UNIVERSITY of
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PROGRAM EVALUATION AND SCALE DEVELOPMENT: INSIGHTS FROM DEVELOPMENT OF ITMASEQ

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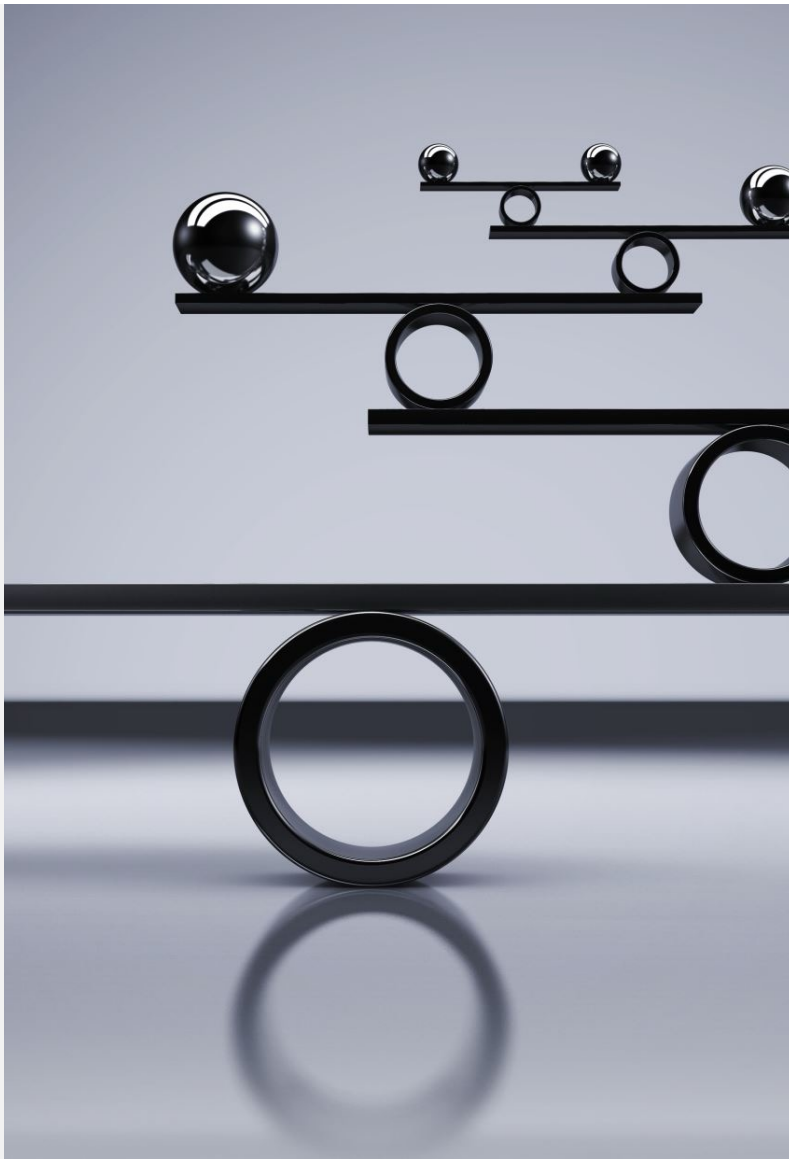
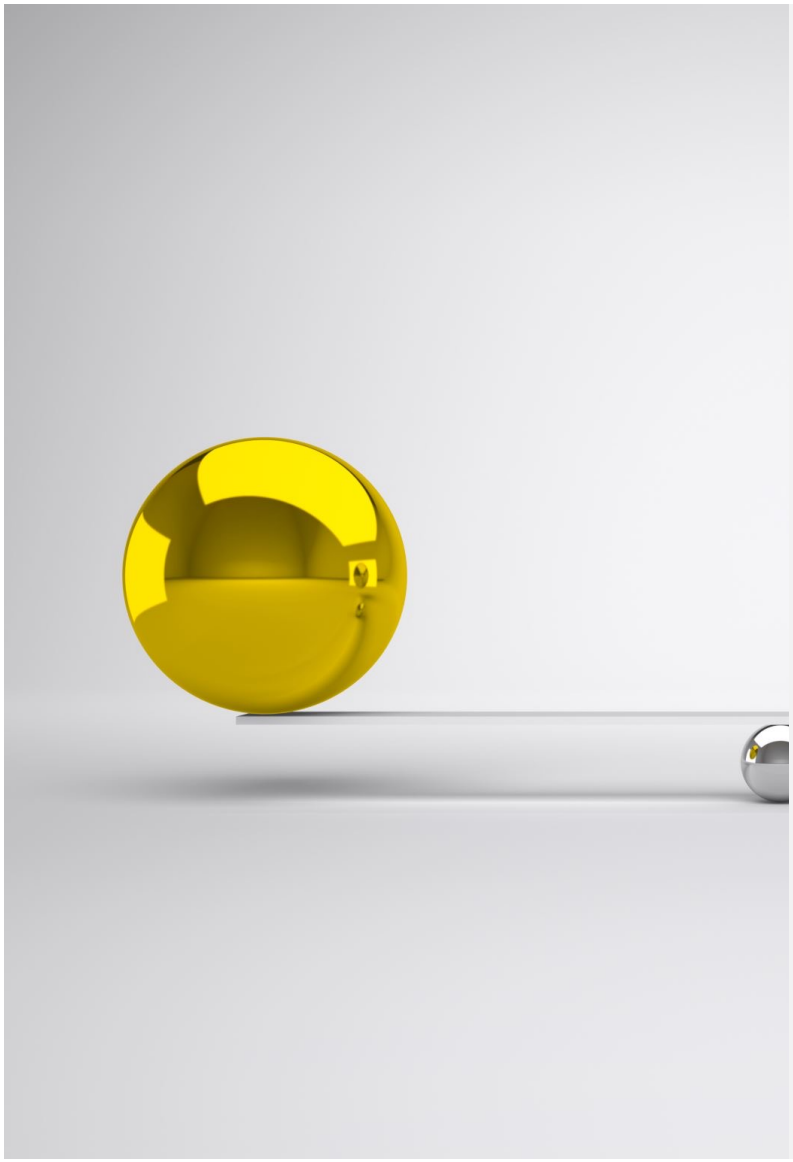
OUTLINE

- Introduction
- Key Steps in Scale Development
- Application of Scales in Evaluation
- Iterative Relationship
- Challenges and Considerations
- Conclusion



PROGRAM EVALUATION

- Definition: A systematic approach to assessing program design, implementation, and outcomes.
- Purpose: To inform decisions, improve program effectiveness, and ensure accountability



ROLE OF SCALE DEVELOPMENT IN PROGRAM EVALUATION

- Scales as tools: They provide quantifiable data for evaluating specific aspects of a program
- Importance: Reliable and valid scales enhance the accuracy of program evaluation.

SCALES AS TOOLS FOR PROGRAM EVALUATION

- Program evaluation often relies on scales to measure key outcomes, such as participant satisfaction, engagement, or behavioral change.
- Scales serve as a critical link between theory and practice

For example:

Education: A scale measuring student self-determination

Healthcare: A patient satisfaction scale

WHAT IS ITMASEQ?

- Stands for In-The-Moment Asynchronous Student Engagement Questionnaire
- Aims measuring undergraduate student engagement (emotional, cognitive, and behavioral) in asynchronous online learning environments by collecting in-the-moment learning engagement experiences (Experience Sampling Method) over time.
- Includes a total of 25 questions:

➢ **5 contextual questions** (*study day, primary activity, type of primary activity, study place and company),*

➢ **8 emotional engagement items** (*calm, anxious, focused, distracted, confident, confused, enjoyment, enjoyment-AI),*

➢ **7 cognitive engagement items** *(interest, mental effort, challenge, concentration, instruction clarity, interacting with a classmate(s) for promoting mental effort to learn, interacting with AI for promoting mental effort to learn),*

➢ **5 behavioral engagement items** *(persistence, taking notes/highlighting key points, following instructions, level of interaction with classmates to learn, level of interaction with AI to learn)*

KEY STEPS IN SCALE DEVELOPMENT

- **Stating the purpose of scale and defining the construct**

Construct for ITMASEQ: Asynchronous Student Learning Engagement

(Multidimensional Construct)

Definition: Refers to the degree of active participation and involvement that learners exhibit while interacting with course materials, peers, and instructors in an asynchronous online learning environment. It encompasses various dimensions, including behavioral, emotional, and cognitive engagement

Subconstructs: Emotional Engagement

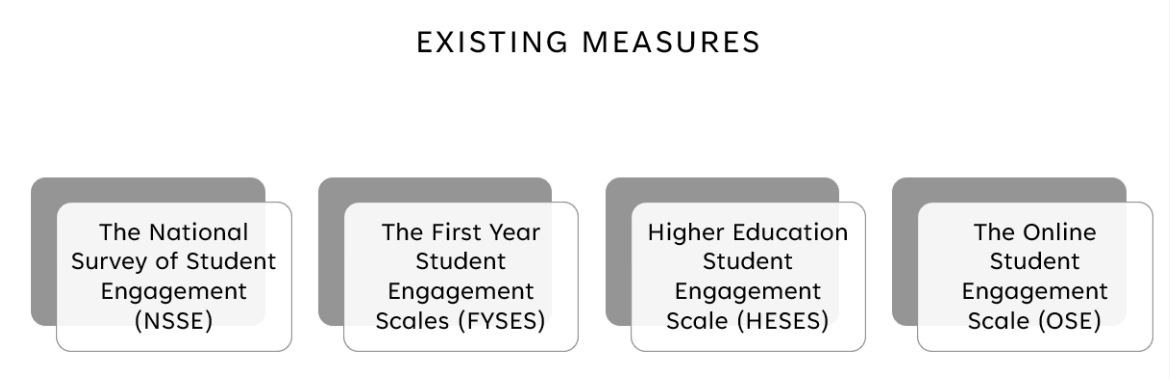
Cognitive Engagement

Behavioral Engagement

KEY STEPS IN SCALE DEVELOPMENT

- **<u>Determining whether a measure/scale already exists.</u>**

For ITMASEQ:



KEY STEPS IN SCALE DEVELOPMENT

- **<u>Determining the item format/generating items/conducting initial item review</u>**.
  - Extensive Literature Review
  - Expert Panels
  - Interviews with participants

ITMASEQ: Based on 5 point-scale (from 1-not at all to 5-extremely)
Initial item pool included 42 questions

Expert Panel Criteria=Clarity-Relevance-Fairness (4-point scale)

-1st Expert Panel: 27 questions

-2nd expert panel: 25 questions

Evidence Based on Text Content (Content Validity)

KEY STEPS IN SCALE DEVELOPMENT

- Conducting preliminary item try-outs/ pilot testing
- ➢ Identify Weaknesses
- ➢ Assess Feasibility
- ➢ Qualitative Feedback

-Continue for pilot testing as necessary

ITMASEQ: Two pilot studies were conducted with participants from USF College of Education

KEY STEPS IN SCALE DEVELOPMENT

- **<u>Conducting a large-scale field test (Validation Study):</u>**

➢ Reliability Testing: Assess the internal consistency to ensure that the items measure the same construct.

➢ Validity Testing: Verify that the scale accurately measures the intended construct

Statistical Process:

- Cronbach's alpha to evaluate reliability and identify problematic items.
- Factor Analysis: EFA and CFA
- EFA=Reveals the underlying dimensions or factors within a construct
- CFA=Tests whether the data fit a pre-specified model of factors based on theoretical assumptions or previous EFA results.

(Evidence Based on Internal Structure)

ITMASEQ: A validation study was conducted with participants from USF College of Education (8 weeks data collection).

CFA was applied for each dimension at each time point.

KEY STEPS IN SCALE DEVELOPMENT

- Prepare a guideline for administration.
  - Purpose of scale
  - Instructions
  - Data collection protocol
  - Response format
  - Response time
  - Ethical Considerations

APPLICATION OF SCALES IN EVALUATION

- Scales provide standardized metrics that allow for comparisons across individuals, groups, or time periods.
- They facilitate the measurement of program effectiveness, such as changes in student engagement, teacher satisfaction, or learning outcomes.
- Scales can also guide decision-making, helping stakeholders identify strengths and weaknesses in a program and prioritize improvements.

ITERATIVE RELATIONSHIP

Evaluation Guides Scales Development

Scales Development Enhances Evaluation

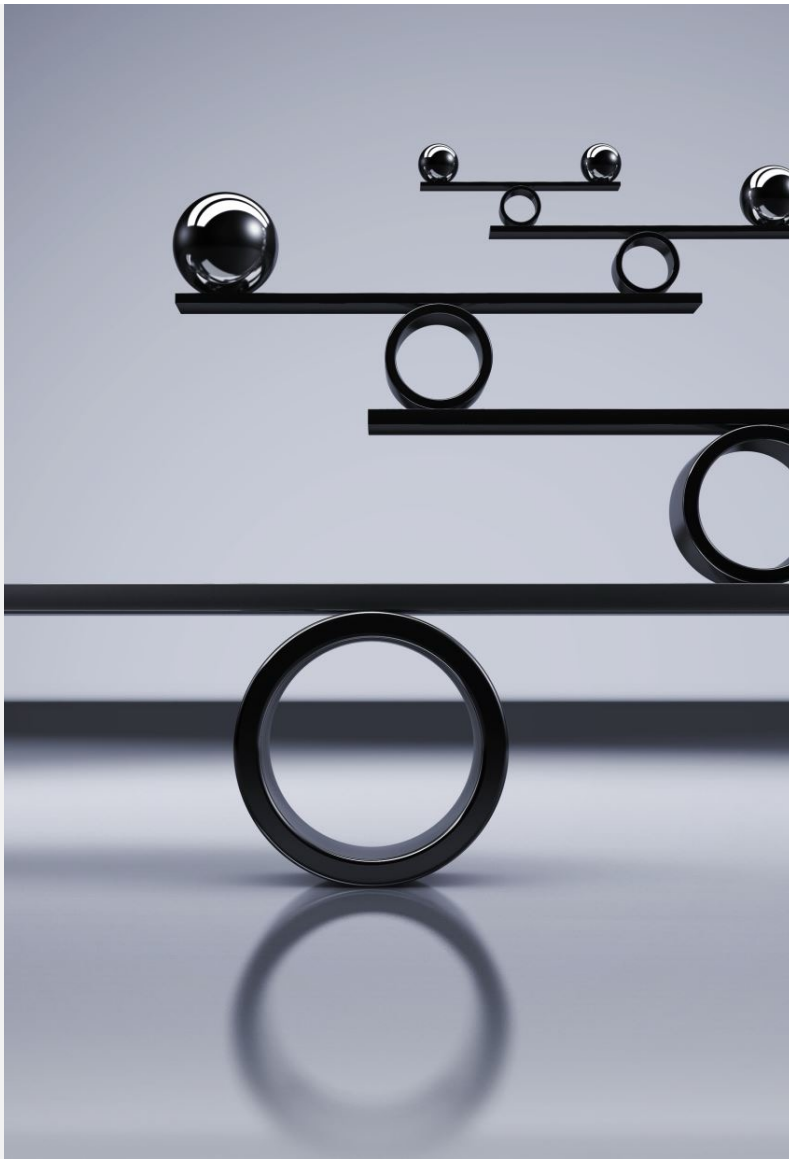
Continuous Cycle: This cycle repeats, ensuring the scale evolves to remain relevant, valid, and useful for ongoing evaluations.

CHALLENGES AND CONSIDERATIONS

- Alignment with theoretical frameworks
- Cultural and contextual relevance.
- Time and expertise.
- Balancing comprehensiveness
- Maintaining reliability and validity
- Continuous Refinement

CONCLUSION

- Scale development and program evaluation are mutually reinforcing processes.
- Evaluation provides the context and focus needed for developing relevant scales, while robust scales ensure evaluations are reliable, valid, and actionable.



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THANK YOU!

QUESTIONS?

- For your additional questions: elift@usf.edu