

Development & Analysis of the Researcher Identity Instrument (RIS)



The Four Building Blocks

Construct Map

4 Strands - Agency
Community
Fit & Aspiration
Self

Activity - 1. Literature Review
2. Focus

Groups

Items

Choice of open responses or
multiple choice Likert scale

Activity - 1. Create Items
2. Focus Group
3. Pilot Test
4. Exit Interviews

Outcome Space

Connect items to levels on the
construct map

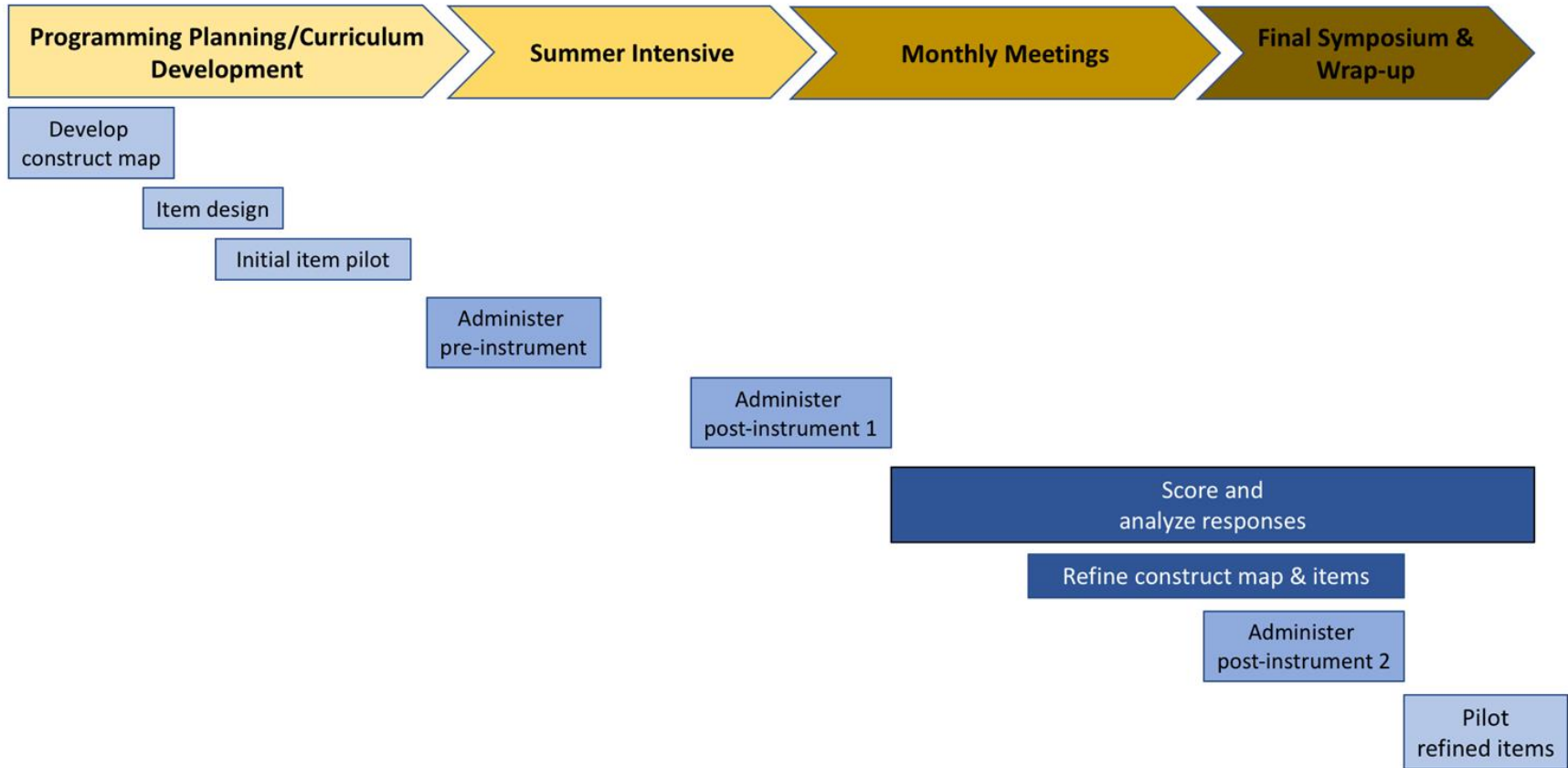
Activity - 1. Determine scoring
2. Score items

Measurement Model

Make inferences, interpretations
about items as well as
respondents

Activity - 1. Data Analysis
2. Reporting
3. Validity, reliability,
& fairness

Integrating evaluation with programming



CONSTRUCT MAP: Researcher Identity

A “researcher” is defined as someone who conducts an organized and systematic investigation on a topic or question related to a scientific field.

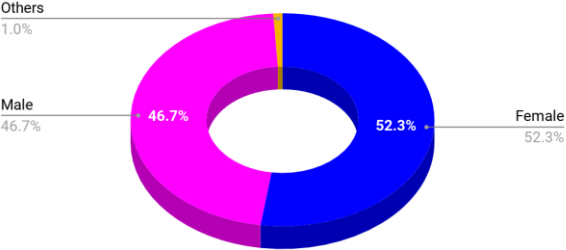
Title of Level	Description
Secure Identity or Integration of Identity	Student identifies as researcher and integrates this into their larger self
Comfortable with Identity	Student begins to feel comfortable with their identity as a researcher
Role Exploration	Student explores the different aspects of research
Curious Identity	Student is a newcomer to the concept of research.
Absent	Student is unaware of what research entails and has not considered their role in research.

Instrument: Items & Outcome Space

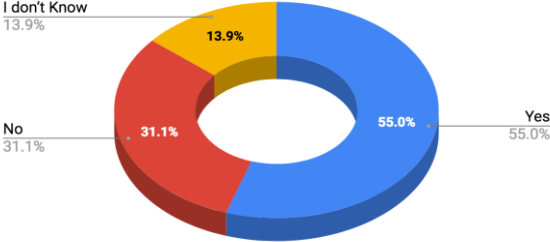
- Electronic survey administration
- Likert-type items
- 49 total items
- 6 response categories (strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree)
- Definition of “Researcher” given

Survey Sample Characteristics

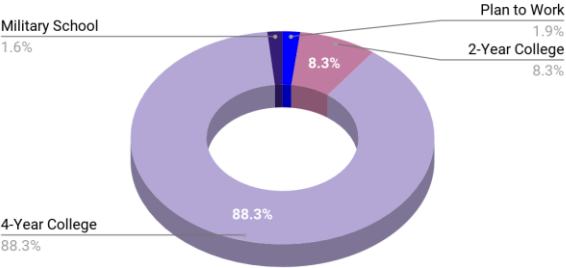
Gender



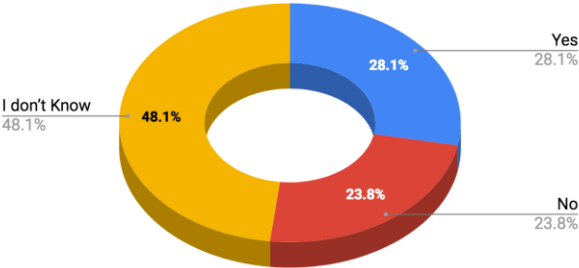
Love for Science



Career Plans

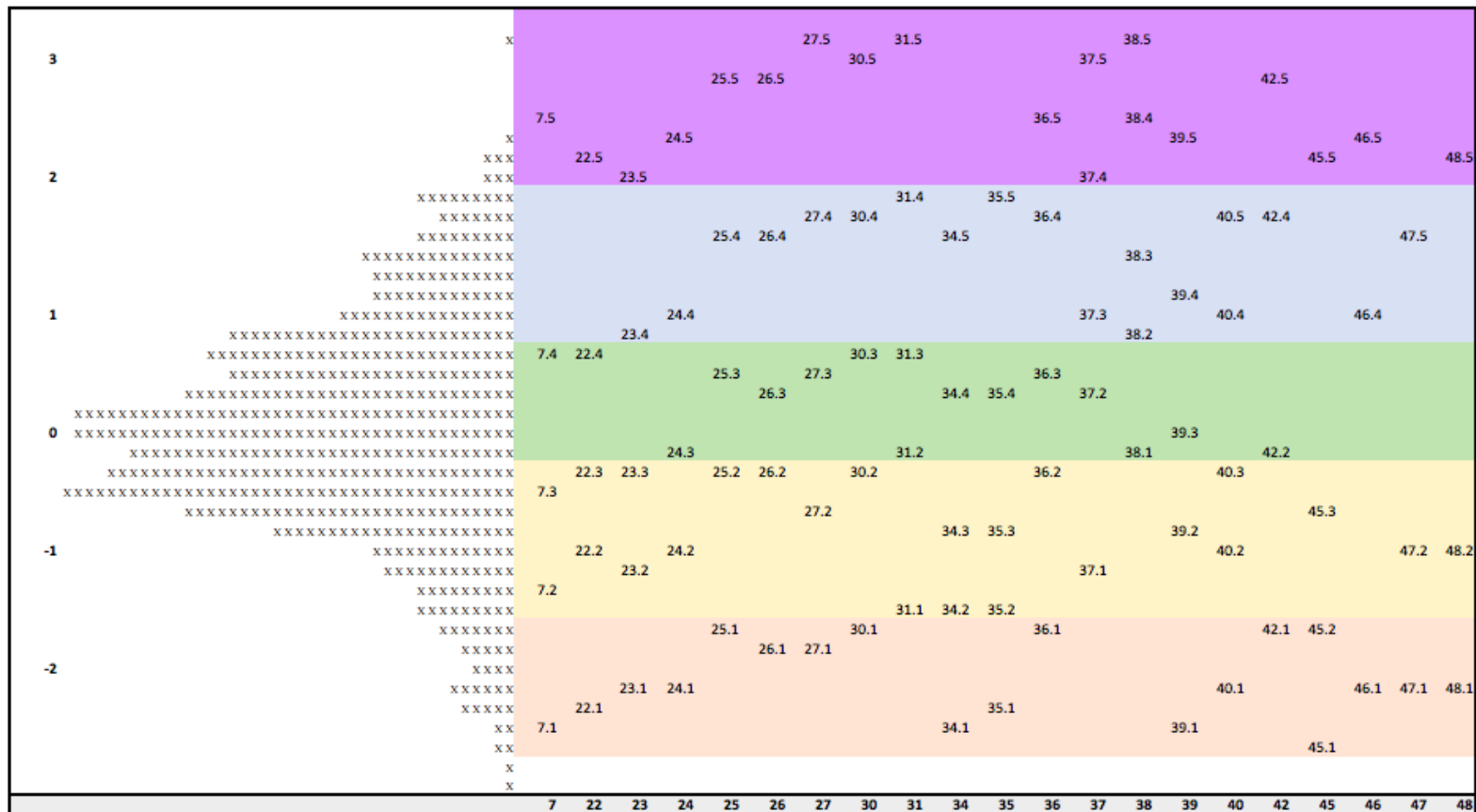


Love for Research



- 863 responses comprising of 92% of the data
- 91.3% finished the test
- Average duration of test (13.4 mins, SD - 7.51)
- 51% tenth graders, 28% eleventh graders, 19% twelfth graders
- 28% FRPM , 56% non-FRPM
- Average GPA scores - 3.53 (SD - 0.57)

Results -The Wright Map



N =
863

Results

Item Fit	Item 5 (MNSQ - 1.47) - I can do research tasks with help from others Item 14 (MNSQ - 1.51) - I am making a contribution to a research group Item 22 (MNSQ - 1.39) - I am comfortable talking with more experienced researchers Item 17 (MNSQ - 0.68) - I would really like to research issues that are important to me Item 38 (MNSQ -1.36) - I consider myself to be a professional researcher
Reliability	0.904
Group Comparisons	<ol style="list-style-type: none">1. On average, the students who indicated love for science scored 0.411 logits higher than students who did not2. On average, the students who indicated love for research scored 0.686 points higher than students who did not3. On average, the students with GPA scores greater than 3.5 were 0.16 logits above students with GPA scores lower than 3.5

N = 863

Results - SFHI Program Participants

1. Students grew on Researcher Identity -
 - a. Results from the t-test indicate that on average, students scored 1.072 logits higher in post test than on the pre-test. This difference is statistically significant ($p < 0.05$)
2. Students had a lot of “neutral responses” in the Fit & Aspiration Dimension.
3. 50% of the students indicated a sense of belonging to the research community which rose to ~ 90% in the post test
4. 31% of the students considered themselves researchers in pre-test. This number increased to 73% in the post test.
5. Students do not talk about researcher identity with their friends.
6. 20% of the students felt “Research was a strong part of their identity” in the pre-test. This number increased to 68% in the post test.

Collaboration

- Goal alignment
- Regular communication
- Clear expectations/timelines
- Flexibility
- Integration of work
- Risk acceptance

Questions...

Thank You

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Extra slides/back-up/supporting info

- Discuss next steps or future of our work?

Sample Guttman Scale item (under development - taken from Likert items)

Strand: Fit & Aspiration

Which statement best describes your interest in a research career?

A career in research would not be a good fit for me

I am not sure if I am interested in research as a career

I might have an interest in research as a career

A career in research could be a good fit for me

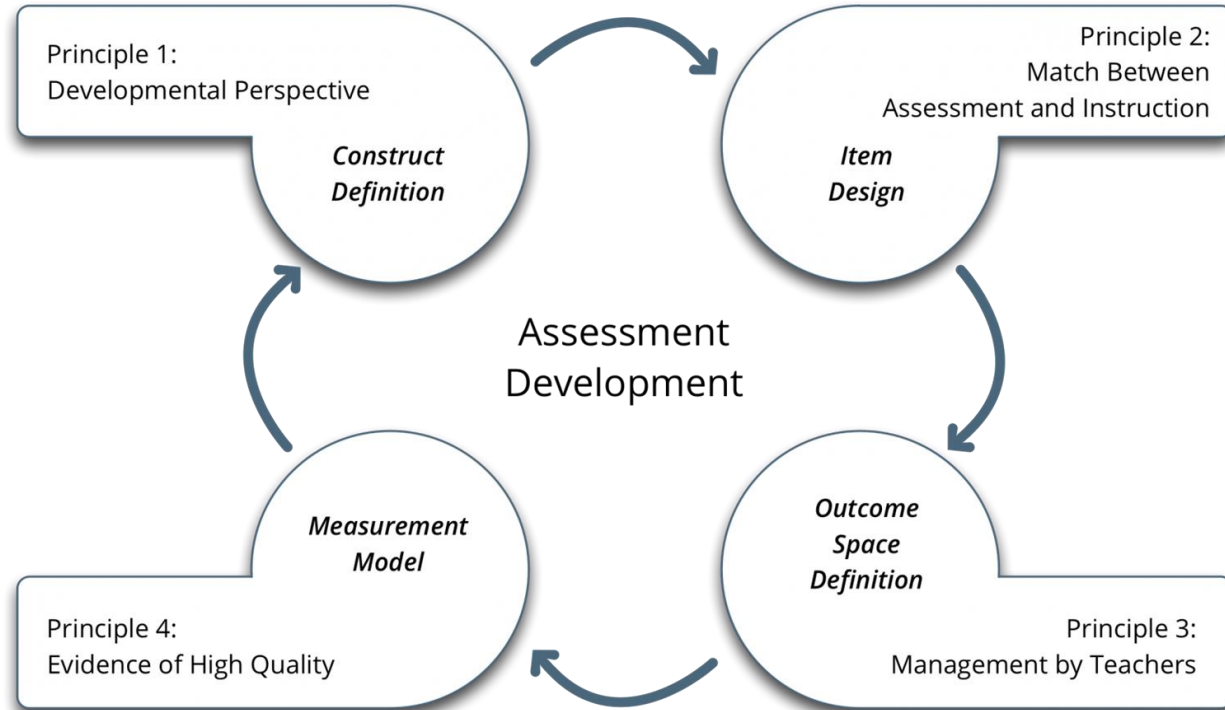
A career in research would be a great fit for me

Qualitative info?

- Include Michelle's eval results? Triangulation?

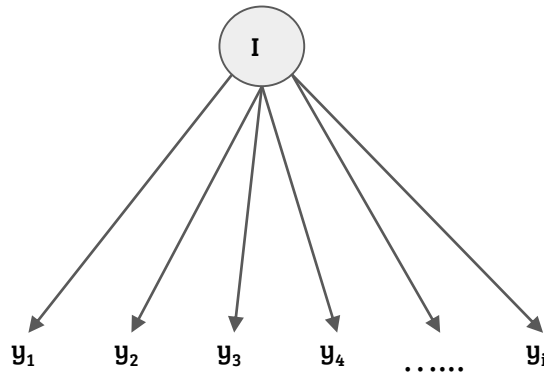
BEAR Assessment System

The Building Blocks and Principles of the BEAR Assessment System



Model

Reflective Unidimensional Model



$y_1, y_2, y_3, y_4, \dots, y_i$ are the items

I - Researcher Identity