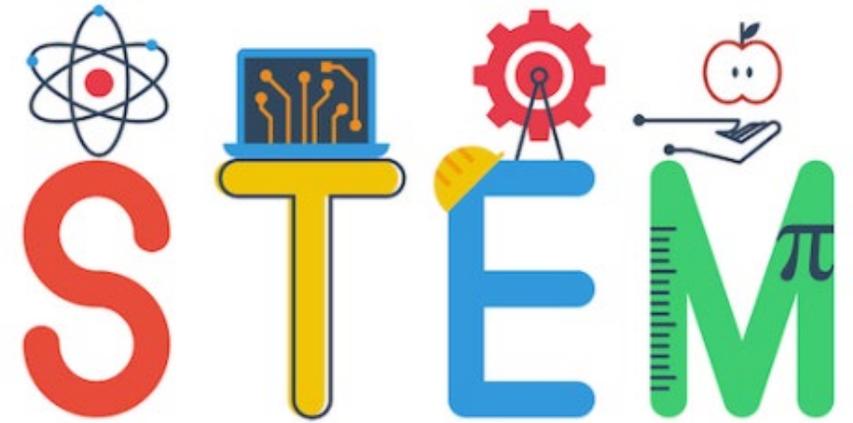
Wright
State
University

The Ohio LSAMP Alliance



The Ohio LSAMP Overarching Goal

To double the number of underrepresented minority (URM) baccalaureate degrees in STEM disciplines at four-year partner institutions within five years, using the LSAMP model for programming which focuses on **academic** and **social integration** and **professionalism**.



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The Ohio LSAMP Programming

- Faculty mentor
- Peer mentor
- Success coaching
- Academic resources
- Personal and professional development
- Undergraduate research
- Early arrival/bridge program



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The Ohio LSAMP 2013-2019 Goals

1. Foster a partnership among alliance institutions, working with industry and community partners, that results in programming.
2. Heighten the awareness of opportunities in STEM disciplines and increase the recruitment of URM students to STEM majors.
3. Provide early and sustained programs to facilitate the critical transition from high school to college.
4. Increase the retention of first- and second-year URM students in STEM disciplines.
5. Improve the disciplinary socialization of URM students in STEM disciplines, particularly by providing undergraduate research opportunities through the baccalaureate.
6. Provide pathways for smooth transitions from community colleges to four-year institutions.



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**How do we conceptualize and assess
these goals and their outcomes?**

Challenges in assessment and conceptualization

Challenges in Conceptualizing LSAMP Goals



GOALS MIGHT BE
MULTI-FACETTED



MEASURABLE OUTCOMES
MIGHT NOT ALWAYS BE
IMMEDIATELY APPARENT

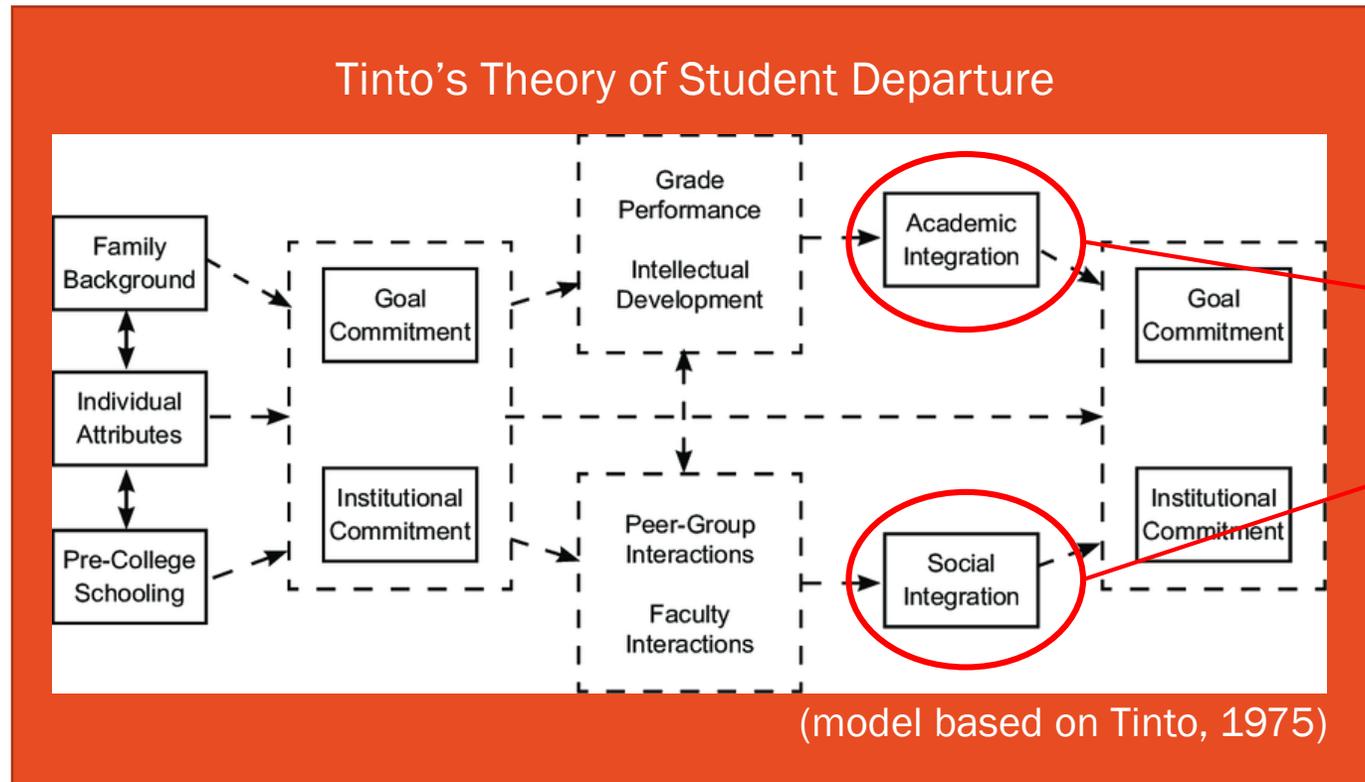


GOALS MIGHT LEAD TO
UNINTENDED OUTCOMES



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Using a Theoretical Framework to Understand the Impact of LSAMP

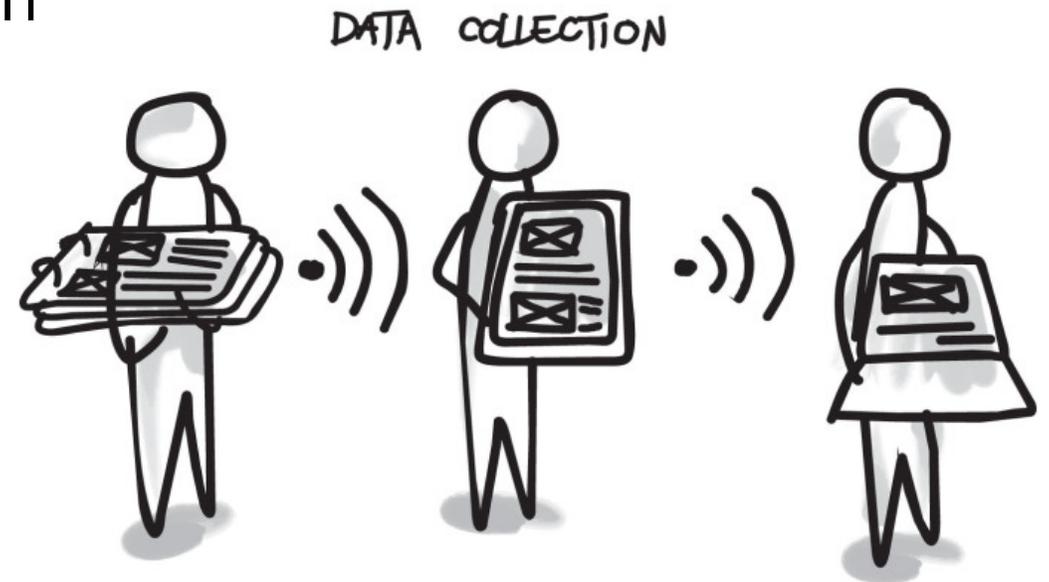


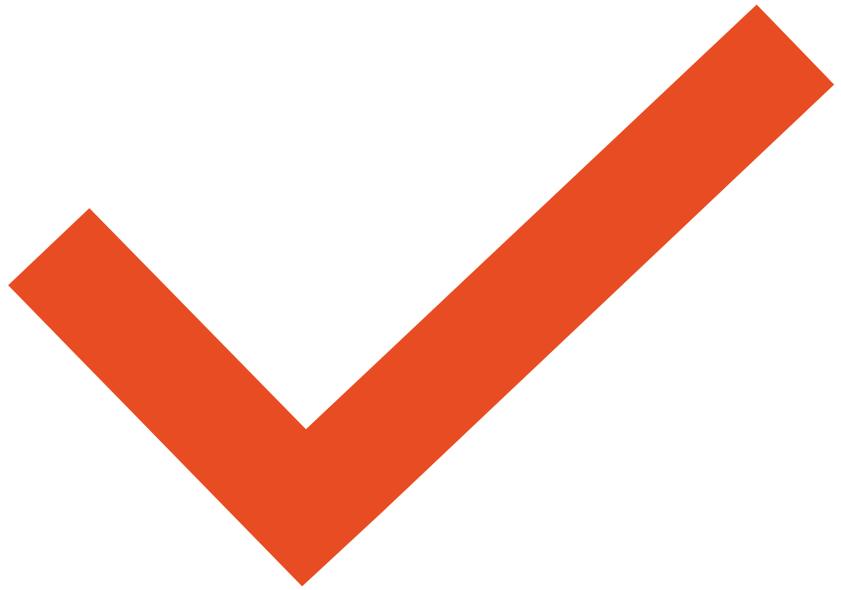
How do we assess academic and social integration?



Challenges in Data Collection and Analysis

- Consistent and accurate data collection across multiple institutions.
- Institutions might vary in their resources and expertise in data collection.
- LSAMP often includes data collection over multiple years, which leads to challenges in data storage and management.





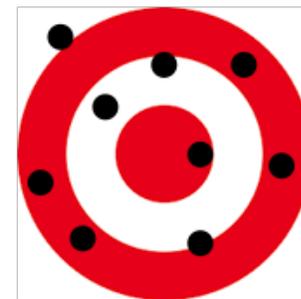
Considerations When Selecting Measures

Choosing Measures: Validity and reliability

- **Validity:** To what degree does evidence and theory support the interpretations of scores for proposed uses?
- **Reliability:** To what degree are scores consistent?
- If you choose an instrument that has been supported by prior research, it is more likely to have evidence of validity and reliability.



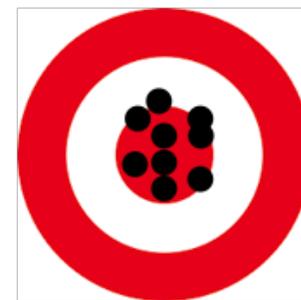
Unreliable and invalid



Unreliable but valid



Reliable not valid



Reliable and valid



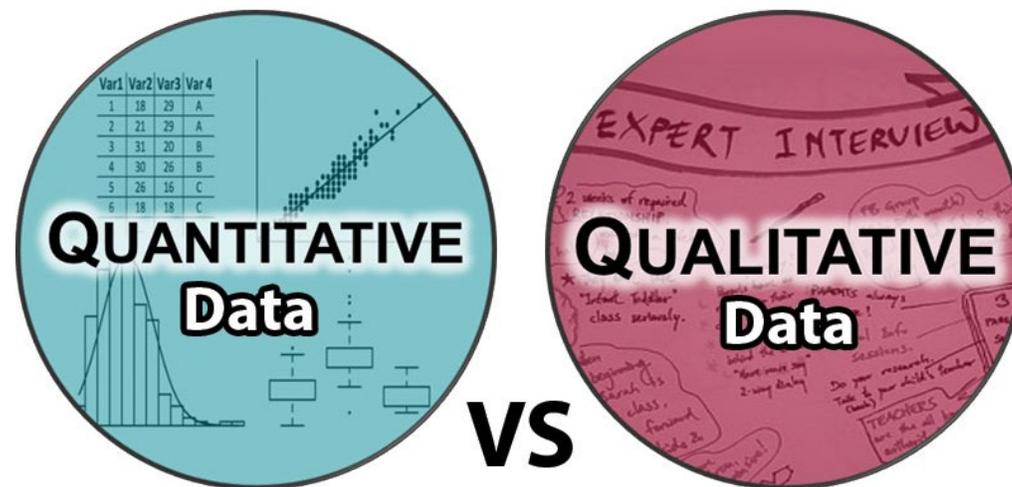
Choosing Measures

- **Quantitative**

- Likert-scale self-report questionnaires
- Grades or other institutional data

- **Qualitative**

- Open-ended questions
 - Interviews
 - Focus groups
- Choosing between quantitative and qualitative assessments is dependent on what is being measured.



Encouraging Completion of Measures



Be thoughtful about number of items



Consider offering incentives



Explain the purpose of assessment to survey administrators and participants





Let's discuss!

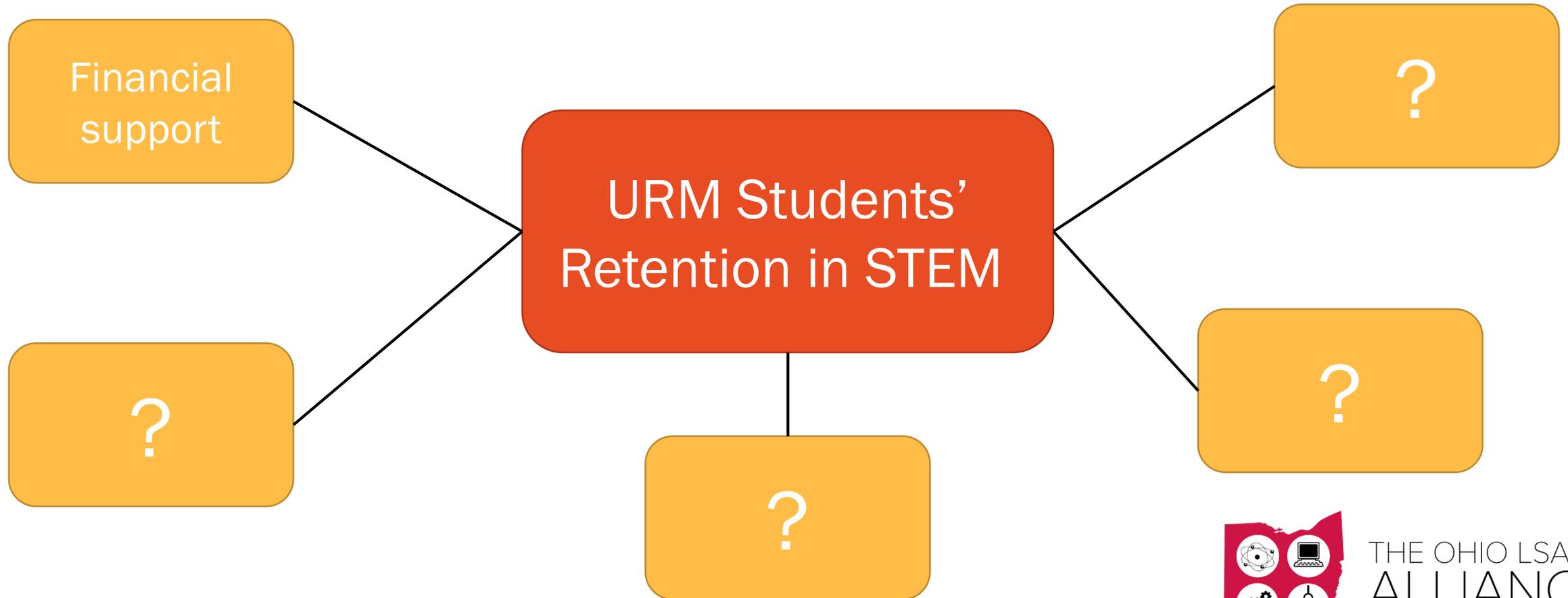
Interactive activity



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Create a **concept map** that includes the variables and factors that influence **URM students' retention in STEM**

(These variables/factors do not necessarily need to be based on research!
They can be based on a combination of research and your experience.)



Variables and Factors that Influence URM Students' Retention in STEM

Review other groups' concept maps

Star the factors that you suspect are the *most influential*

Does your organization currently assess those variables/factors?



Common Retention Variables (White et al., 2008)

Type of variable	Example of variables
Personal	Interest, motivation, satisfaction, attitude, perceived changes/perceptions, personal goals, etc.
Academic	Pre-college academic achievement (GPA, SAT, ACT), college academic achievement (GPA, quality credit averages, Stanford Test of Academic Skills), multiple study skills, habits, class absenteeism, etc.
Institutional	Supportive climate, commitment, environment, quality and type of institution (public and private), faculty contact, cooperation among students, clear expectations, respect for diverse talent, student-faculty ratio, etc.
Cultural	Pre-college values, cultural identity, ethnic/cultural values, family support, etc.
Sociological	Social integration, support/climate, extracurricular activities, role model, living in university housing, etc.
Psychological	Alienation, feelings about college, self-esteem, self-beliefs, comfort, etc.
Economic	Financial aid, program cost, part-time employment, etc.
Background	Demography (ethnicity, gender, age, SES, parents' educational level, income), credit completion ratio, participation (related to student working), retention status (dismissal, dropout, or persist with/without probation), etc.
Others	Program involvement, organizational fit, etc.

- What differences do you notice across institutions?
- How can you accommodate for those differences when collecting and analyzing data?



- How can you select quantitative measures with evidence of validity and reliability?
- How can you select qualitative measures?
- How can you integrate these two types of measures together?



- When would you collect data?
- How would you choose that timeframe?



- Who should collect the data?
- How would you ensure they collect and store data appropriately?



- How would you increase student and faculty survey participation?



Main Points, Conclusions, and Possible Next Steps

Thank you!

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