JMU The Center for Assessment and Research Studies

Introduction to the Assessment of Student Learning & Development

The Importance of 3 Types of Evidence:
Existing Evidence, Implementation Fidelity & Outcomes Data

2.5 hour workshop

Professional Standards

Professional Competency Areas for Student Affairs

American College Personnel Association/National Association of Student Personnel Administrators (ACPA-NASPA)

- 10 competency areas that specify knowledge, skills, & dispositions expected of all professionals, regardless of functional area or specialization within the field

Assessment Skills and Knowledge (ASK) - Created by ACPA

- Detail what all student affairs professionals should know & be able to do related to outcomes assessment

Program-Related Standards

Council for the Advancement of Standards in Higher Education (CAS)

-Promotes program assessment & higher education standards at the program level.

-Member organizations include ACPA/NASPA (and others)

CAS Standards

Part 4. Assessment

4.1 Establishing a Culture of Assessment

The functional area must **develop assessment plans** and processes that **document progress** toward achievement of mission, goals, outcomes, and objectives.

4.2 Program Goals, Outcomes, and Objectives

The functional area must **identify goals, outcomes**, and objectives to guide its work.

4.3 Assessment Plan and Process

The functional area **must structure assessment** initiatives **using the steps of the assessment cycle**

4.4 Gathering Evidence

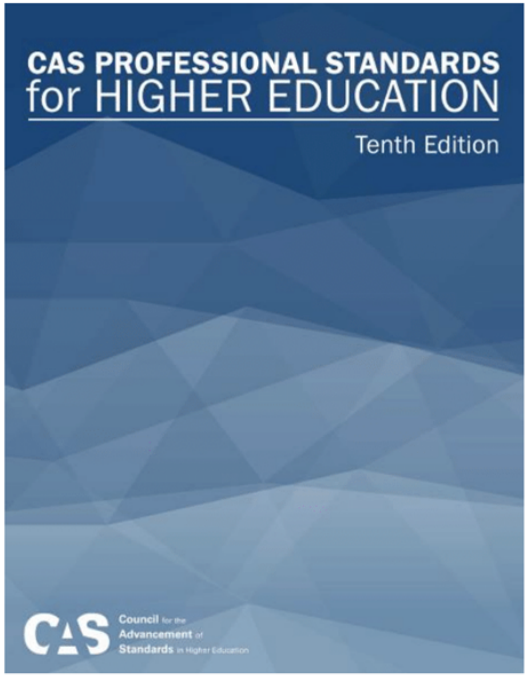
The functional area **must develop manageable processes** for **gathering, interpreting, and evaluating data**.

4.5 Review and Interpret Findings

The functional area **must use methods to analyze and interpret data** that correspond with objectives and questions considered within overall assessment goals.

4.6 Reporting Results and Implementing Improvement

The functional area **must use evidence from assessment activities to inform decision-making** and planning for continuous **improvement**



Council for the Advancement of Standards in Higher Education (2019). *CAS professional standards for higher education* (10th ed.). Washington, DC: Author.

The Center for Assessment and Research Studies

Overview: Outcomes Assessment

What is Outcomes Assessment?

Systematic way to make inferences about student learning & development

- Assessment -> one component of program evaluation process

Types of Assessment:

- Satisfaction
- Use
- Cost
- ***Outcomes -*** What students know, think, value and can do

85% of the students who attended the Orientation program were satisfied with their experience

NOT outcomes assessment

The students who attended the Orientation program reported increased confidence in ability to make course selections

Outcomes assessment

Why Conduct Outcomes Assessment?

1. To **communicate & estimate** what students know, think, value, and can do
2. To **improve** program effectiveness
3. To respond to **accountability** mandates
4. To justify **resource allocation**

Communicate Student Characteristics

Estimate students' skills, values, behaviors, abilities

Identify students' needs

Identify outcomes that are already achieved

Program Effectiveness

Evaluate & improve program effectiveness

Demonstrate commitment to improving student learning & development

Accountability

Meet accreditation mandates

Strengthen program standing & visibility

Resource Allocation

Identify where programming resources are needed

Secure grant funding

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Specifying Student Learning Outcomes (SLOs)

Specifying Student Learning Outcomes (SLOs)

Ask yourself:

As an educator, what do you believe your students should know, think, or be able to do?

Follow up questions:

What knowledge, attitudes, or skills should students possess as a result of your programming?

How malleable is each outcome? Is the outcome differentially malleable across different student groups?

How feasible is each outcome given the resources you have?

What are SLOs?

- These are **clear**, **measurable** outcomes that are **meaningful** to stakeholders
- Outcomes should provide focus for **programming** and be a basis for **assessing** student learning

Outcome vs. Goal

Goal

Goals are ***general*** expectations of student outcomes

Outcome

Outcomes are ***specific*** statements of exactly what students should be able to do/change developmentally as a result of programming

Outcomes should map to your goals!

Goal	Outcome
Demonstrate an understanding of student affairs as a profession and the influence student affairs has on contemporary higher education and society	Explain examples of the application of standards in professional practice within student affairs
Demonstrate professional skills in a variety of areas to be competitive in student affairs positions	Apply basic consultation skills to diagnose and intervene in management problems

Types of Outcomes

Types	Difficulty to Change	Description	Examples
Cognitive	**Easiest** 	**Knowledge, comprehension, and evaluation**	**Learning** that represents remembering, understanding, applying, analyzing, evaluating, creating, identifying, critiquing, summarizing, etc.
Developmental		**Emotions, attitudes, and values**	**Values/Perceptions** that represent self-efficacy, appreciation, belongingness, open-mindedness, entitlement, leadership, civic responsibility, cross-cultural adaptability, self-authorship, etc.
Behavioral	**Hardest**	**Actions and mannerisms**	**Skills** that represent assembling, volunteering, engaging, sharing, avoiding, attempting, leading, building, etc.

Type of Outcome Exercise

Types	Description
Cognitive	Knowledge, comprehension, and evaluation
Developmental	Emotions, attitudes, and values
Behavioral	Actions and mannerisms

1. After attending a program held by the Center for Multicultural Student Services, students will display a 10% higher level of open-mindedness

Type of Outcome Exercise

Types	Description
Cognitive	Knowledge, comprehension, and evaluation
Developmental	Emotions, attitudes, and values
Behavioral	Actions and mannerisms

2. As a result of going to a program by the Community Service Learning department, students will volunteer in Harrisonburg at least 2 times a semester

Type of Outcome Exercise

Types	Description
Cognitive	Knowledge, comprehension, and evaluation
Developmental	Emotions, attitudes, and values
Behavioral	Actions and mannerisms

3. After students attend a program held by the Counseling Center, they will be able to list at least 3 resources for mental health on campus

Type of Outcome Exercise

Types	Description
Cognitive	Knowledge, comprehension, and evaluation
Developmental	Emotions, attitudes, and values
Behavioral	Actions and mannerisms

4. As a result of going to a program held by SASS, CSPA students will be able to identify the 7 steps of the assessment cycle

Important Characteristics of Outcomes

Student-oriented	Should focus on the *student* and their learning	**Good example:** After completing an Alcohol Safety Awareness Workshop, *students* will be able to identify at least 3 safe drinking strategies **Bad example:** Facilitators will deliver a presentation about alcohol awareness on campus
Reasonable	Should be both realistic and reasonable given the *length* and *strength* of the planned program	**Good example:** Upon completing a *1-hour workshop* on The Counseling Center, students will be able to *list 2 counseling resources* on campus **Bad example:** Upon completing a *1-hour workshop* on The Counseling Center, students will *create a presentation on CS*
Measurable	Should be able to directly observe something that indicates the outcome has been met	**Good example:** As a result of completing Transfer Student Orientation, incoming transfer students will be able to *introduce themselves to at least 3 faculty members* **Bad example:** As a result of completing Transfer student Orientation, incoming transfer students will *get to know faculty*
Define Success	Should be precise when specifying what success looks like	**Good example:** As a result of move-in meetings in their dorms, students will *engage in 3 programs put on by their RA throughout the year* **Bad example:** As a result of move-in meetings in their dorms, students will be able to *engage in programs*

The ABC(D) Method

A is for Audience: Who?

B is for Behavior: What?

C is for Condition: How?

D is for Degree: To what extent?

As a result of completing the transfer orientation program, 70% of transfer students will engage in 2 or more on-campus social events on average per semester.

The ABC(D) Method

A is for Audience: Who?

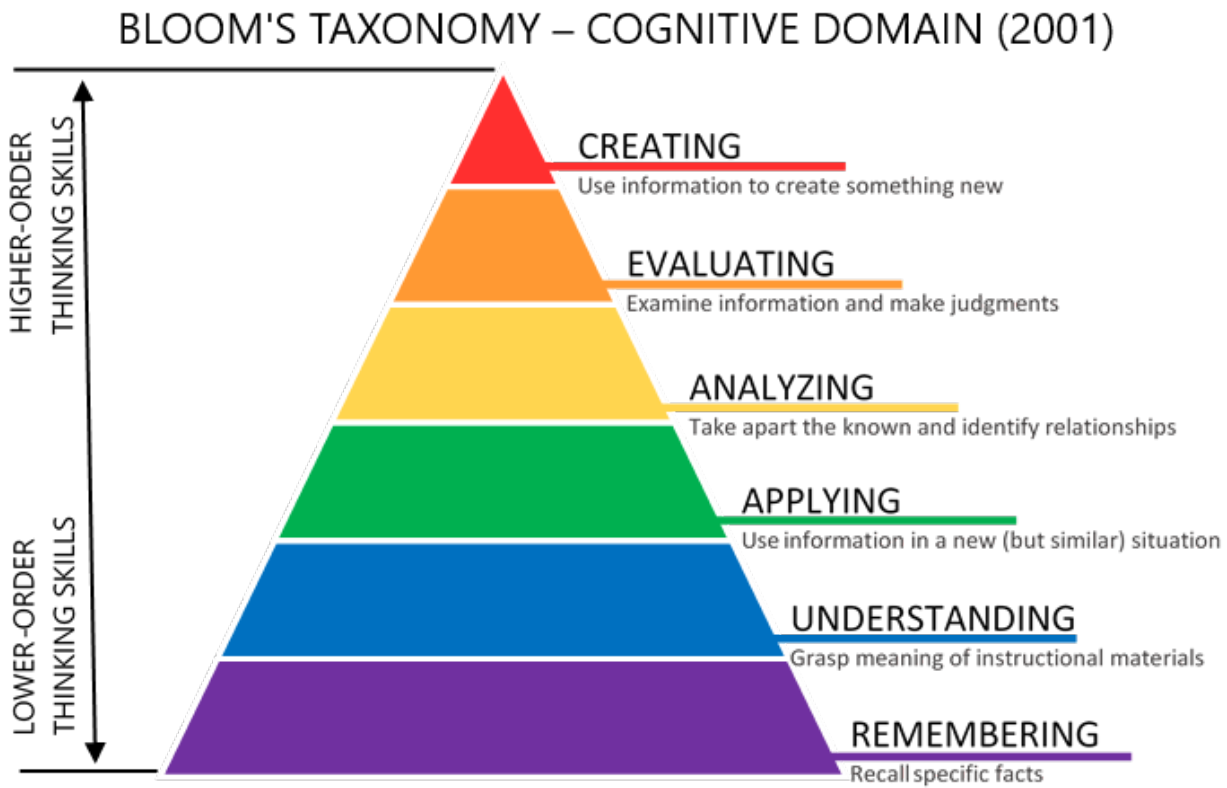
B is for Behavior: What?

C is for Condition: How?

D is for Degree: To what extent?

Upon completion of a study training session, 80% of first year students will be able to explain at least 2 adaptive help seeking strategies.

A Resource for SLO Writing: Bloom's Taxonomy



BLOOM'S TAXONOMY DIGITAL PLANNING VERBS

REMEMBERING

Copying
Defining
Finding
Locating
Quoting
Listening
Googling
Repeating
Retrieving
Outlining
Highlighting
Memorizing
Networking
Searching
Identifying
Selecting
Tabulating
Duplicating
Matching
Bookmarking
Bullet-pointing

UNDERSTANDING

Annotating
Tweeting
Associating
Tagging
Summarizing
Relating
Categorizing
Paraphrasing
Predicting
Comparing
Contrasting
Commenting
Journaling
Interpreting
Grouping
Inferring
Estimating
Extending
Gathering
Exemplifying
Expressing

APPLYING

Acting out
Articulate
Reenact
Loading
Choosing
Determining
Displaying
Judging
Executing
Examining
Implementing
Sketching
Experimenting
Hacking
Interviewing
Painting
Preparing
Playing
Integrating
Presenting
Charting

ANALYZING

Calculating
Categorizing
Breaking Down
Correlating
Deconstructing
Linking
Mashing
Mind-Mapping
Organizing
Appraising
Advertising
Dividing
Deducing
Distinguishing
Illustrating
Questioning
Structuring
Integrating
Attributing
Estimating
Explaining

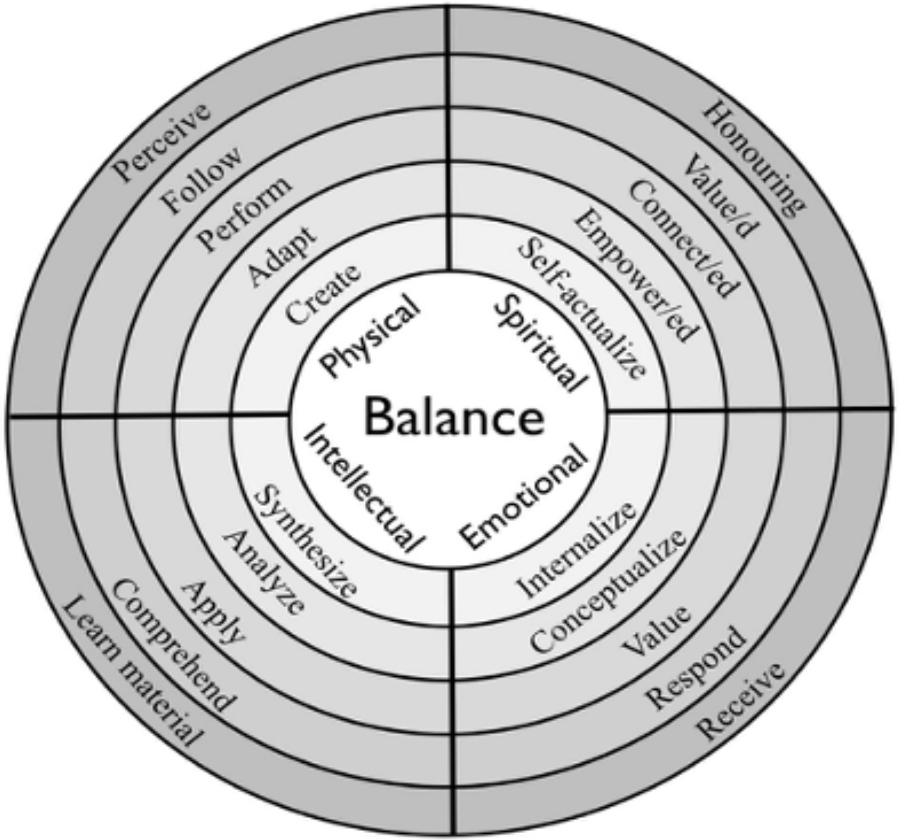
EVALUATING

Arguing
Validating
Testing
Scoring
Assessing
Criticizing
Commenting
Debating
Defending
Detecting
Experimenting
Grading
Hypothesizing
Measuring
Moderating
Posting
Predicting
Rating
Reflecting
Reviewing
Editorializing

CREATING

Blogging
Building
Animating
Adapting
Collaborating
Composing
Directing
Devising
Podcasting
Wiki Building
Writing
Filming
Programming
Simulating
Role Playing
Solving
Mixing
Facilitating
Managing
Negotiating
Leading

A Resource for SLO Writing: Medicine Wheel



Spiritual Domain

(transcend self-interest)

Honouring

Definition

Conscious or aware of learning that is not based in material or physical things, and transcends narrow self-interest.

Sample verbs

- Consider
- Meditate on
- Be aware
- Seek
- Open
- Allow
- Listen
- Observe

Value/d

Definition

Building relationships that honour the importance, worth, or usefulness of qualities related to the human spirit.

Sample verbs

- Empathize
- Honour
- Acknowledge
- Balance
- Exemplify
- Serve
- Recognize
- Respect

Connect/ed

Definition

Link, build, and sustain positive relationships with someone or something [ie. community, culture, etc].

Sample verbs

- Consult
- Work with
- Bond
- Support
- Relate to
- Respond
- Care for
- Cooperate
- Participate
- Provide
- Develop
- Build

Empower/ed

Definition

Provide and feel supported by an environment that encourages strength and confidence, especially in controlling one's life and claiming one's rights.

Sample verbs

- Express
- Gain
- Speak out about
- Advocate
- Act upon
- Defend
- Influence
- Engage in
- Re-imagine
- Prepare
- Maintain

Self-Actualize/d

Definition

Ability to honour and be honoured as a unique individual within a group, in order for each member to become what each is meant to be.

Sample verbs

- Become
- Self-define
- Use resources
- Create
- Progress Reinforce
- Remain
- Possess
- Sustain
- Dream
- Envision
- Guide

More Resources

- **SASS Website:** Specification of Student Learning Outcomes
- **Video:** Writing Outcomes
- **Handout:** Common Mistakes in Writing Outcomes
- **Handout:** Checklist for Effective Outcomes
- **Webpage:** Bloom's Taxonomy

Evidence-Informed Program Theory

Evidence-Informed Program Theory

Ask yourself:

What programming can you, the curriculum designer, create to foster learning & development?

Follow up questions:

Why should this programming impact your intended outcomes?

What **evidence** supports the effectiveness of the programming?

For **whom** is this programming effective?

- Should this programming be effective for all students? Why?

What is Evidence-Informed Program Theory?

Once outcomes are specified…

They should be mapped to programming that has been **shown empirically** or **theorized** to impact said outcomes

Program theory explains how & why a program should work!

- Building programs must be guided by theory/knowledge of student learning & development

Why do we need Program Theory?

When developing a program, much attention should be given to:

- **Designing** evidence-informed or theory-based programming (e.g., activities, curriculum, strategies)
- **Training** those who implement programming (e.g., practitioners, facilitators, instructors)

WHY?

Every time you implement a program, you are betting our students' time & money that it will "work"

- Theory & research increase the odds that programs will be effective
- Think about a program you have facilitated.
  - **Would you bet your car that it "works"?**

Why do we need Program Theory?

We often find programming can be described in general (who attends/how many weeks it is offered), but program components are not mapped to specific learning outcomes

Professionals often can't answer the basic question:

WHY should doing A, B, & C result in the intended outcome?

How does PT relate to outcomes assessment?

- Assessment of programming is **guided by** PT.

Articulating Program Theory in 3 Steps

Step 1 — **State Distal outcome**

- What is the distal outcome?
- What do you ultimately hope to achieve?
  - Ex. increase civic engagement, demonstrate effective leadership, lower % of students on probation
- Distal outcome must be **malleable** and **feasible**!

Step 2 — **Specify Intermediate Outcomes**

- Specify attitudes, values, skills, & behaviors that influence the distal outcome
- Questions to ask yourself:
  - What is the cause/origin of the distal outcome?
  - What knowledge, skills, attitudes & values do students need?

Step 3 — **Develop Program Components**

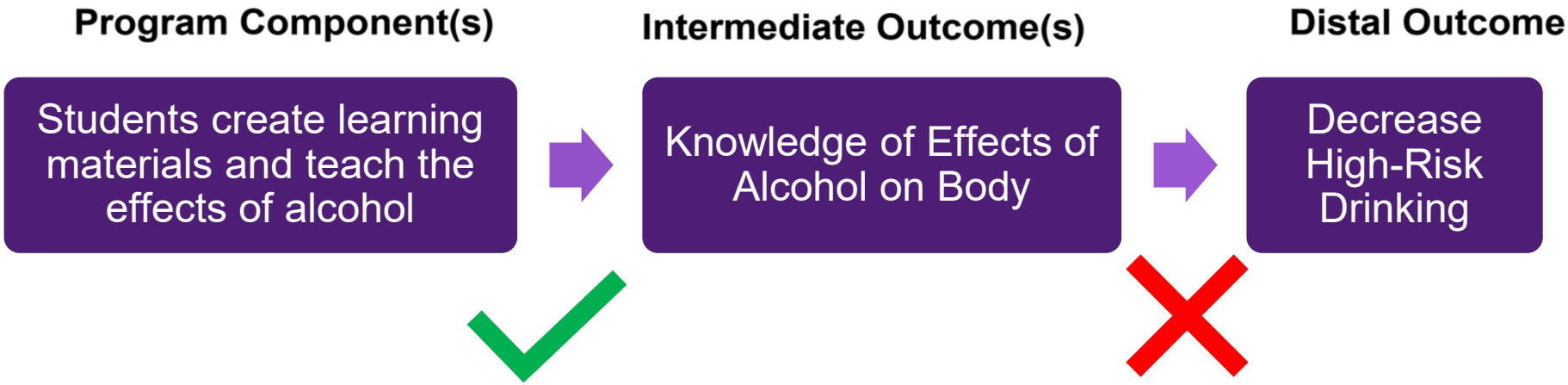
- Program components are chosen because they should influence the intermediate outcomes, which in turn will influence the distal outcomes
- Use research related to your specific program/outcome area (e.g., alcohol abuse, career development)

Drinking Example: State Feasible Distal Outcome

Abstinence is *not* a feasible outcome for college students.

Marlatt, G. A., & Witkiewitz, K. (2002). Harm reduction approaches to alcohol use: Health promotion, prevention, and treatment. *Addictive behaviors*, *27*, 867-886.

Drinking Example: Problematic intermediate outcomes



Halpern, D. F., & Hakel, M. D. (2003). Applying the science of learning to the university and beyond: Teaching for long-term retention and transfer. *Change: The Magazine of Higher Learning, 35*, 36-41.

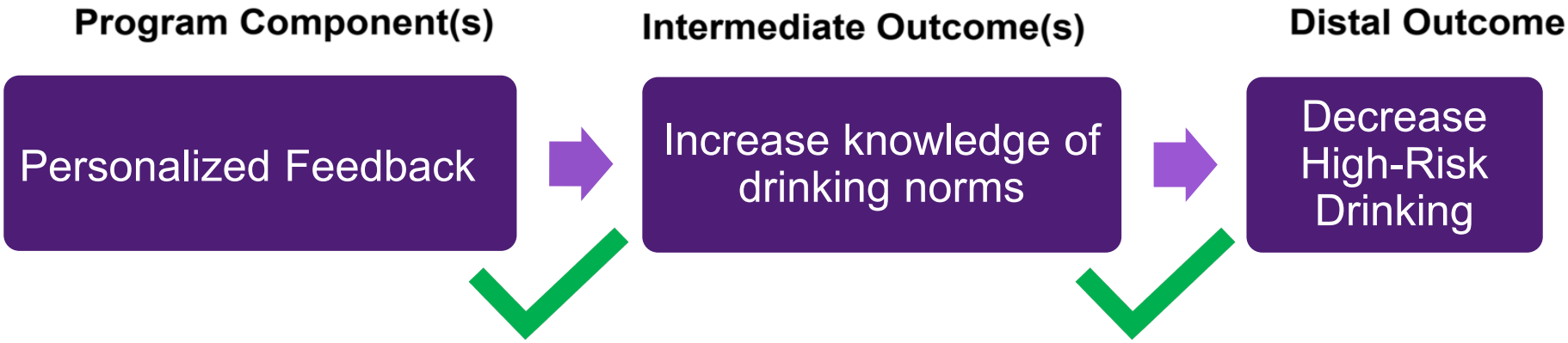
Drinking Example: Ineffective Programming

Students beliefs about how much other students drink is more important than genetics in predicting frequency of alcohol use.

VCU researchers found students' beliefs about how much students drink is one of most important predictors of whether their alcohol use will increase—more important than genetics.

Smith, et al. (2019). Genes, roommates and residence halls: A multidimensional study of the role of peer drinking on college students' alcohol use. *Alcoholism: Clinical and Experimental Research*, 43, 1254-1262.

Drinking Example



Walters, S. T., Bennett, M. E., & Noto, J. V. (2000). Drinking on campus: What do we know about reducing alcohol use among college students? *Journal of Substance Abuse Treatment*, *19*(3), 223-228.

Smith, et al. (2019). Genes, roommates and residence halls: A multidimensional study of the role of peer drinking on college students' alcohol use. *Alcoholism: Clinical and Experimental Research*, 43, 1254-1262.

Finding best available evidence

Systematic Review Repositories

- Summaries of high quality research studies
- Most credible research evidence available

- The Campbell Collaboration (education, crime, welfare)
- The Cochrane Library (health)
- What Works Clearing House (education)

Wise Interventions Database

- Collection of interventions (Walton & colleagues)
- Theory to practice (helps prescribe programming)

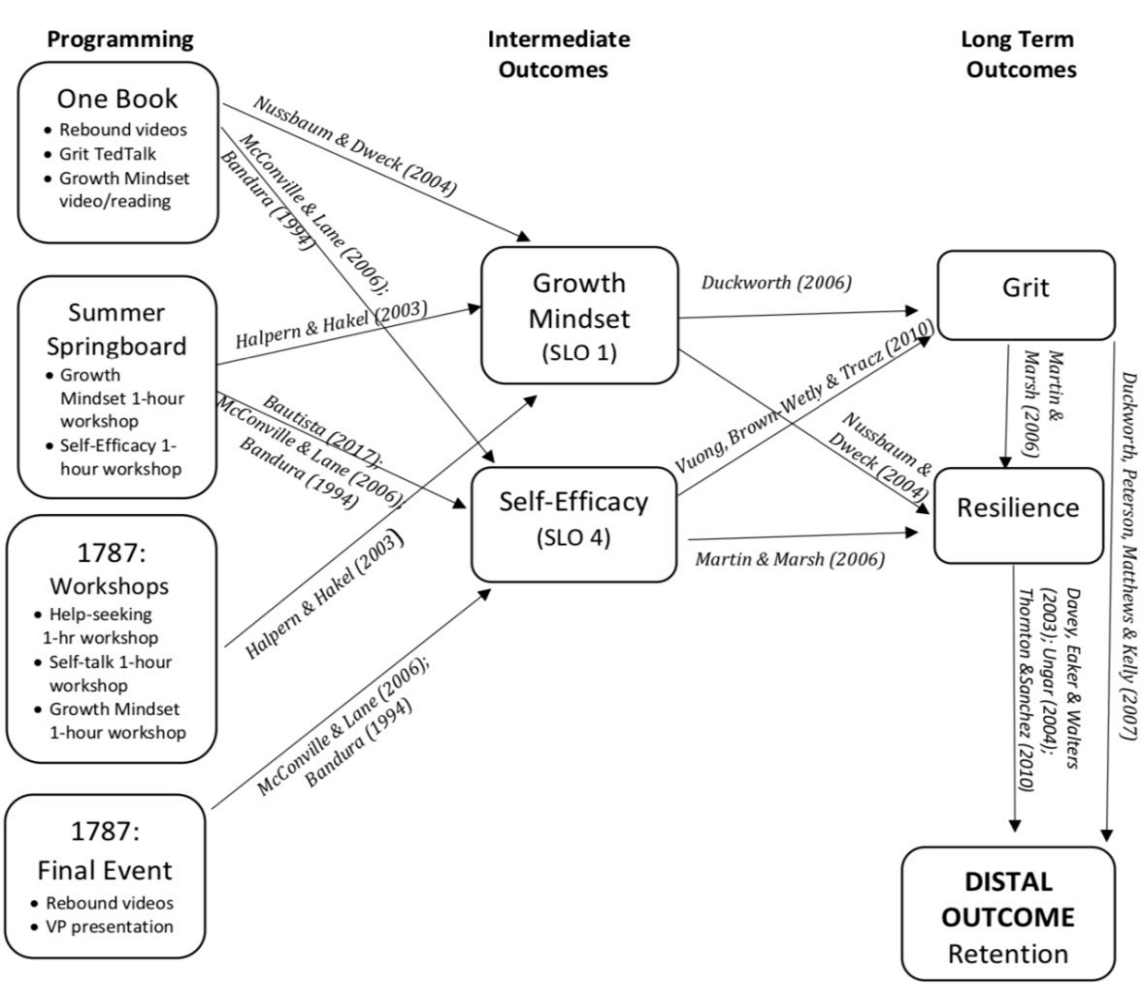
- Wise Interventions

Individual Studies

- Search for & evaluate individual studies collectively to conclude program effectiveness

- Journals that publish peer-reviewed studies

Logic Model: Retention



Academic Success Program: Original Programming

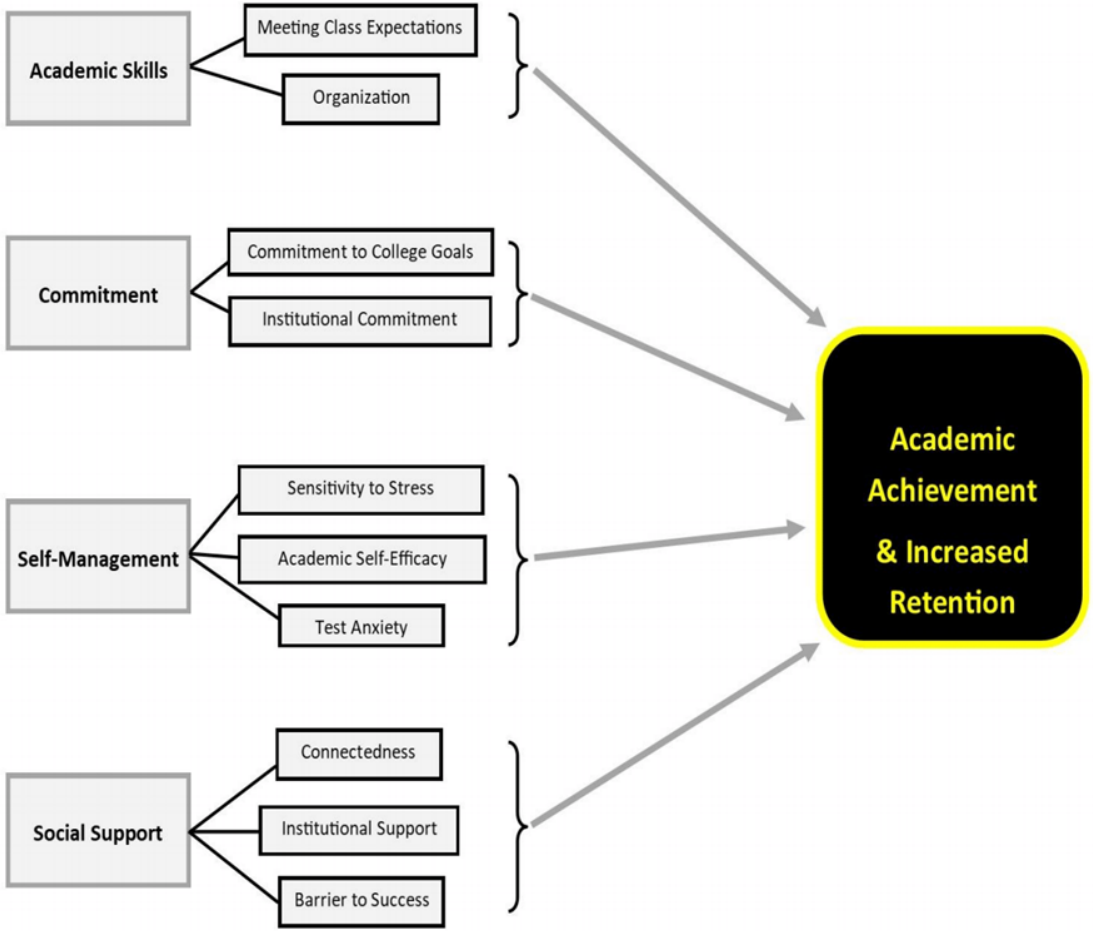
Engage in Resource scavenger hunts
Develop a schedule
Create a presentation
Attend Writing Workshop
Develop professor relationship

Increase GPA to 2.0/Retention

Does this Articulate Program Theory?

Think about our questions…

- ❑ What programs can you create to foster learning & development?
- ❑ **Why** should this programming impact your intended outcomes?
- ❑ What **evidence** supports the effectiveness of the programming?
- ❑ For **whom** is this programming effective?
  - ❑ Should this programming be effective for all students? Why?



List of Research

Burrus, J., Elliott, D., Brenneman, M., Markle, R., Carney, L., Moore, G., Betancourt, A., Jackson, T., Robbins, S. B., Kyllonen, P. C., & Roberts, R. D. (in press). *Putting and keeping students on track: Towards a comprehensive model of persistence and goal attainment.* Educational Testing Service Research Report. Princeton, NJ: Educational Testing Service.

Habley, W., Bloom, J., & Robbins, S. (2012). *Increasing persistence: Research-based strategies for college success*. Jossey-Bass: San Francisco, CA.

Casillas, A., Robbins, S., Allen, J., Kuo,Y., Hanson, M. A., & Schmeiser, C. (2012). Predicting early academic failure in high school from prior academic achievement, psychosocial characteristics, and behavior. *Journal of Educational Psychology, 104*(2), 407–420.

Porchea, S., Allen, J., Robbins, S., & Phelps, R. (2010). Predictors of long-term enrollment and degree outcomes for community college students: Integrating academic, psychosocial, socio-demographic, and situational factors. *Journal of Higher Education, 81*(6), 750–778.

Robbins, S., Oh, I., Le, H., & Button, C. (2009). Intervention effects on college performance and retention, mediated by motivational, emotional, and social control factors: Integrated meta-analytic path analyses. *Journal of Applied Psychology, 94*(5), 1163–1184.

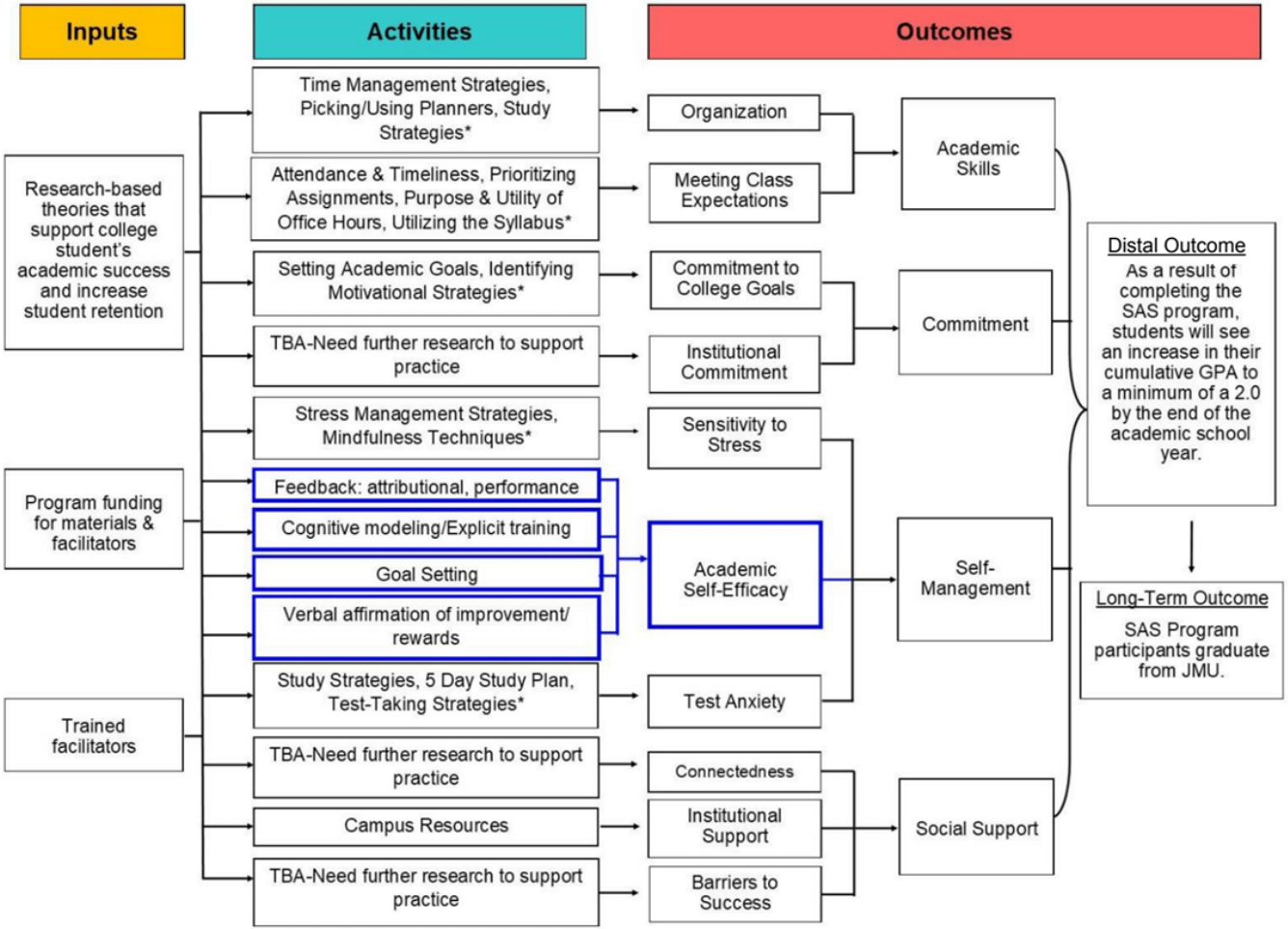
Robbins, S., Allen, J., Casillas, A., Akamigbo, A., Saltonstall, M., Cole, R., Mahoney, E., & Gore, P. (2009). Associations of resource and service utilization, risk level, and college outcomes. *Research in Higher Education, 50*(1), 101–118.

Allen, J., Robbins, S., Casillas, A., & Oh, I. (2008) Third-year college retention and transfer: effects of academic performance, motivation, and social connectedness. *Research in Higher Education, 49*(7), 647–664.

Robbins, S., Allen, J., Casillas, A., Peterson, C., & Le, H. (2006). Unraveling the differential effects of motivational and skills, social, and self-management measures from traditional predictors of college outcomes. *Journal of Educational Psychology*, 98, 598–616.

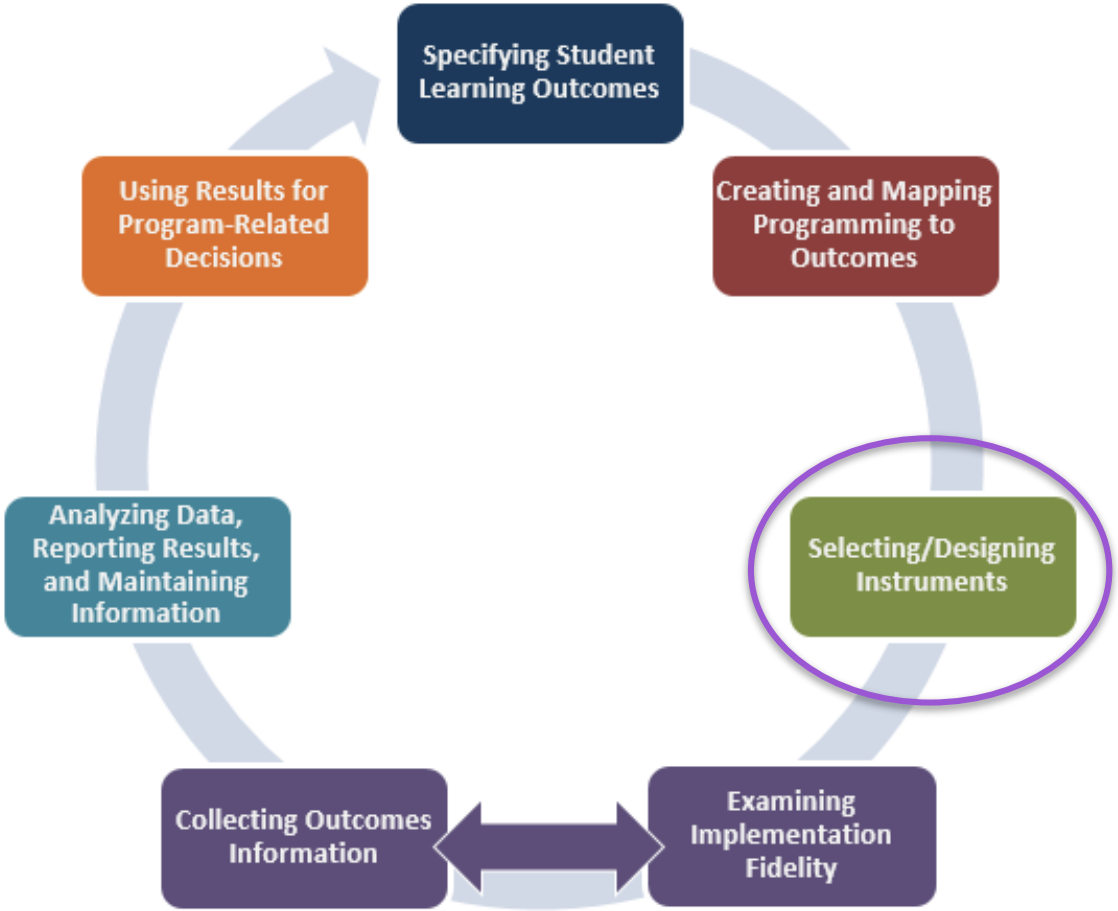
Robbins, S., Lauver, K., Le, H., Langley, R., Davis, D., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, 130, 261–288.

< Back to Research


Inputs
Activities
Outcomes
Research-based theories that support college student's academic success and increase student retention
Program funding for materials & facilitators
Trained facilitators
Time Management Strategies, Picking/Using Planners, Study Strategies*
Attendance & Timeliness, Prioritizing Assignments, Purpose & Utility of Office Hours, Utilizing the Syllabus*
Setting Academic Goals, Identifying Motivational Strategies*
TBA-Need further research to support practice
Stress Management Strategies, Mindfulness Techniques*
Feedback: attributional, performance
Cognitive modeling/Explicit training
Goal Setting
Verbal affirmation of improvement/ rewards
Study Strategies, 5 Day Study Plan, Test-Taking Strategies*
TBA-Need further research to support practice
Campus Resources
TBA-Need further research to support practice
Organization
Meeting Class Expectations
Commitment to College Goals
Institutional Commitment
Sensitivity to Stress
Academic Self-Efficacy
Test Anxiety
Connectedness
Institutional Support
Barriers to Success
Academic Skills
Commitment
Self-Management
Social Support
Distal Outcome
As a result of completing the SAS program, students will see an increase in their cumulative GPA to a minimum of a 2.0 by the end of the academic school year.
Long-Term Outcome
SAS Program participants graduate from JMU.

Resources

- SASS Webpage: Program Creation & Mapping—Articulating Program Theory
- Evidence-Based Programming - what is credible evidence? What is the best available evidence? Where to find it?
- Article: The Essential Role of Program Theory: Fostering Theory-Driven Practice and High-Quality Outcomes Assessment in Student Affairs (Pope, Finney & Bare, 2019)
- Video: Program Theory
- Article: A more efficient path to learning improvement: Using repositories of effectiveness studies to guide evidence-informed programming (Finney & Buchanan, 2021)
- Video Mapping Objectives to Program Components
- Video Aligning Programming/Curriculum with Objectives



Selecting or Designing Measures

Selecting/Designing Instruments

Ask yourself:

As an educator, how would you measure the student learning and development outcomes?

Follow up questions:

- What evidence exists that the measure will accurately reflect the intended outcome?
- How does the measure function for different groups of students?
- Should you select an existing measure or design one from scratch?
  - What are the pros and cons of each option?
- What evidence exists that the measure produces reliable scores & fosters valid inferences?

Types of Measures

Cognitive Measures

Assess ***knowledge*** or ***reasoning***

Example: (Advising program) How many credits do students need to graduate?

a. 100
b. 120
c. 140

Attitudinal Measures

Assess ***attitudes***, ***beliefs***, ***values***, or ***preferences***

Example: (Orientation program) On a scale of 1-5 please indicate your level of agreement with the following statement: I feel a sense of belonging at JMU

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

Performance Measures

Assess ***products*** or ***performance***

Example: (Learning center) JMU Writing Rubric - Purpose

1 - Beginning	2 - Developing	3 - Competent	4 - Advanced
➢Inappropriate for the audience, or intended audience unclear	➢Occasionally appropriate for the audience or intended audience somewhat clear	➢Mostly appropriate for a defined audience	➢Clearly appropriate for a well defined audience

What Type of Measure to Use

Student Learning Outcome	Appropriate Assessment	Inappropriate Assessment
Students will **create** a plan to contribute to the campus community.	Performance assessment (e.g. paper); scored as complete/incomplete or examined for quality using a rubric.	Multiple choice, Likert-type scales, etc.

What Type of Measure to Use

Student Learning Outcome	Appropriate Assessment	Inappropriate Assessment
Students will **list** three ways they will contribute to the campus community.	Open-ended question; could be scored as correct/incorrect or partial credit.	Multiple choice, Likert-type scales, etc.

What Type of Measure to Use

Student Learning Outcome	Appropriate Assessment	Inappropriate Assessment
Students will **report** an increase in the sense of belonging to the campus community.	Likert-type scale using at least a pretest and posttest. Must find or create appropriate scale.	Multiple choice, performance assessment, etc.

What Type of Measure to Use

Student Learning Outcome	Appropriate Assessment	Inappropriate Assessment
Students will **create** a plan to contribute to the campus community.	Performance assessment (e.g. paper); scored as complete/incomplete or examined for quality using a rubric.	Multiple choice, Likert-type scales, etc.
Students will **list** three ways they will contribute to the campus community.	Open-ended question; could be scored as correct/incorrect or partial credit.	Multiple choice, Likert-type scales, etc.
Students will **report** an increase in the sense of belonging to the campus community.	Likert-type scale using at least a pretest and posttest. Must find or create appropriate scale.	Multiple choice, performance assessment, etc.

Practice 1

As a result of completing the Strategies for Academic Success (SAS) Program, students will…

Be able to *list* 3 general class expectations that promote academic success.

What type of assessment is most appropriate here?

Practice 1

As a result of completing the Strategies for Academic Success (SAS) Program, students will…

Be able to *list* 3 general class expectations that promote academic success.

Appropriate Assessment	Inappropriate Assessment
Open-ended question; could be scored as correct/incorrect or partial credit.	Multiple choice, Likert-type scales, etc.

Practice 2

As a result of completing the Strategies for Academic Success (SAS) Program, students will…

Report an *increase* in academic self-efficacy.

What type of assessment is most appropriate here?

Practice 2

As a result of completing the Strategies for Academic Success (SAS) Program, students will…

Report an *increase* in academic self-efficacy.

Appropriate Assessment	Inappropriate Assessment
Likert-type scale/multiple choice using at least a pretest and posttest. Must find or create an appropriate scale.	Performance assessment, open-ended assessment, etc.

Practice 3

As a result of completing the Strategies for Academic Success (SAS) Program, students will…

***Facilitate* a restorative justice circle**

What type of assessment is most appropriate here?

Practice 3

As a result of completing the Strategies for Academic Success (SAS) Program, students will…

***Facilitate* a restorative justice circle.**

Appropriate Assessment	Inappropriate Assessment
Performance assessment (e.g. paper); scored as complete/incomplete or examined for quality using a rubric.	Multiple choice, Likert-type scales, etc.

Direct vs. Indirect Measures

Direct Measures	Indirect Measures
Measures that require students to actually display the outcomes we are interested in measuring	Do not require students to display the outcomes being measured but instead rely on indirect evidence to infer that students met the outcome
Ex. A writing assignment meant to assess writing skills	**Ex.** A self-report survey where students are asked to indicate whether they believe they've mastered various writing skills

Direct vs. Indirect Measures cont.

There is no such thing as a 100% direct measure

An instrument's "directness" is better conceived along a continuum ranging from relatively more direct to relatively less direct

Measures that are more direct are always preferable to those that are less direct

Direct vs. Indirect Measures cont.

It is important to note that the directness of an instrument depends on ***what is being measured***

Direct	Indirect	Direct
If we wanted to **measure** students' critical thinking skills and give them an assignment asking them to utilize those skills	If we wanted to **measure** students' critical thinking skills and ask them to indicate their beliefs about how good they think they are at critical thinking	If we wanted to **measure** students' ***beliefs*** about their critical thinking skills and we give them a self-report measure about their critical thinking skills

Direct vs. Indirect Exercise

SLO

After attending a program by SOGIE, students will be better able to advocate for equity for all students

Measure

A rubric used to score response during an interview where students are asked to describe how they would advocate for equity and inclusion given a particular scenario

Are these measures direct or indirect?

Direct

Direct vs. Indirect Exercise

SLO

After attending first-year orientation, first-years will be able to explain the 6 values of JMU

Measure

Students are sent a survey with an open-ended question asking if they felt orientation helped them learn the 6 values

Are these measures direct or indirect?

Indirect

Direct vs. Indirect Exercise

SLO

After attending a training by the OSARP, students will be able to identify different safe alcohol consumption strategies

Measure

Students complete a multiple choice test asking them to correctly identify different alcohol consumption strategies given particular scenarios

Are these measures direct or indirect?

Direct

Direct vs. Indirect Exercise

SLO

After attending an informational session about diversity, equity, and inclusion, on-campus students will feel empowered to create an inclusive environment within their dorms

Measure

Students will complete a scored quiz assessing their knowledge related to DEI changes made by the university within the past 5 years

Are these measures direct or indirect?

Indirect

To Design or Select

Designing	
Pros	Cons
❖Outcome-measure alignment	❖Lengthy process ❖Resource-intensive ❖Limited comparisons

Selecting	
Pros	Cons
❖Test construction work is done! ❖Achievable comparisons	❖Less outcome-measure alignment ❖Difficulty finding high-quality measures

To Design or Select

Designing		Selecting	
Pros	Cons	Pros	Cons
❖Outcome-measure alignment	❖Lengthy process ❖Resource-intensive ❖Limited comparisons	❖Test construction work is done! ❖Achievable comparisons	❖Less outcome-measure alignment ❖Difficulty finding high-quality measures

- ❖ Extensive literature review
- ❖ Item writing

To Design or Select

Designing

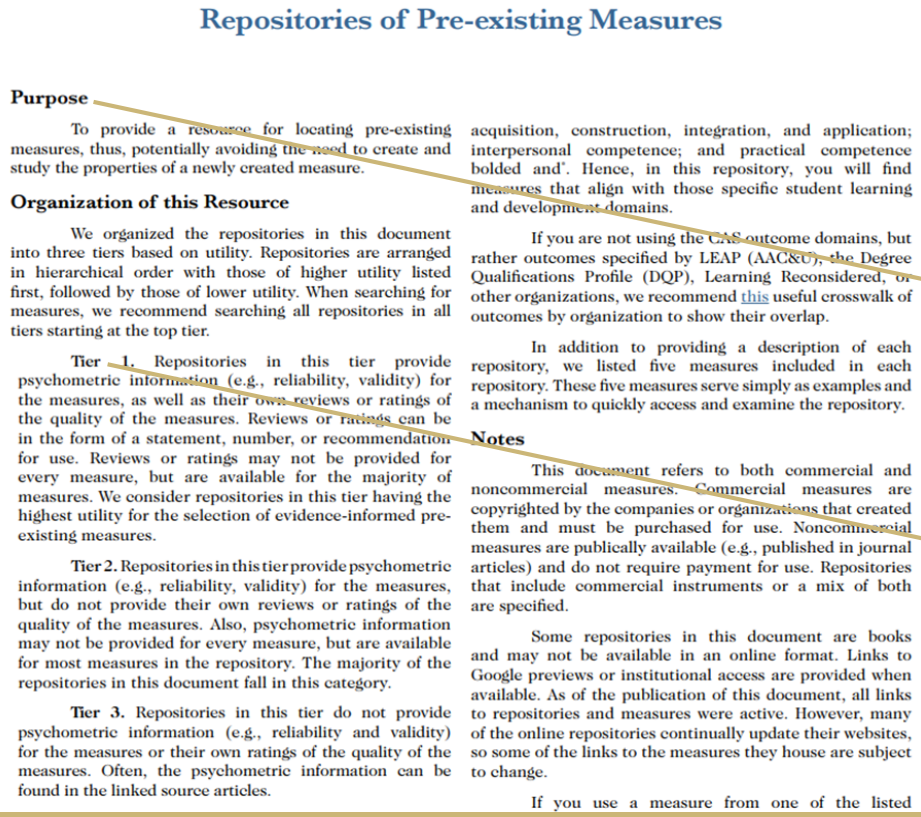
Pros	Cons
❖Outcome-measure alignment	❖Lengthy process ❖Resource-intensive ❖Limited comparisons

Selecting

Pros	Cons
❖Test construction	❖Less outcome-gnment inding

Reliability & validity evidence
- ❖ Expert review of items
- ❖ Data collection & analysis
- ❖ Removing/rewriting items

Finding Pre-existing Measures



Repositories of Pre-existing Measures

Purpose

To provide a resource for locating pre-existing measures, thus, potentially avoiding the need to create and study the properties of a newly created measure.

Organization of this Resource

We organized the repositories in this document into three tiers based on utility. Repositories are arranged in hierarchical order with those of higher utility listed first, followed by those of lower utility. When searching for measures, we recommend searching all repositories in all tiers starting at the top tier.

Tier 1. Repositories in this tier provide psychometric information (e.g., reliability, validity) for the measures, as well as their own reviews or ratings of the quality of the measures. Reviews or ratings can be in the form of a statement, number, or recommendation for use. Reviews or ratings may not be provided for every measure, but are available for the majority of measures. We consider repositories in this tier having the highest utility for the selection of evidence-informed pre-existing measures.

Tier 2. Repositories in this tier provide psychometric information (e.g., reliability, validity) for the measures, but do not provide their own reviews or ratings of the quality of the measures. Also, psychometric information may not be provided for every measure, but are available for most measures in the repository. The majority of the repositories in this document fall in this category.

Tier 3. Repositories in this tier do not provide psychometric information (e.g., reliability and validity) for the measures or their own ratings of the quality of the measures. Often, the psychometric information can be found in the linked source articles.

acquisition, construction, integration, and application; interpersonal competence; and practical competence bolded and'. Hence, in this repository, you will find measures that align with those specific student learning and development domains.

If you are not using the CAS outcome domains, but rather outcomes specified by LEAP (AAC&U), the Degree Qualifications Profile (DQP), Learning Reconsidered, or other organizations, we recommend this useful crosswalk of outcomes by organization to show their overlap.

In addition to providing a description of each repository, we listed five measures included in each repository. These five measures serve simply as examples and a mechanism to quickly access and examine the repository.

Notes

This document refers to both commercial and noncommercial measures. Commercial measures are copyrighted by the companies or organizations that created them and must be purchased for use. Noncommercial measures are publically available (e.g., published in journal articles) and do not require payment for use. Repositories that include commercial instruments or a mix of both are specified.

Some repositories in this document are books and may not be available in an online format. Links to Google previews or institutional access are provided when available. As of the publication of this document, all links to repositories and measures were active. However, many of the online repositories continually update their websites, so some of the links to the measures they house are subject to change.

If you use a measure from one of the listed

[Repositories of Pre-Existing Measures]

To provide a resource for locating pre-existing measures, thus, potentially avoiding the need to create and study the properties of a newly created measure

How to use the resource step-by-step:

Video: [Navigating the Repositories of Existing Measures Resource]

Resources

- **SASS webpage:** Instrument Selection & Design
- **Article:** "What's a good measure of that outcome?" Resources to find existing and psychometrically-sound measures (Finney, Gilmore, & Alahmadi, 2021)
- **Video:** Selecting/Designing Instruments
- **Handout:** Overview of Selecting/Designing Instruments
- **Handout:** Comprehensive Guide to Selecting and Designing Instruments
- **Slides:** Overview of Writing Instrument Items
- **Slides:** Item Writing Workshop
- **Video:** Designing and Using Rubrics

Examining Implementation Fidelity

What is Implementation Fidelity?

The extent to which the program is *actually* implemented as intended

A well-built, evidence-based program should be implemented as planned

- If it is not implemented as planned, the results will **not** be reflective of the effectiveness of the planned program

We tend to assume our programs are implemented with *high fidelity*

Examining Implementation Fidelity

Ask yourself:

What evidence would you, the curriculum designer, gather to describe the programming the students actually experienced?

Follow up questions:

- **How** is the designed programming being implemented?
- **How** aligned is the designed programming with the implemented programming?
- Are all students being reached as intended? **Which** students were fully engaged in the programming and which were not?
- **Which** parts of your designed programming were implemented well? **Which** were not? **Why**?

Checklist

Student Learning Objective	Components	Features
As a result of completing the 2-hour SimU workshop on outcomes assessment, participants will be able to list the seven steps of the assessment cycle	Two assessment specialists will present and lead activities on the assessment cycle	Present steps of the assessment cycle
		Explain components of the assessment cycle
		Participants complete activities related to each step

- The purpose of the first section is to properly articulate our SLOs and identify program features that will facilitate mastery of each outcome

It doesn't always have to follow this model!

- The general rule of thumb is that we have an outcome that's mapped to a broad program component, and is subsequently linked to multiple specific program features

Checklist

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
As a result of completing the 2-hour SimU workshop on outcomes assessment, participants will be able to list the seven steps of the assessment cycle	Two assessment specialists will present and lead activities on the assessment cycle	Present steps of the assessment cycle					
		Explain components of the assessment cycle					
		Participants complete activities related to each step					

- Adherence is the most basic information that we want to add to our checklist
- This is just simply: was the program delivered or not?
- This is just a yes or no question!

Checklist

Student	Components	Features	Adherence	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
				30 minutes			
				45 minutes			
		step		45 minutes			

- Exposure refers to whether or not students were fully exposed to the program
- We list how long each program feature is **expected** to take
- Then, record how long it **ACTUALLY** takes when the program is implemented

Checklist

Student	Components	Features	Adherence	Exposure		Quality (1-3)	Responsiveness (1-3)
		step					

Basically: how well was this program feature delivered?

- Evaluators of this component are trained to judge a lot of different qualities like: **clarity**, **conciseness**, **charisma**, **facilitation skills**, etc. So, quality can be operationalized many different ways!
- Quality is rated on a scale of 1 (low quality) to 3 (high quality)

Checklist

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned	Actual Time		
assessment cycle		activities related to each step					

- All of the other components of the checklist are focused on the program facilitators and on the development phase
- The responsiveness rating captures the degree to which students are **engaged** or **actively participating**
- Responsiveness is rated on a scale of 1 (low engagement) to 3 (high engagement)

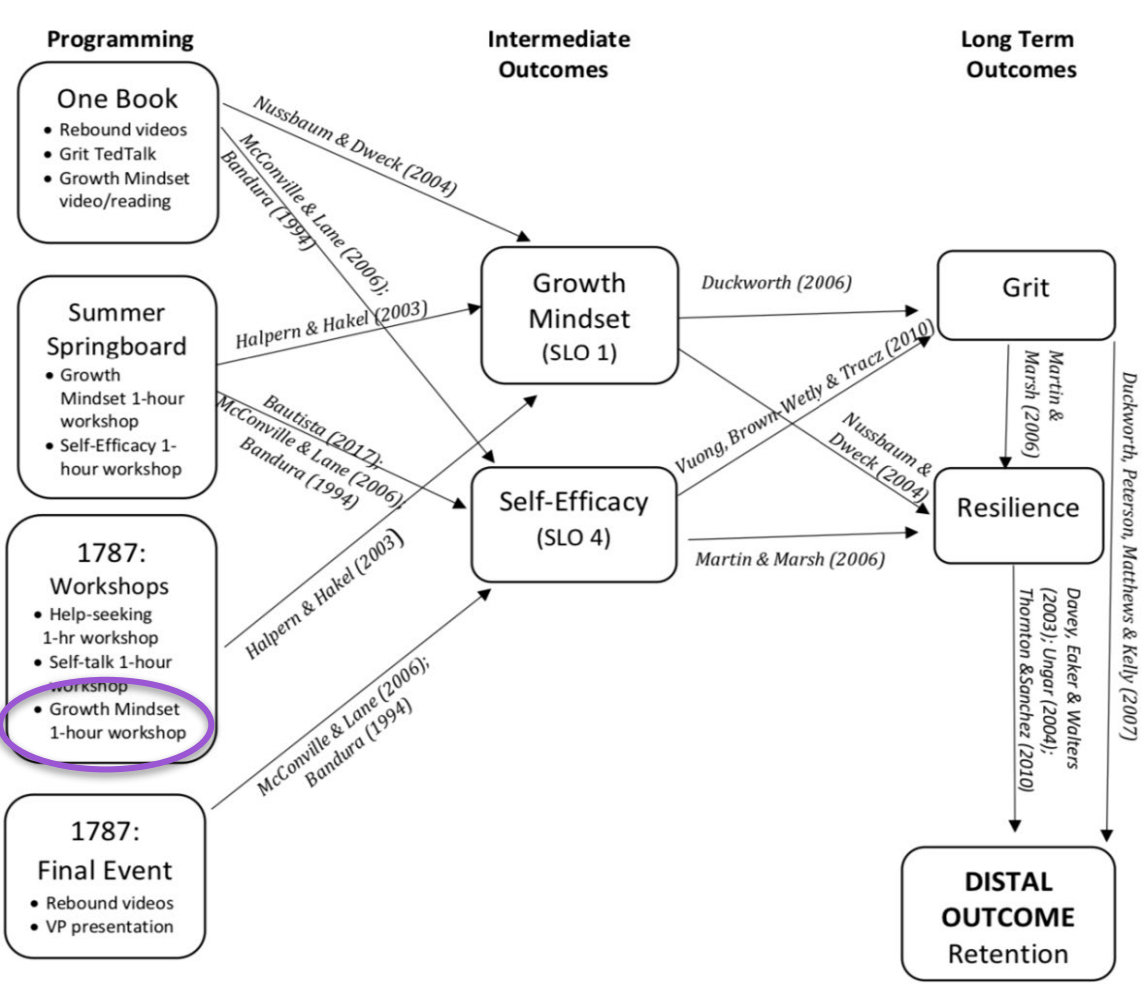
Checklist Activity

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
As a result of completing the 2-hour SimU workshop on outcomes assessment, participants will be able to list the seven steps of the assessment cycle	Two assessment specialists will present and lead activities on the assessment cycle	Present steps of the assessment cycle	yes	30 minutes	20 minutes	1	1
		Explain components of the assessment cycle	yes	45 minutes	45 minutes	3	3
		Participants complete activities related to each step	no	45 minutes			

Checklist Activity

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
As a result of completing the 2-hour SimU workshop on outcomes assessment, participants will be able to list the seven steps of the assessment cycle	Two assessment specialists will present and lead activities on the assessment cycle	Present steps of the assessment cycle	yes	30 minutes	20 minutes	1	1
		Explain components of the assessment cycle	yes	45 minutes	45 minutes	3	3
		Participants complete activities related to each step	no	45 minutes			

Logic Model: Retention



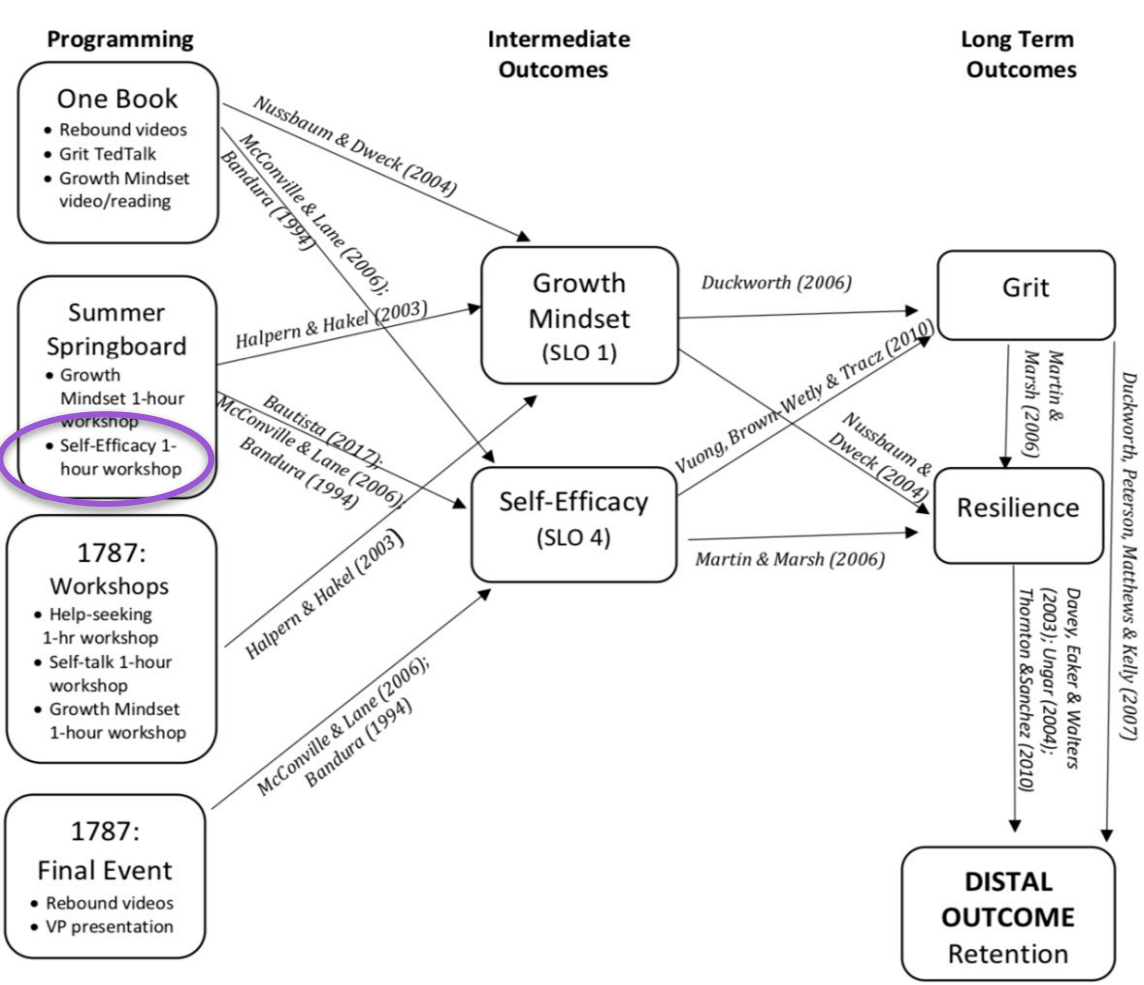
1787 Workshop Checklist

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
As a result of completing a 1787 workshop on growth mindsets, students will employ strategies that will help maintain a growth mindset in their academic career	Facilitator will present students with information on growth mindsets and strategies to maintain them. There will also be a resources and questions portion towards the end of the workshop	Present qualities of a growth mindset		25 minutes			
		Explain strategies to help grow your growth mindset		25 minutes			
		Provide resources for students and have time for overall questions		10 minutes			

1787 Workshop Checklist

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
As a result of completing a 1787 workshop on growth mindsets, students will employ strategies that will help maintain a growth mindset in their academic career	Facilitator will present students with information on growth mindsets and strategies to maintain them. There will also be a resources and questions portion towards the end of the workshop	Present qualities of a growth mindset	yes	25 minutes	25 minutes	3	3
		Explain strategies to help grow your growth mindset	yes	25 minutes	23 minutes	2	2
		Provide resources for students and have time for overall questions	yes	10 minutes	12 minutes	3	3

Logic Model: Retention



Summer Springboard Workshop Checklist

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
After attending a Summer Springboard workshop on self-efficacy, students will be able to explain the four sources of self-efficacy to others	Facilitators will present and lead a discussion about self-efficacy to students. There will be a group activity at the end where the students can practice their ability to share their knowledge on self-efficacy with others	Present the four sources of self-efficacy with one activity associated with each		40 minutes			
		Students will be separated into groups and practice explaining the four sources of self-efficacy to each other		20 minutes			

Summer Springboard Workshop Checklist

Student Learning Objective	Components	Features	Adherence (yes/no)	Exposure		Quality (1-3)	Responsiveness (1-3)
				Planned Time	Actual Time		
After attending a Summer Springboard workshop on self-efficacy, students will be able to explain the four sources of self-efficacy to others	Facilitators will present and lead a discussion about self-efficacy to students. There will be a group activity at the end where the students can practice their ability to share their knowledge on self-efficacy with others	Present the four sources of self-efficacy with one activity associated with each	yes	40 minutes	30 minutes	2	2
		Students will be separated into groups and practice explaining the four sources of self-efficacy to each other	yes	20 minutes	30 minutes	3	3

Resources

- **SASS Webpage:** Implementation Fidelity
- **Video:** Evaluating Implementation Fidelity
- **Video:** Introduction to Implementation Fidelity
- **Webinar:** Using Implementation Fidelity Data to Evaluate and Improve Program Effectiveness
- **Slides:** Implementation Fidelity Workshop with an Applied Example
- **Article:** Measuring Implementation Fidelity
- **Article:** Importance of Implementation Fidelity
- **Article:** Ignorance is Not Bliss: Implementation Fidelity and Learning Improvement

Collecting Outcomes Data

Collecting Outcomes Data

Ask yourself:

How and **when** would you collect outcomes data to best understand student learning and development?

Follow up questions:

How is the data being collected (e.g., pencil-and-paper, computer)?

Why is the data being collected at particular points in time?

How does the data collection design (e.g.,pretest and posttest, comparison group)align with the claims you hope to make about student outcomes and programming effectiveness?

Collecting Outcomes Data

Collecting outcomes data requires…

- Executing a data collection process that is appropriate to the type of inferences we want to make about the outcomes of interest

Data collection involves specifying:

- Which groups are being assessed (first-years, graduating students, etc.)
- Assessment timeline (pre-post, single-time point, etc.)
- Assessment format (interviews, test, etc.)

A well-designed data collection process is one that supports the interpretations we intend to make

Collecting Outcomes Data

SLO dictates type of data collection design

Student Learning Outcome	Appropriate Data Collection Design
After completing the Orientation program, first-year students will report an **increase** in their confidence to make course selections **than before** the Orientation program.	**Longitudinal design:** Data are collected from the same group(s) of students at more than one time point (e.g., before and again after the program). This design allows for inferences that imply change/development/improvement over the course of a program
After completing the Orientation program, first-year students will report a **higher** confidence in their ability to make course selections **than** students who **did not complete** the Orientation program.	**Cross-sectional design:** Data are collected from two different groups (e.g., one that experienced the program and another that didn't). This design allows for comparisons between groups.
After completing the Orientation program, first-year students will be able to list **4** academic resources on campus.	**Single group/single time-point design:** Data collected from one group at one time-point. This design allows for inferences about reaching a certain criteria (4 resources, 80% of the students, etc.) to indicate competency or meeting a benchmark.

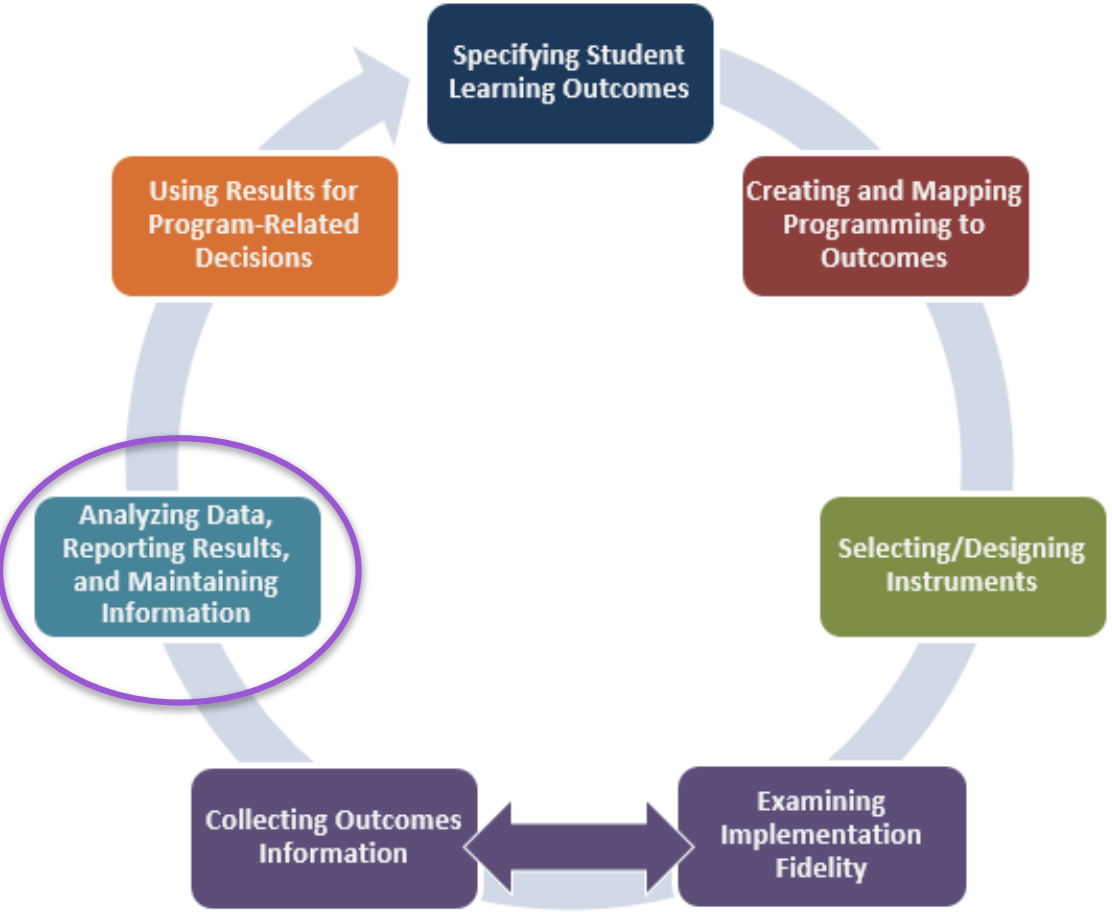
Data Collection Considerations

Data Analysis	The type of statistical analyses conducted depends on:	• Intended inferences
		• Data collection design
		  ○ e.g., repeated measures ttests -> longitudinal design
		• Type of variables
		  ○ e.g., categorical, continuous

Validity Threats	Several factors can threaten the validity of the inferences we make from assessment results	• Each data collection design protects against or is susceptible to different validity threats ○ e.g., maturation effect, selection bias, etc.

Resources:
Collecting Outcomes Information

- **SASS Webpage:** Data Collection & Analysis
- **Article:** The Credibility of Inferences from Program Effectiveness Studies Published in Student Affairs Journals: Potential Impact on Prog (Horst et al., 2021)
- **Video:** Collecting Data on Student Learning Outcomes



Analyzing Data, Reporting Results, and Maintaining Information

Analyzing Data, Reporting Results, & Maintaining Information

Ask yourself:

As an evidence-informed educator, how would you analyze student learning and development data and interpret the results?

Follow up questions:

What variables are you working with? **What** strategies should you use for analyzing your data?

How will you integrate implementation fidelity data and outcomes data?

To what extent can changes in student learning and development be attributed to the implemented program? Can you **make inferences** about program effectiveness given the data collected? **Why or why not**?

How will you report your results? **How** will you maintain your data?

Categorical vs. Continuous Variables

Variable Type	Definition	Examples
Categorical	Contains a finite number of categories or distinct group	Gender, ethnicity, major, educational level, enrollment status, participated/did not participate in programming
Continuous	Have an infinite number of values between any two values	GPA, test score totals, number of credit hours, time to complete a task, sense of belonging, sense of professional identity, openness to diversity

The type of variable determines which statistics should be estimated!

Analytic Strategies

Desired Inference	Example SLO	Example Analyses
Change/Growth	After completing the diversity educator course, students will score higher on the diversity awareness subscale than they did before the course	Repeated measures t-test and repeated measures analysis of variance (ANOVA)
Differences between Groups of Students (received programming vs. did not receive programming)	After participating in the diversity educator course, students will show higher levels of diversity awareness compared to students who did not participate in the course	Independent samples t-test, one-way between-subjects analysis of variance (ANOVA)
Competency	After completing the diversity educator course, students will be able to correctly answer at least 80% of the questions on the diversity awareness scale	Descriptive statistics (e.g., percentages)

Analytic Strategy Exercise

SLO

After participating in a community engagement program, students who participated will voluntarily engage in more hours of community service activities than students who did not participate in the program

Desired Inference	Example Analyses
Change/Growth	Repeated measures t-test and repeated measures analysis of variance (ANOVA)
Differences between Groups of Students (received programming vs. did not receive programming)	Independent samples t-test, one-way between-subjects analysis of variance (ANOVA)
Competency	Descriptive statistics (e.g., percentages)

Analytic Strategy Exercise

SLO

After attending a community engagement program, students' hours of community service engagement will increase in comparison to their hours before the program

Desired Inference	Example Analyses
Change/Growth	Repeated measures t-test and repeated measures analysis of variance (ANOVA)
Differences between Groups of Students (received programming vs. did not receive programming)	Independent samples t-test, one-way between-subjects analysis of variance (ANOVA)
Competency	Descriptive statistics (e.g., percentages)

Analytic Strategy Exercise

SLO

After attending one of two community engagement programs (e.g. new program or established program), students will have higher levels of community engagement in comparison to students who did not attend

Desired Inference	Example Analyses
Change/Growth	Repeated measures t-test and repeated measures analysis of variance (ANOVA)
Differences between Groups of Students (received programming vs. did not receive programming)	Independent samples t-test, one-way between-subjects analysis of variance (ANOVA)
Competency	Descriptive statistics (e.g., percentages)

Analytic Strategy Exercise

SLO

After attending a community engagement program, students will be able to score at least 85% on a quiz that tests their knowledge of community service opportunities provided by Community Service Learning

Desired Inference	Example Analyses
Change/Growth	Repeated measures t-test and repeated measures analysis of variance (ANOVA)
Differences between Groups of Students (received programming vs. did not receive programming)	Independent samples t-test, one-way between-subjects analysis of variance (ANOVA)
Competency	Descriptive statistics (e.g., percentages)

Analytic Strategy Exercise

SLO

After attending a community engagement program, students' knowledge of community service will increase throughout the program, be higher than students who did not attend, and they will score at least an 85% on a quiz that tests their knowledge of community service opportunities

Desired Inference	Example Analyses
Change/Growth	Repeated measures t-test and repeated measures analysis of variance (ANOVA)
Differences between Groups of Students (received programming vs. did not receive programming)	Independent samples t-test, one-way between-subjects analysis of variance (ANOVA)
Competency	Descriptive statistics (e.g., percentages)

Coupling Implementation Fidelity & Outcomes Data

Realities	Fidelity Assessment Results	Outcomes Assessment Results	Common Conclusions without Fidelity Data	More Accurate Inferences with Fidelity Data
1	High (+)	Good (+)	"Program" looks great!	Planned program may be effective
2	Low (-)	Poor (-)	"Program" is not working	**No** conclusions can be made about the planned program
3	High (+)	Poor (-)	"Program" is not working	Planned program is ineffective in meeting outcomes
4	Low (-)	Good (+)	"Program" looks great!	**No** conclusions can be made about the planned program

Coupling Implementation Fidelity & Outcomes Data cont.

Fidelity Results	Outcomes Results	Inferences that can be made from Paired Data
High (+)	Good (+)	Program was implemented as planned and the outcomes were met, thus the planned program may be effective. That is, the planned program may be contributing to meeting intended outcomes. Good news!
Low (-)	Poor (-)	No claims can be made about the planned program, because the planned program was *not* implemented. Moreover, the intended outcomes were not observed. A new study should be conducted with increased implementation fidelity to assess the effectiveness of the planned program. Do *not* claim the planned program was ineffective.
High (+)	Poor (-)	Program was implemented as planned, but the intended outcomes were not observed. Thus, low implementation fidelity can be ruled out as the reason for poor outcomes. Outcome assessment results should contribute to informed changes to the planned program by stakeholders.
Low (-)	Good (+)	Program was not implemented as planned. Thus, the planned program cannot be credited with contributing to students meeting the outcomes. One should *not* claim the planned program was effective.

How to Report Results

Repeated Measures *t*-test. (i.e., paired samples *t*-test) A statistical test used to compare average levels of an outcome variable from the same group of participants at two occasions (e.g., pretest, posttest), to determine if the groups' averages are statistically significantly different.

- Example Write-Up: A dependent samples *t*-test was conducted to evaluate change in students' hours of community engagement. The results indicated that students' hours of engagement before the program ($M = 5.25$) were statistically significantly lower than students' hours of engagement after the program $M = 9.00$, $t(99) = 4.97$, $p < .001$ (see Table 6 and Figure 4). Moreover, the 95% confidence interval of the difference in means [1.75, 5.25] indicates 0 is not a plausible difference in average hours. The effect size ($d = 0.45$) indicates students hours of engagement increased by 0.45 standard deviation units from before to after the program.

One-Way Repeated Measures ANOVA. A statistical test used to compare average levels of a variable across three or more different time points.

- Example Write-Up: A one-way repeated measures analysis of variance (ANOVA) was

- Reporting results can be tough!
- Never be afraid to reach out for support
- SASS has resources that can help…and we consult!

Documentation of Assessment Results: A Guide for Practitioners

Maintaining your Data

Properly maintaining data is crucial to data security and future data use!

Where will the data be stored?

How will the data be stored?

- Electronic data
- Physical data

- How will data analysis and maintenance processes be documented?
  - Data dictionary or codebook
  - Ensure there is a record of data analysis processes

Resources

- **Video:** Analyzing Student Learning Outcomes Data
- **Handout:** Documentation of Assessment Results: A Guide for Practitioners

Using Results for Program-Related Decisions

Using Results for Program-Related Decisions

Ask yourself:

As a designer of learning and development opportunities, how would you use the assessment results to improve your programming?

Follow up questions:

- To what extent do the results inform your understanding of program effectiveness?
- What evidence indicates implementation fidelity problems, suggesting more attention to instructor/facilitator training?
- How can assessment results be communicated in a way that is clear, concise, compelling, and useful?

Communicating Results Effectively

The primary goal when communicating assessment results is to encourage action!

Tell a meaningful story	• Tailor assessment results to your audience • Highlight interesting/unanticipated findings • Emphasize meaningful differences
Be clear, concise, and compelling	• Use data visualization techniques • Avoid jargon • Use numbers sparingly
Address critiques	• Document the quality of your assessment strategy • Acknowledge possible flaws

Using Results for Program-Related Decisions

Using results to make decisions for improvement requires a comprehensive review of critical aspects of the program & the assessment process itself.

If results are unfavorable, think about **what** to improve & **how** to improve it.

This requires evaluating:

- The quality of the measure(s) used
- The data collection design
- Program implementation fidelity

One of three conclusions can be drawn at this step:

1. Program is effective
2. Program is conditionally effective
3. Program is ineffective

Using Results for Program-Related Decisions

Ineffective

Implementation fidelity issues

- Re-train facilitators
- Adjust any timing issues
- Motivate students to stay engaged

Program theory issues

- Redo the research/select another well-studied theory
- Ensure all activities are aligned with theory

Insufficient exposure

- Request resources to lengthen the program
- Add additional interventions
- Ensure that all program resources are directed to specified outcomes (no resources are wasted)

Conditionally effective

Investigate when and for whom the program works (via surveys, focus groups, etc.)

Redo the research to find missed gaps and adjust program accordingly

Create additional programming for subpopulations overlooked initially

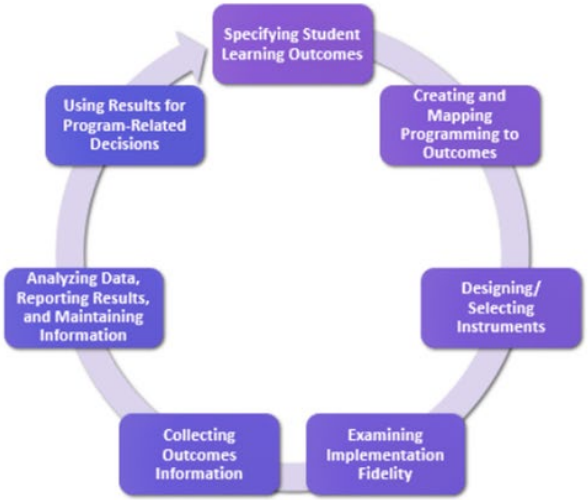
Effective

Expand the program

Apply for funding

Maintain the assessment process to monitor quality and continue improvement efforts

Change vs. Improvement

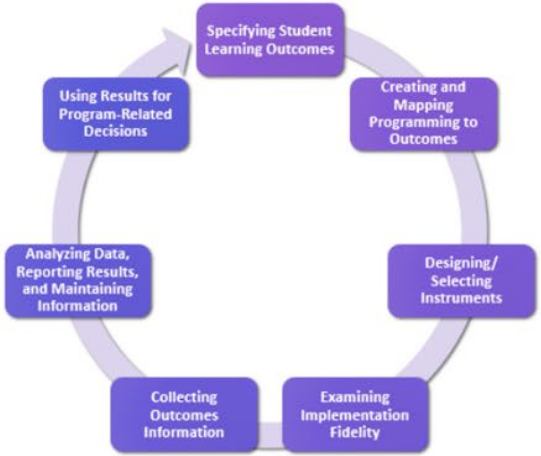


ASSESS **Intervene**

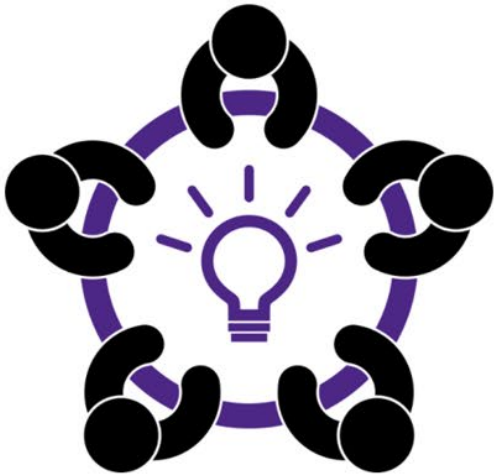
This in an example of a change. No improvements were made.

Learning Improvement

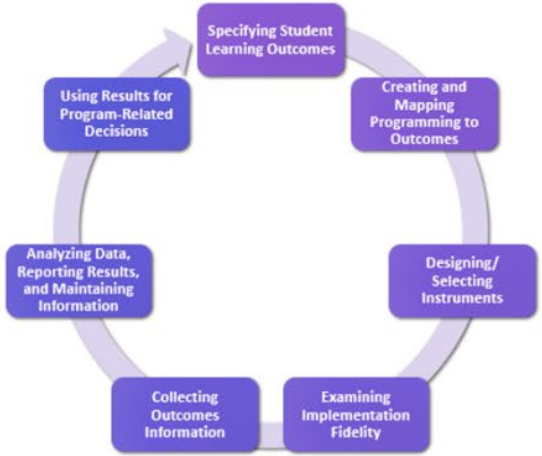
The ultimate goal of assessment is to **use** the results to make programmatic changes that aim to **improve** student learning and development



ASSESS



Intervene



RE-ASSESS

Resources

Using Results for Program-Related Decisions

- SASS Webpage: Reporting & Use of Assessment Results
- Video: Using Assessment Results
- Article: A Simple Model for Learning Improvement: Weigh Pig, Feed Pig, Weigh Pig (Fulcher, Good, Colemen & Smith, 2014)