

Method-driven Theory Advancements and AI Implementation

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Some Questions for You

- Are you using AI in your research?
- How are you using AI, specifically?
- What are the pros and cons of doing so?
- What challenges are you facing in the use of AI in your research?

Acknowledgment

Presentation based on:

- Aguinis, H. 2026. Method-driven theory advancements and AI implementation. *Journal of International Business Studies*. <https://doi.org/10.1057/s41267-026-00851-0>
- Let's watch this explainer video:
<https://www.youtube.com/watch?v=NWH0ke7nclA>

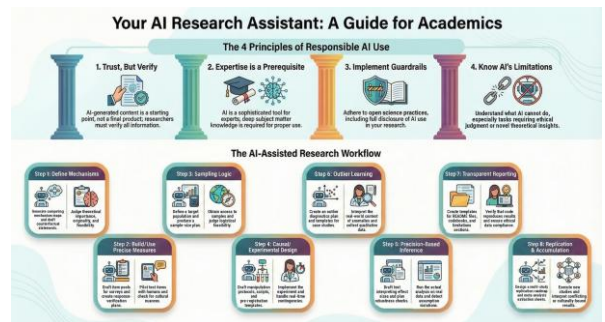


Table 1 Using generative AI in a research methods assistant to implement the integrative approach to method-driven theory advancements

Step	Illustrative prompts	AI-performable tasks	Deliverables AI can output	Actions researchers must take to verify accuracy	What AI cannot do, and researchers must do instead, and why
Step 1: Define mechanisms	"Given [insert theoretical domain and key constructs], generate three alternative causal mechanisms with directed acyclic graph (DAG)-style textual diagrams. Diagrams, specify counterfactual predictions for each, and list testable boundary conditions."	- Generate competing mechanism maps from a profuser textual diagram. - Generate DAG-style textual diagrams. - Draft counterfactual statements for each mechanism. - Frame boundary conditions (i.e., moderators) from prior theory. - Write discriminating predictions that differ across mechanisms. - Propose falsification criteria and risky tests.	- Mechanism maps - Counterfactual list - Boundary-condition register - Table contrasting mechanisms - Falsification checklist	- Judge which mechanism is theoretically meaningful (e.g., what precise process links X to Y? What is the causal sequence?). - Confirm antecedents and moderators align with the literature (e.g., compare theoretical positioning across major frameworks). - Ensure predictions are not tautological or already disproven (e.g., "Under what conditions would the prediction fail?").	- Cannot invent novel theory beyond published knowledge. - Cannot judge theoretical importance or feasibility. - Only researchers know field debates, context, timeliness, and originality.
Step 2: Build/ruse precise measures	"Using [insert construct definition], draft a 12 to 15-item Likert scale pool, create a content validity matrix, and propose response-verification procedures and rules to direct carriers responding."	- Draft item pools aligned to construct definitions (Likert behavioral indicators). - Content constructs to item response theory (IRT) study item specs (e.g., difficulty, discrimination, guessing). - Produce content validity matrix (item x facets and subsidiary flag). - Generate response-verification plan (intention checks, instructed-response items, Marked-chain-style screening rules, take responses). - Create scoring keys and ensure data handling rules.	- Item pool - Content validity matrix - IRT study item spec sheet - Response-verification Standard Operating Procedure (SOP) - Pilot test with humans - Validate construct clarity and readability - Run item analyses on real data	- Inspect item wording for cultural bias (e.g., Do they rely on idiom, metaphor, or culturally loaded expression?). - Pilot test with humans - Validate construct clarity and readability - Run item analyses on real data	- Cannot test items with participants - Cannot detect cultural nuance or social desirability in wording - Cannot remove or revise items based on pilot data

Table 1 (continued)

Step	Illustrative prompts	AI-performable tasks	Deliverables AI can output	Actions researchers must take to verify accuracy	What AI cannot do, and researchers must do instead, and why
Step 3: Sampling logic	"Create inclusion/exclusion criteria, a sampling frame, and a precision-based sample-size plan for a study testing [insert mechanism] in [insert specific sample]."	- Define target population and coverage logic (i.e., who, when, and where). - Draft inclusion and exclusion criteria defining heterogeneity and producing recruitment scripts. - Build sampling frame schema (e.g., strata, quotas, clusters). - Produce a sample-size plan. - Create participant flow and response mitigation plan.	- Sampling frame table - Recruitment scripts - Power and precision table - Participant-flow plan	- Verify real-world feasibility (e.g., Institutional Review Board (IRB), site access). - Check sample availability. - Negotiate partnerships or incentives. - Adjust plan for attrition.	- Cannot obtain access to organizations or samples. - Cannot judge logistical feasibility or ethical constraints.
Step 4: Causal/experimental design	"Draft a [type of design such as between or within subject] manipulation protocol with scripts, timing, manipulation checks, randomization steps, and pre-registration text for Open Science Framework (OSF)."	- Draft manipulation protocols (e.g., lab online, field, timing, stimuli, scripts). - Randomization plan with scripts, timing, manipulation checks, randomization steps, and pre-registration text for Open Science Framework (OSF). - Write randomization plans (e.g., unit, blocking, balance checks). - Create pre-registration templates (e.g., OSF, AsPredicted.org, including outcomes and analysis plans). - Generate visual mappings (e.g., scenario scripts and manipulation checks).	- Manipulation protocol - Scripts and stimuli prompts - Randomization plan - Pre-registration document - Manipulation-check items	- Test manipulation in pilot - Ensure random and ethical - Handle unexpected failures - Register the study formally - Adapt to field conditions	- Cannot implement experiments or deal with contingencies - Cannot negotiate approvals, consent, IRB, ethics - Cannot correct failed manipulations in real time

Table 1 (continued)

Step	Illustrative prompts	AI-performable tasks	Deliverables AI can output	Actions researchers must take to verify accuracy	What AI cannot do, and researchers must do instead, and why
Step 5: Outlier handling	"Create an outlier-diagnostics standard operating procedure (SOP) with theory-linked flags, a case study template for outliers, and tables comparing models with and without outliers."	- Specify outlier diagnostics plan (e.g., influence rules, leverage notes, practical outlier flags tied to theory). - Draft case study templates to capture context for outliers (i.e., who, when, conditions). - Produce a decision tree for "include, transform, or exclude" with theory links. - Create reporting tables (pre and post findings with and without outliers).	- Outlier SOP - Case template - Decision tree - Pre and post exclusion tables	- Interview outlier cases - Interpret context (Why did this occur?) - Decide the ethical and practical appropriateness of excluding data points	- Cannot collect qualitative data - Cannot detect real-world causes of anomalies - Context interpretation requires human reasoning
Step 6: Precision-based inference	"Produce effect-size statistical interpretation notes and CI reporting text for [insert statistical approach used] testing [insert mechanism], emphasizing magnitude and uncertainty."	- Draft effect-size interpretation notes anchored to context (i.e., variable d, z, and p to practical terms specified by the researcher). - Prepare CI reporting text. - Write robustness catalog (i.e., alternative specs to report, such as functional forms, winner-take-all, clustered SEs).	- Effect-size statistical interpretation text hard return - Robustness check list - Pain language summary	- Run real analyses; check violations - Confirm context validity of effect-size translation or implications for theory and practice - Ensure robustness tests match data realities	- Cannot run models on real data - Cannot detect nonlinearity or assumption violations - Practical significance requires domain knowledge
Step 7: Transparent reporting	"Draft a reproducibility package layout: README, codebook structure, data provenance notes, and limitations section aligned with peritro logic."	- Create method and context checklist (e.g., participant, setting, constraints, tasks, interventions). - Draft README codebook structure for data and code sharing (e.g., variable descriptions). - Draft reproducibility package layout. - Write the limitations and assumptions section aligned to the peritro logic. - Generate ethics and consent language templates.	- README and manifest - Codebook template - Drafted limitations and assumptions	- Verify files and code reproduce results - Ensure ethical standards (e.g., de-identification, General Data Protection Regulation (GDPR)) - Confirm accuracy of variable definitions	- Cannot check reproducibility on a real machine - Cannot ensure legal compliance - Cannot judge the ethical sensitivity of data

Table 1 (continued)

Step	Illustrative prompts	AI-performable tasks	Deliverables AI can output	Actions researchers must take to verify accuracy	What AI cannot do, and researchers must do instead, and why
Step 8: Replication and accumulation	"Produce a multi-study replication roadmap (e.g., experiment → field experiment → archival time-series), a generalization grid, and a meta-analytic extraction sheet for [insert mechanism]."	- Design a multi-study replication roadmap (e.g., experiment → field experiment → archival time-series), a generalization grid, and a meta-analytic extraction sheet for [insert mechanism]. - Prepare meta-analytic extraction sheet (e.g., constructs, effects, contexts) for future synthesis. - Create third-party verification request email templates and data-sharing agreements. - Write generalization claims grid (what holds for whom, where, and when).	- Replication roadmap - Generalization claims grid - Meta-analysis extraction sheet - Outreach templates	- Execute replication studies - Judge cultural and contextual discrepancies - Interpret conflicting results - Manage collaborators and site access	- Cannot run replications, collect data, or handle cross-cultural complexities - Interpretation of differences requires human judgment

Hands-on Demonstration

- <https://www.hermanaguinis.com/AIassistant.html>

Conclusions

- Methods are a system, not a checklist — the weakest link sinks the theory
- AI accelerates every step: Mechanisms, measures, design, inference, reporting, replication
- Trust but verify — AI is an assistant, never an authority
- AI can't judge theory (yet), access data, or navigate ethics — we must
- Not the first tech shock: Govern AI use, don't avoid it
- AI is unlikely to replace researchers (for now), but researchers who use AI will replace researchers who don't

Thank you!!