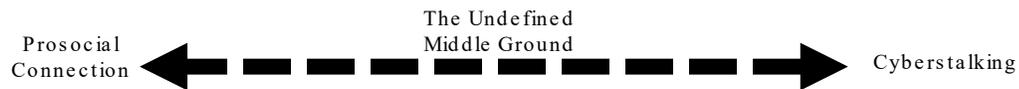# The Development and Validation of the Social Media Surveillance Scale (SMSS)
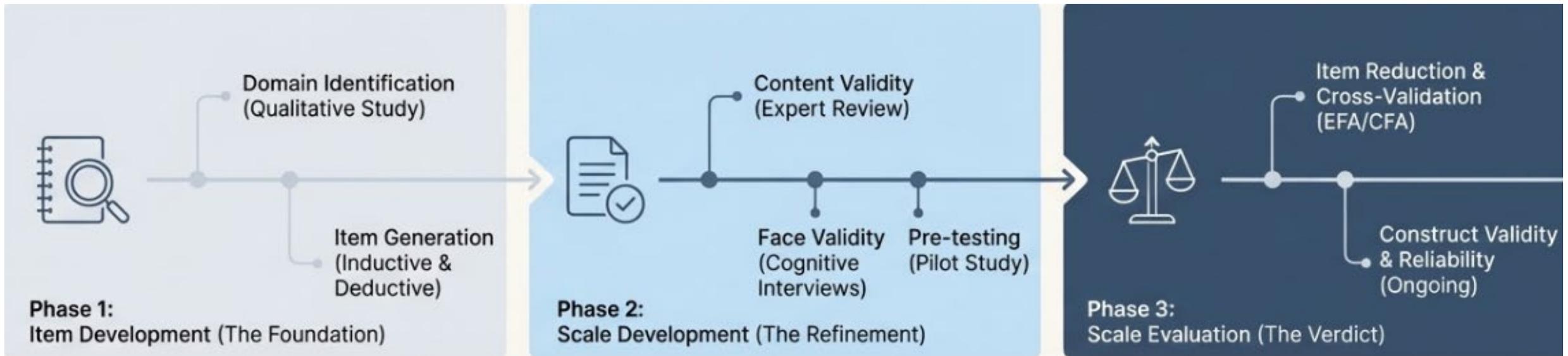
Alice Thompson, PhD

Researcher (Psychology)

What is Online Surveillance?

- Social media = connection, maintain relationships, belongingness (Kuss & Griffiths, 2011)

- Problematic, Preoccupation & Disinhibited (Acquisti, Brandimarte, & Loewenstein., 2020)

- Social Media propelled individuals into a surveillance culture, promoting observant actions and stalking mentalities (Lyon, 2017).

- "Creeping, Lurking, Online Monitoring, Electronic Surveillance, Information Seeking, Cyberstalking"

The Research Gap

- Existing scales often focus narrowly on extreme behaviours (e.g., cyberstalking)

- Neglecting the wide spectrum of everyday surveillance.

- Creates a knowledge gap on how normalised online behaviours (e.g., Creeping) can escalate into deviance.

- Without a measure, it is difficult to investigate.

Prosocial Connection ← The Undefined Middle Ground → Cyberstalking

A Multi-Phase Journey from Concept to Validated Scale

Phase 1: Item Development (The Foundation)
- Domain Identification (Qualitative Study)
- Item Generation (Inductive & Deductive)

Phase 2: Scale Development (The Refinement)
- Content Validity (Expert Review)
- Face Validity (Cognitive Interviews)
- Pre-testing (Pilot Study)

Phase 3: Scale Evaluation (The Verdict)
- Item Reduction & Cross-Validation (EFA/CFA)
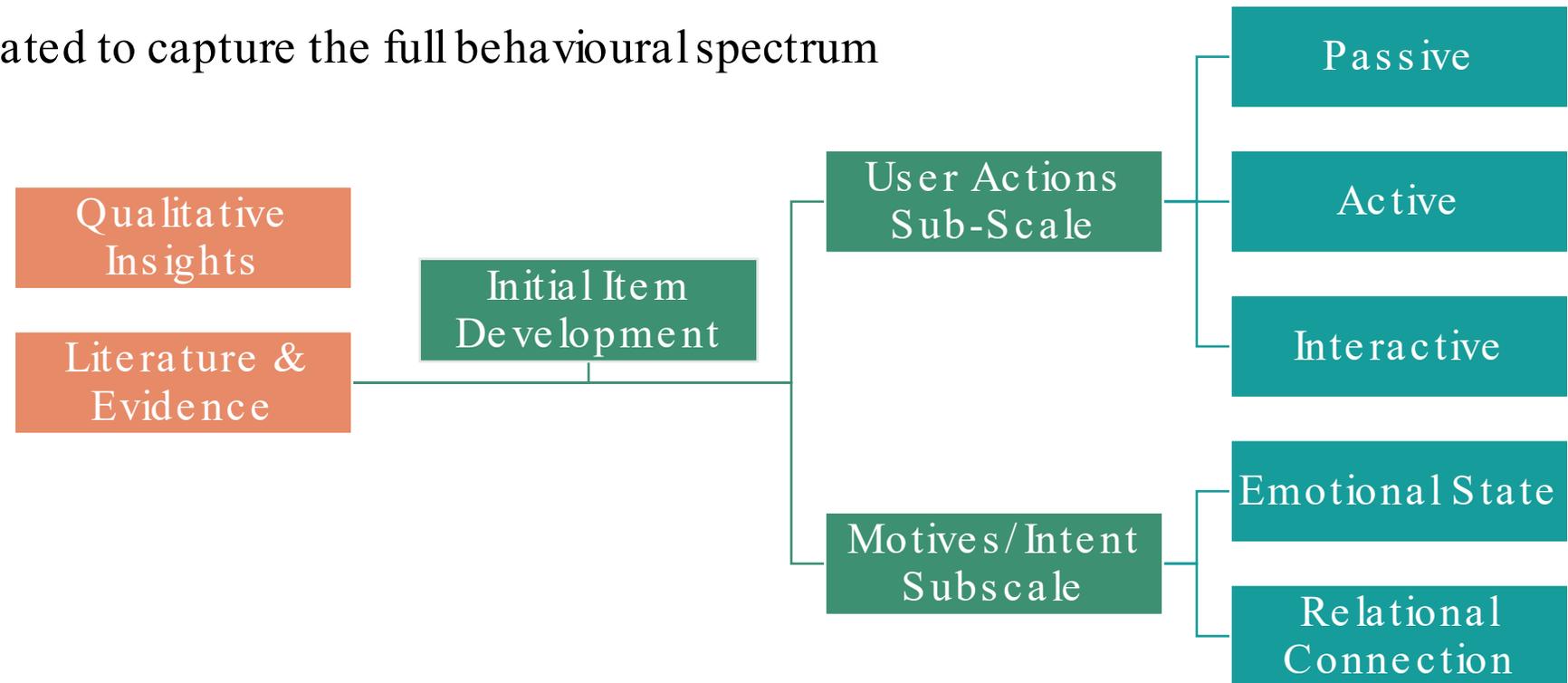- Construct Validity & Reliability (Ongoing)

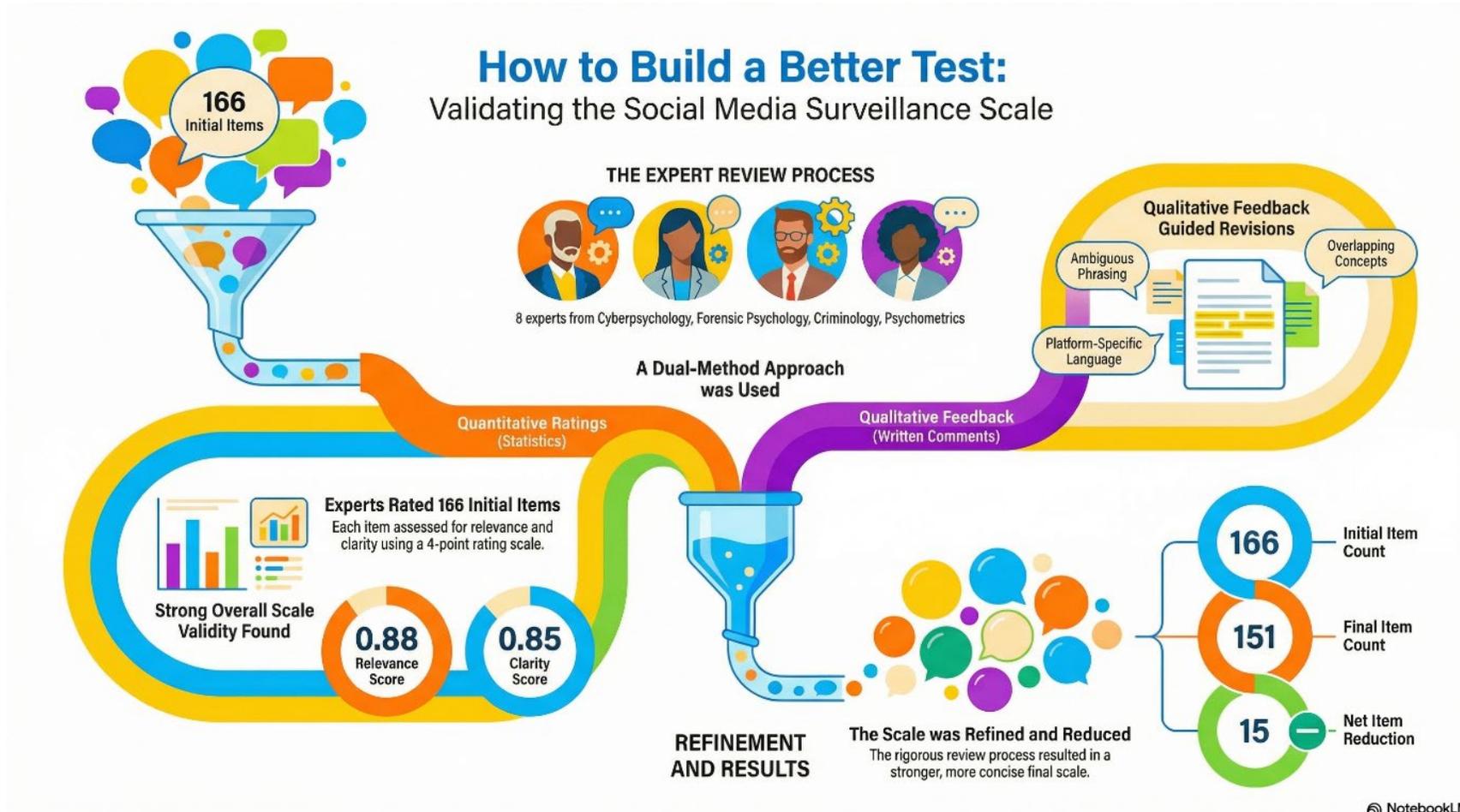# Laying the Foundation (Item Development)

Part 1: Inductive Approach (Qualitative Study)

Part 2: Deductive Approach (Literature Review)

166 items were created to capture the full behavioural spectrum

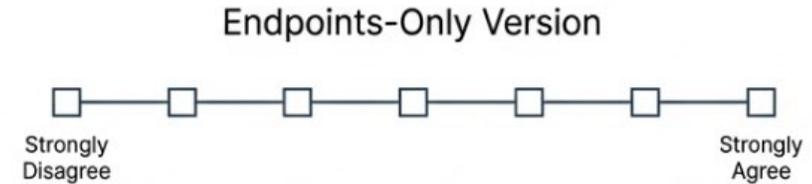# Content Validity: Expert Review Process

Face Validity: Cognitive Interviews

Process

- Aim: Evaluate face validity; whether items are understandable and appear relevant to non-experts

- Method: 12 participants individual cognitive interviews; a technique used to evaluate interpretability of scale items.

- Techniques used: 'Think aloud' exercises, paraphrasing, comprehension and general probes.

- Analysis: d'Ardenne and Collins (2015) cognitive framework of survey responding.

- Outcome:

  - Feedback led to key revisions for clarity and inclusivity or deletion of items.

  - E.g., Wording was refined, "browse" changed to "scroll"

168 initial items

151 items retained post expert review

113 items retained post cognitive interviews
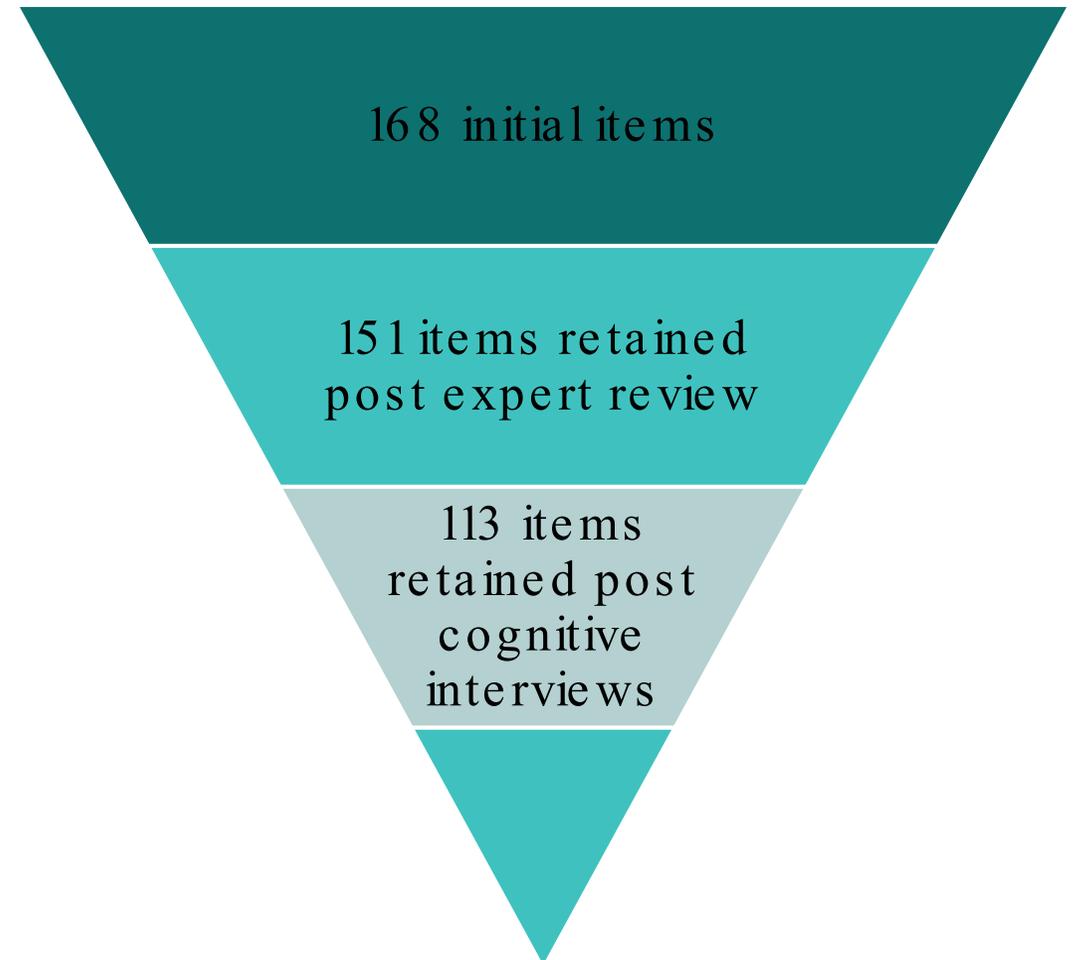
Pilot Study: Pretesting items

Purpose: To compare two versions of 7-point Likert scale; one with every point labelled, and one with only endpoints labelled.

Method:
- 307 participants completed 113 item scale online
- Exploratory Factor Analysis (EFA) using Principal Axis Factoring

Results:

Group	Format	N	KMO	Factors	Variance	Retained Model
A	Labelled	172	.75	6	45.7%	✅ Six-factor
B	Unlabelled	135	.64	5	46.3%	—

Decision: The labelled version produced more distinct constructs and was selected for full evaluation.

Scale Evaluation: Item Reduction and Cross-Validation

Sample (N = 1641)

- Recruited via Prolific (social media users, >18 years).

- Demographics:
  - Female = 870, Male = 758, NB = 9, Other = 4;
  - M_{age} = 42.65;
  - Diverse relationship statuses.
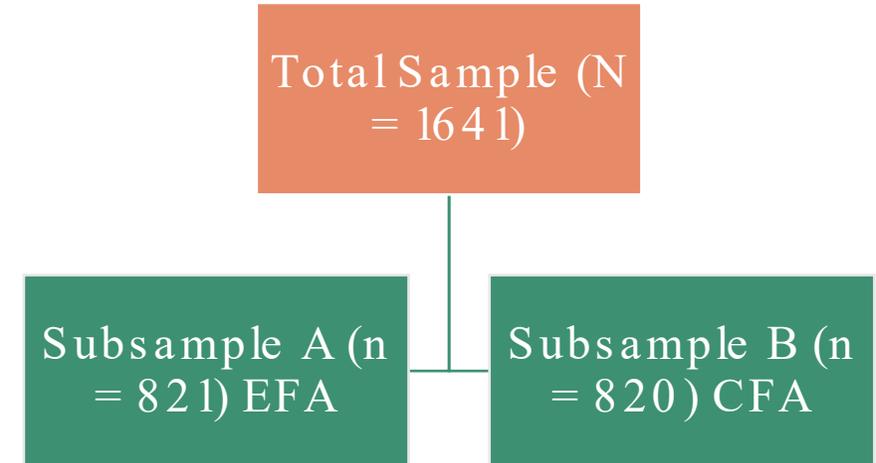
Methodology:

- Data screening: Rigorous checks for accuracy, missingness and outliers (Mahalanobis D^2 > 159.4; n = 9). Non-normality was expected and addressed with appropriate statistical methods.

- Cross-validation design: Sample was randomly split using a Soloman (duplex) method to create 2 independent subsamples, ensuring generalisability.

Total Sample (N = 1641)

Subsample A (n = 821) EFA

Subsample B (n = 820) CFA

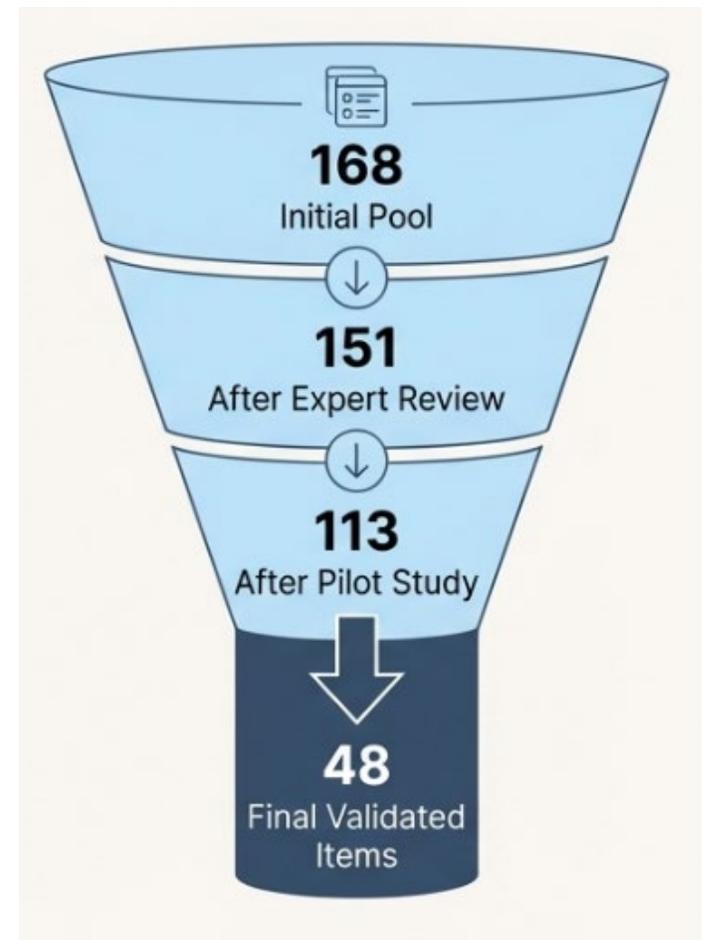# Scale Evaluation: Item Reduction and Cross-Validation

Stage 1: EFA Subsample A

- 113 items analysed using Principal Axis Factoring with oblimin rotation and polychoric correlations to handle ordinal data.

- Initial model showed poor fit (CFI = .41, RMSEA = .187).

- Items with low communalities < .30, weak loadings < .40, or cross-loadings ≥ .30 were iteratively removed.

Stage 2: CFA Subsample B

- The refined models from the EFA were tested on the independent second subsample.

Model Comparison					
Model	χ^2(df)	CFI	TLI	RMSEA [90% CI]	Decision
5-Factor	43,439 (2,773)	.36	.35	.13 [.13–.14]	Poor fit
6-Factor	11,347 (1,065)	.98	.98	.11 [.11–.12]	Retained

168
Initial Pool

151
After Expert Review

113
After Pilot Study

48
Final Validated Items

Connective Behaviours

Affiliative Social Interaction
Positive, prosocial actions used to connect and maintain existing relationships.

Example Actions:
Liking posts, leaving positive comments, and replying to friends' stories.

Relational Following
Monitoring people you know to feel reassured about your social connections.

Example Actions:
Following friends, family, or romantic interests you have met in person.

Intrusive Behaviours

Preoccupied Engagement
Emotionally driven attempts to gain attention or a reaction from a specific person.

Example Action:
Excessively messaging or liking someone's content to get them to notice you.

Investigative Searching
Deliberate and effortful searching across platforms to gather information on someone.

Example Action:
Thoroughly searching through a person's followers, posts, and multiple profiles.

Deceptive Monitoring
Using fake or anonymous profiles to observe someone without their knowledge.

Example Action:
Creating a fake account to check up on specific people.

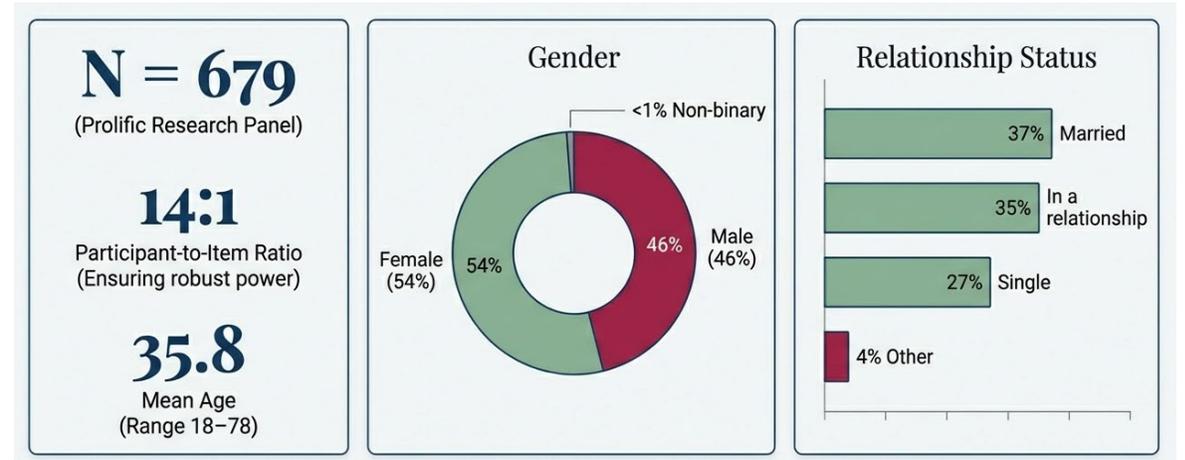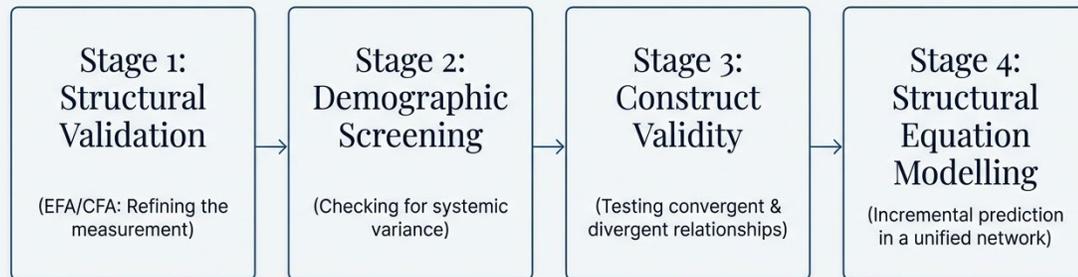**Privacy Intrusion (Digital Violation)**
Accessing someone's private account, messages, or device without their permission.

Example Action:
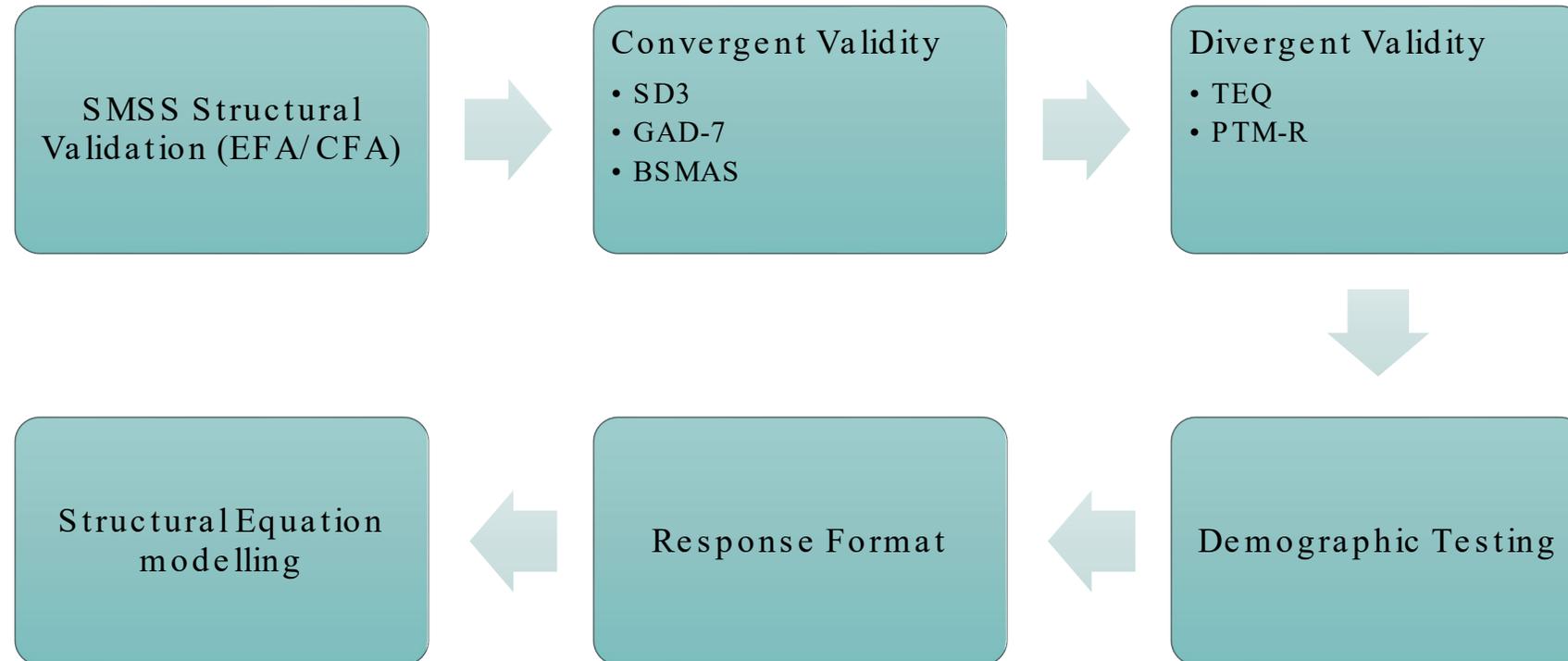Logging into a partner's social media account to monitor their activity.

Scale Evaluation: Item Reduction and Cross-Validation

Scale Evaluation: Construct Validity

Stage 1: Structural Validation (EFA/CFA: Refining the measurement) → Stage 2: Demographic Screening (Checking for systemic variance) → Stage 3: Construct Validity (Testing convergent & divergent relationships) → Stage 4: Structural Equation Modelling (Incremental prediction in a unified network)

N = 679 (Prolific Research Panel)

14:1 Participant-to-Item Ratio (Ensuring robust power)

35.8 Mean Age (Range 18–78)

Gender: Female (54%) 54%, Male (46%) 46%, <1% Non-binary

Relationship Status: 37% Married, 35% In a relationship, 27% Single, 4% Other
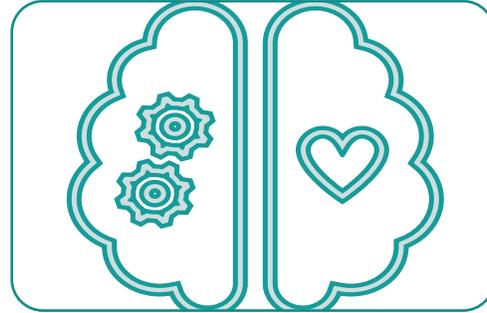
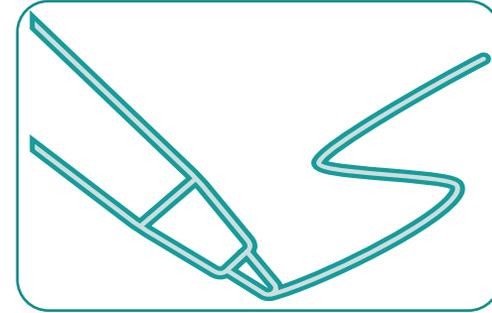# Scale Evaluation: Construct Validity

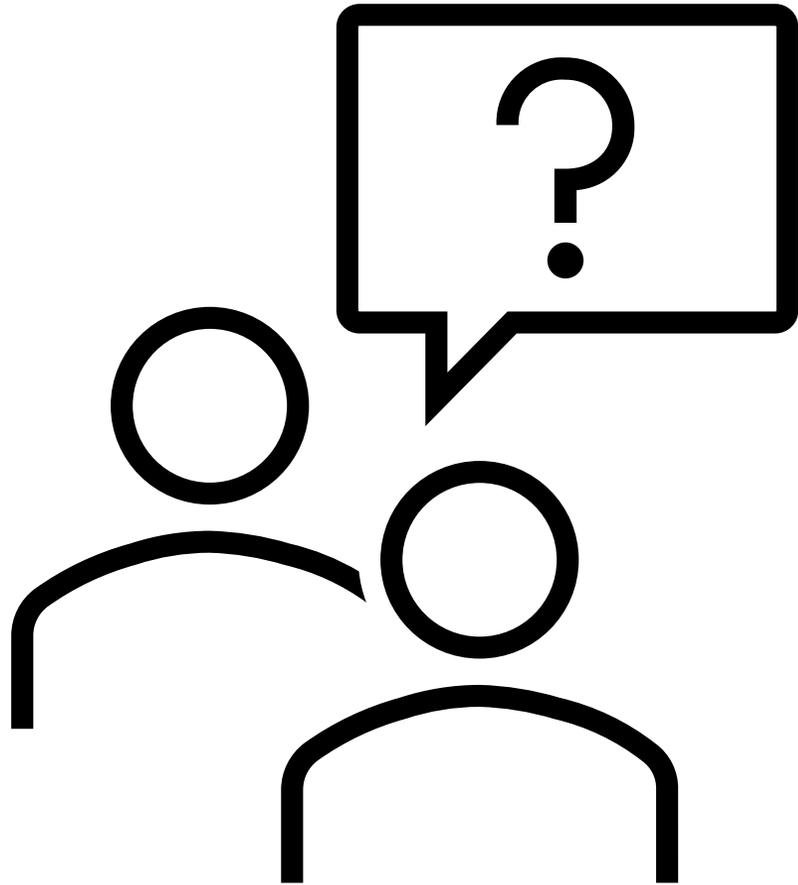Currently analysing the results!

Contribution

Researchers: Enables precise investigation into the benefits and consequences of a wide spectrum of online behaviours

Clinicians: Offers a tool to assess patterns of online monitoring that may indicate relational distress or obsessive tendencies

Policy & Education: Informs interventions aimed at promoting digital wellbeing and mitigating online harms.

Thank you for listening!