

Using Survey Scales to Measure NERUPI Framework Outcomes

Mauricio Rivera
Research & Evaluation Manager

Outline

1. Institutional context

A strategic case for a survey

2. Sussex's Student Success Survey

Existing and newly developed scales

3. The development and validation process

4. The NERUPI Framework

Mapping scales and NERUPI framework objectives

5. Evaluation Design

Using survey scales in common (quant) evaluation designs

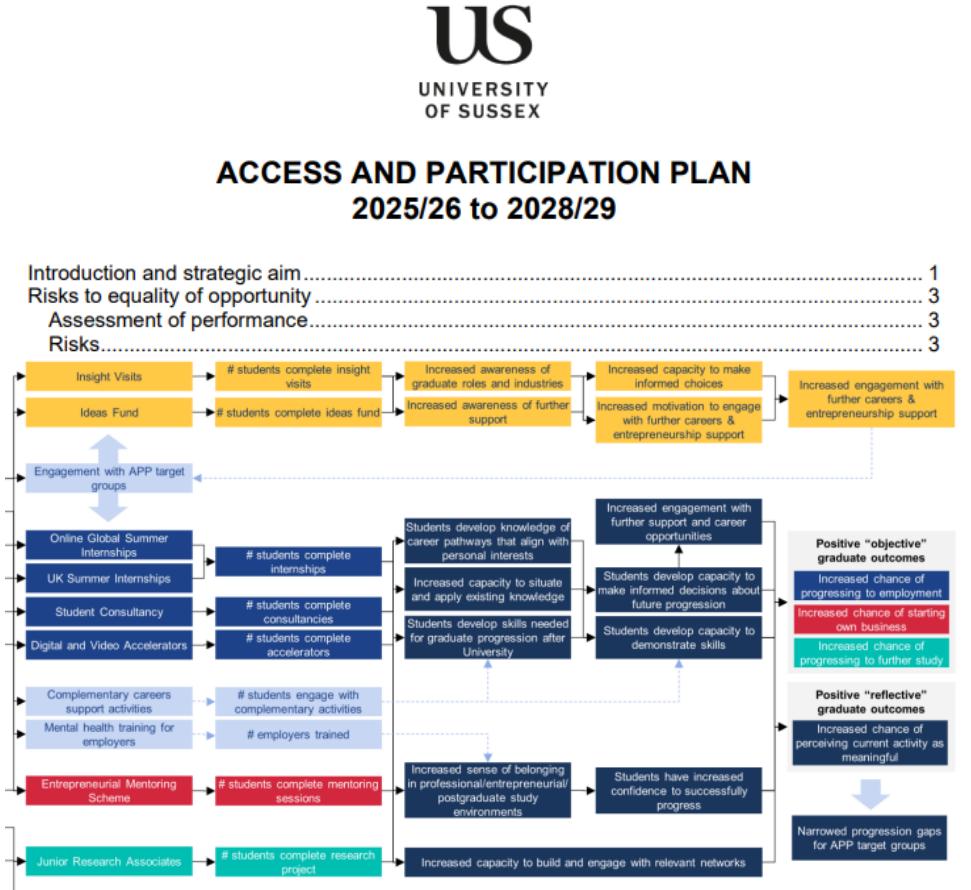
6. Breakout rooms

RESEARCH & EVALUATION

Scope



A strategic case for a survey



- + 15 on-course interventions,
- + 4 departments involved in delivery
- + Theories of change: multiple interventions working to the same outcomes
- + Mixed methods evaluations.
- + One overarching survey for all students administered at registration
 - + Pre intervention measures of outcomes at registration
 - + Post intervention measure of outcomes in subsequent years.

RESEARCH & EVALUATION

The survey: development and validation process

The Student Success Survey

Self Efficacy in Higher Education (2 scales)

Academic self-efficacy (4 items)
Social self-efficacy (4 items)

University support (2 scales)

Uni support knowledge (3 items)
Uni support decision making (3 items)

Sense of Belonging (1 scale, 4 items)

Cognitive Strategies (1 scale, 4 items)

Self-regulated learning (2 scales)

Metacognitive strategies (5 items)
Self-regulation (3 items)

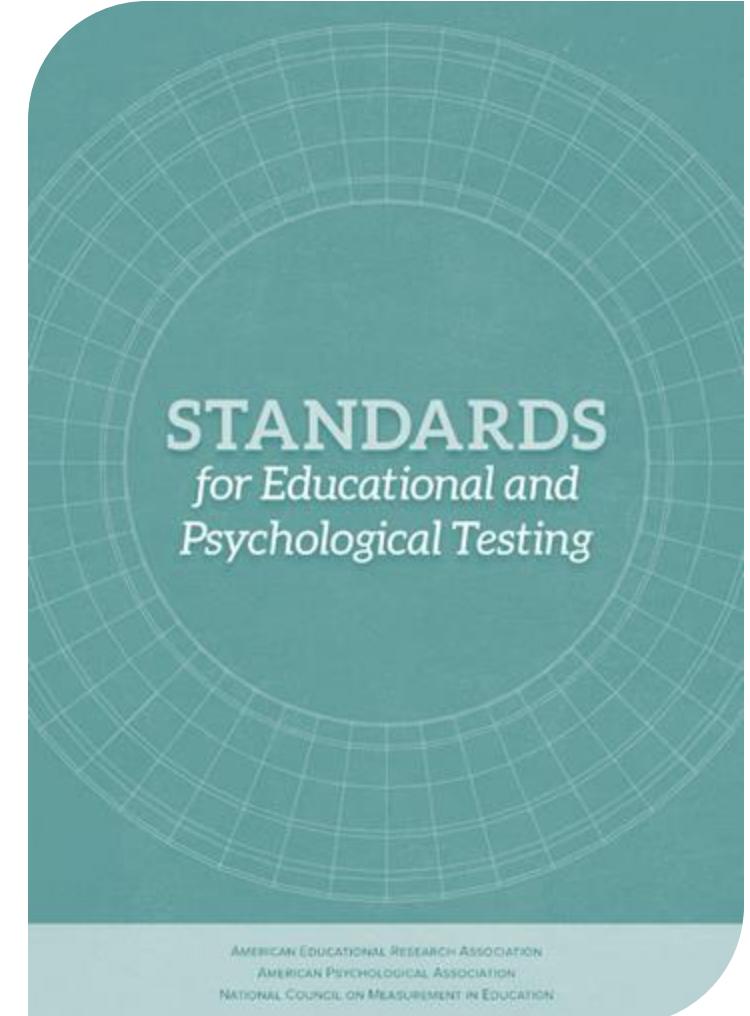
Graduate Progression Preparedness (5 scales)

Career pathway knowledge (2 items)
Career decision making (2 items)
Career confidence (2 items)
Career belonging (2 items)
Career networking (2 items)

Guiding Principles

Standards for psychological and educational testing (APA, AERA, NCME, 2014).

- + Defining a clear use and purpose for the survey.
- + Collecting evidence of validity that supports this use.
- + Collecting evidence of reliability/precision.
- + Collecting evidence of fairness, particularly relevant for the use in access and participation work.

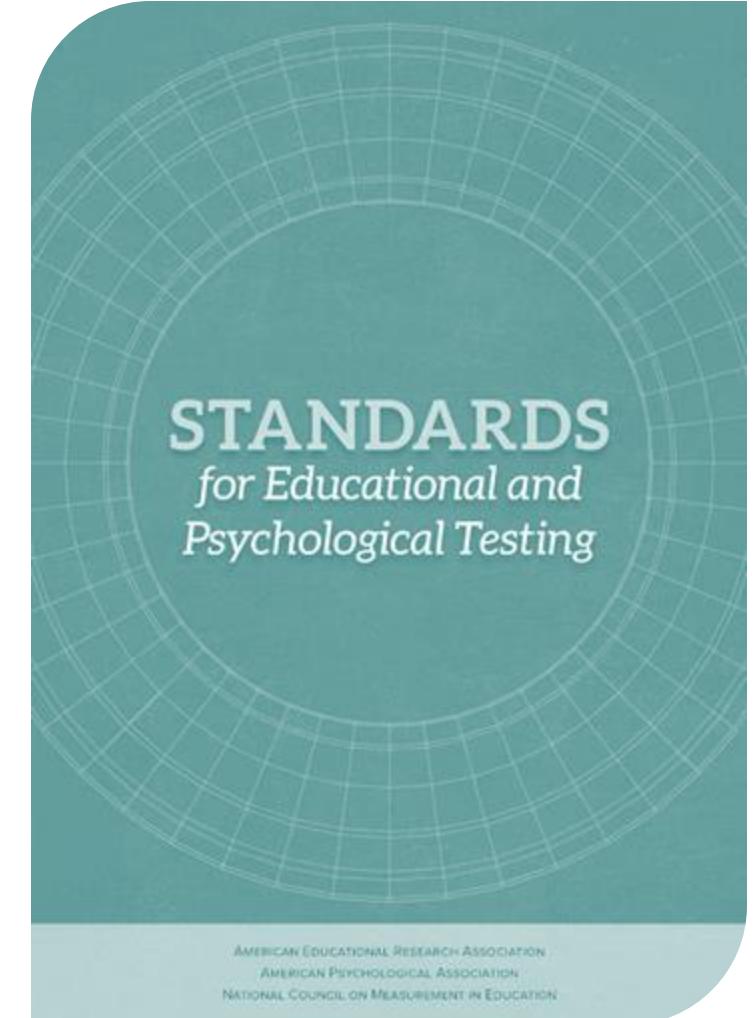


[The Standards for Educational and Psychological Testing](#)

Survey uses / purposes

The Student Success Survey scales are intended to be used with the following purposes:

- + Characterising University of Sussex students in relation to the attributes measured by the survey scales.
- + Evaluating the impact of interventions aimed at improving the attributes measured by the survey scales.



Validity, Reliability and Fairness

Validity

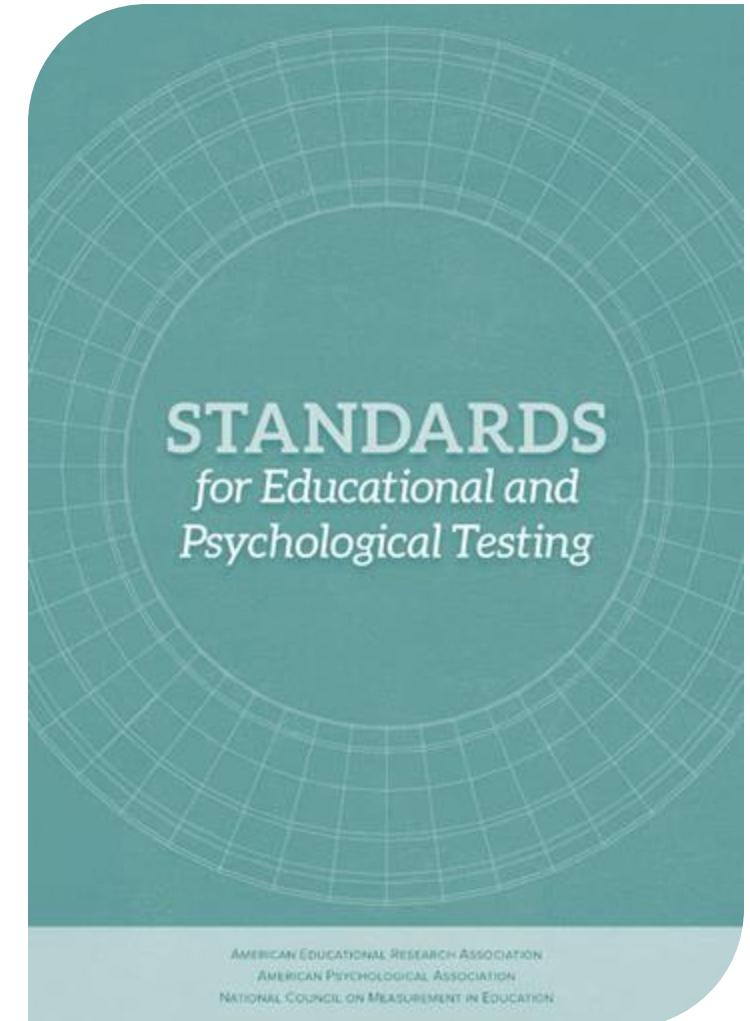
The degree to which evidence and theory support the interpretations of the [scale] scores for their intended purposes.

Reliability

The consistency, stability, and precision of the [scale] scores.

Fairness

The extent to which a [scale] is free from bias and provides equitable opportunities for all [respondents], regardless of their background or characteristics.



Survey Scales Development Process

Activities

Identification of relevant outcomes

Engagement with delivery staff

Developing theories of change.

Review of existing frameworks and evidence base (e.g., NERUPI, TASO's MOAT)

Selection of existing scales

Review of existing frameworks and scales measuring the shortlisted outcomes.

Main selection criteria: Brief scales (4-5 items); evidence of validity and free access.

Development of new scales

Literature review to agree conceptual definitions of constructs.

Creation of new items and adaptation of existing items.

Outputs

List of short- and mid-term outcomes identified

3 TASO's Post-entry ASQ scales selected: sense of Belonging, Cognitive strategies, Meta-cognitive strategies)

Items from other scales/question banks were retained for adaptation.

New scales developed: academic and social self-efficacy, university support knowledge and decision making, self-regulation, graduate progression preparedness scales.

Other scales developed but not retained (self-advocacy, sense of belonging).

Empirical Validation Process

Activities

Academic Advice

11 academics with expertise in survey development and/or constructs of interest
Feedback on constructs' definitions, underlying theory, and survey instructions/items

Qualitative Pilot

9 semi-structured interviews with students.
Participants completed survey in front of an interviewer, indicating and justifying their response.
Participants provider further feedback.

Quantitative Pilot

475 students completed online survey in 'real' conditions.
Item analysis, reliability and validity evidence produced (alpha, Confirmatory Factor Analysis).

Outputs

Qualitative pilot version

2 scales dropped
Feedback informed minor changes and subsequent qual and quant analysis

Quantitative pilot version

Interpretation of items aligned with conceptual definition, no qualitative evidence of differential interpretations.
Feedback informed minor changes and subsequent quant analysis.

Final version

13 scales, 39 items.
Good/Acceptable psychometric properties.

Psychometric Analysis

Group	Scale	Reliability rating (coefficient)	Validity rating (model fit)
Self-efficacy	Academic self-efficacy	Good	Good
	Social self-efficacy	Good	Good
University support	Uni support knowledge	Acceptable	Acceptable
	Uni support decision making	Acceptable	Acceptable
Sense of belonging	Sense of belonging	Good	Poor
Cognitive strategies	Cognitive strategies	Poor	Poor
Self-regulated learning	Metacognitive strategies	Acceptable	Acceptable
	Self-regulation	Acceptable	Acceptable
Graduate Progression Preparedness	Career pathway knowledge	Acceptable	Acceptable
	Career decision making	Good	Acceptable
	Career confidence	Acceptable	Acceptable
	Career sense of belonging	Acceptable	Acceptable
	Career networking	Acceptable	Acceptable

Reliability rating: Good (Alpha \geq 0.80); Acceptable (Alpha \geq 0.70), Poor (Alpha $<$ 0.70)

Validity rating: Good (RMSEA $<$ 0.05; CFI and TLI \geq 0.95); Acceptable (RMSEA $<$ 0.08; CFI and TLI \geq 0.90); Poor (RMSEA \geq 0.08; CFI and TLI $<$ 0.90)

RESEARCH & EVALUATION

Survey Scales and NERUPI framework objectives

Scales and NERUPI objectives



KNOW

Develop students' knowledge and awareness of the benefits of higher education and graduate employment

Level 4

To enable students to increase awareness of study options, social and leisure facilities, and career opportunities for students

Level 5

Enable students to receive comprehensive information about personal development and progression opportunities for graduates in their subject area

Level 6

Enable students to access information about postgraduate study and employment opportunities that align with their personal interests and career aspirations

University Support Knowledge Scale

Career Pathway Knowledge Scale

Scales and NERUPI objectives



CHOOSE

Develop students' capacity to navigate higher education and graduate employment sectors and make informed choices

Level 4

To enable students to investigate opportunities available to students and make informed choices that align with personal interests and career aspirations

Level 5

Enable student to access and utilise appropriate opportunities and provision in order to orientate themselves towards and realise personal goals

Level 6

To enable students to identify and utilise opportunities and make informed choices that align with personal interests and career aspirations

University Support Decision Making Scale

Career Decision Making Scale

Scales and NERUPI objectives



PRACTISE

Develop students' study skills and capacity for academic attainment and successful graduate progression

Level 4

Enable students to identify and develop skills and capacities needed to achieve academic success

Level 5

Enable students to consolidate study skills and capacity for academic and graduate success

Level 6

Enable students to identify and develop skills and capacities needed for postgraduate study or graduate employment

Cognitive Strategies Scale

Metacognitive Strategies Scale

Self-regulation Scale

Career Networking Scale

Scales and NERUPI objectives



BECOME

Develop students' confidence and resilience to negotiate the challenge of university life and graduate progression

Level 4

Enable students to embrace the challenge of higher education and make a successful transition to university

Level 5

Enable students to maximise the benefits of university life and successfully progress to graduate employment

Level 6

Enable students to embrace the challenge and develop a personal strategy for postgraduate progression

Academic Self-Efficacy Scale

Social Self-Efficacy Scale

Sense of Belonging Scale

Career Belonging Scale

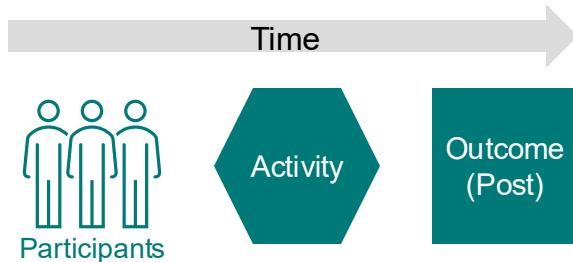
Career Confidence Scale

Career Networking Scale

Embedding survey scales in our evaluation designs

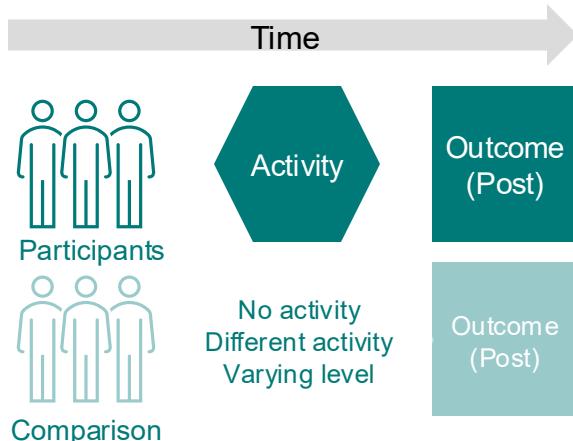
Embedding survey scales in our evaluation designs

Post-intervention tracking

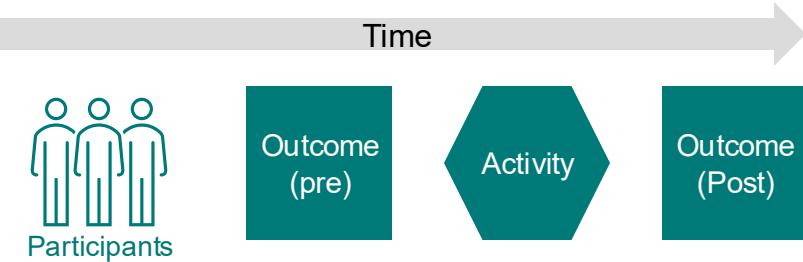


Post intervention comparison with comparison group

Example:
Propensity Score Matching Design
Dose-response Design

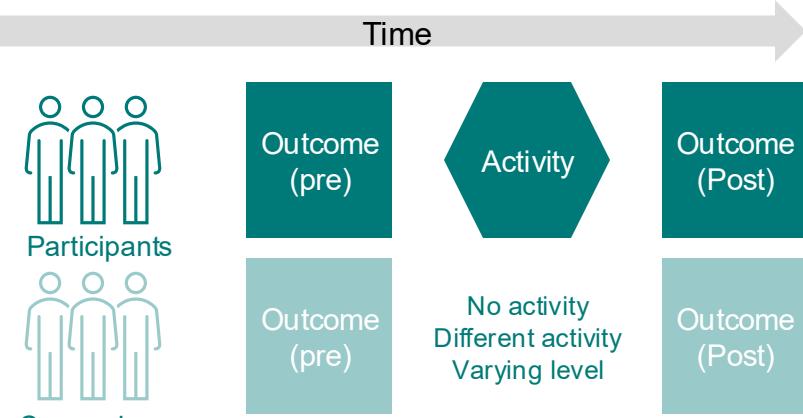


Pre/Post Intervention Comparison



Pre/Post Intervention Comparison with comparison group

Example:
Difference-in-Difference
Dose-response DiD.

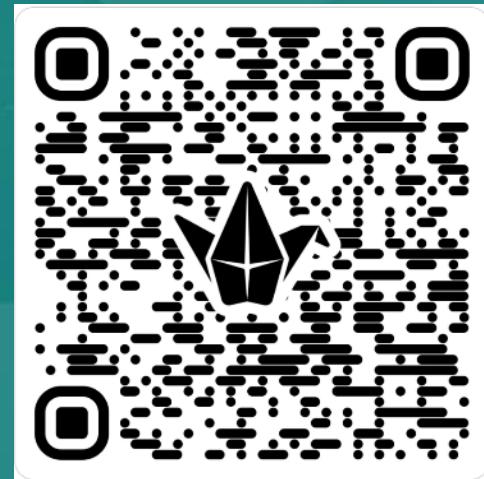


Our experience

- + Considerations on stakeholder engagement and buy-in
- + Considerations regarding ethical review
- + Technical integration issues
- + Good response rates (5,000 respondents so far), better for new students.

RESEARCH & EVALUATION

Break-out rooms



US
UNIVERSITY
OF SUSSEX

Break out room topics

Use of Survey Scales in you institution

- + Are you currently using survey scales in your institution? If so, how?
- + Consider for example: using of “validated” scales vs. bespoke question sets; university-wide surveys vs. programme/activity-level questionnaires, post-intervention tracking vs. pre-post comparisons, comparison groups/no comparison.

Benefits and Challenges of Using Survey Scales

- + What are the advantages and disadvantages of using survey scales?
- + Consider aspects related to implementation, analysis, and interpretation of findings.
- + Reflect on their usefulness in evaluating Higher Education interventions.
- + What dimensions of “change” can survey scales capture? What might they miss?

Capturing other outcomes

- + Measuring other student-level outcomes: What other outcomes do you think would be important to have scales for?
- + Measuring institutional change: how could survey scales capture change at the institutional level, or outcomes that reflect change in institutional values, processes, etc.



Using Survey Scales to Measure NERUPI Framework Outcomes

Mauricio Rivera
Research & Evaluation Manager
Contact: M.Rivera@Sussex.ac.uk | [Sussex Profile](#) | [LinkedIn](#)