Who Benefits from Theory-Based Entrepreneurship Training?

Cognitive Moderators of the Scientific Approach

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The question. Theory-based training works, on average, across RCTs, and across contexts from Italy to Tanzania. But average effects mask heterogeneity, and heterogeneity is where the next theoretical and practical questions live. *Who* benefits most from the scientific approach, and *why*?

Where we are. Within the program, existing moderators are contextual: startup development stage (Novelli & Spina 2024), country setting (Agarwal et al. 2025), and environmental uncertainty (Gambardella & Messinese 2025). Camuffo et al. (2026) find heterogeneous effects by user type in a theory-based AI system. The individual cognitive analog (*does tolerance for Knightian uncertainty shape who benefits from theory-based training?*) has not been tested. From outside the program, McKenzie, Woodruff et al. (*VoxDevLit*, 2025) identify this as the primary open question in entrepreneurship training: "There is a lot of heterogeneity in both samples and results, so there is less guidance on which groups benefit most." The *Bayesian Entrepreneurship* volume (Agrawal, Camuffo, Gambardella, Gans, Scott & Stern, MIT Press 2026) establishes heterogeneous priors as a foundational premise of the framework; this paper asks whether that heterogeneity at the individual level predicts differential training response.

The idea. Do entrepreneurs who reason more scientifically at baseline, and who tolerate ambiguity better, benefit more from theory-based training?

Data: IdeaBoosterLab RCT, with randomized treatment, structured baseline interviews, and post-intervention outcomes across 5 RCTs (Italy, Colombia, Netherlands, Spain, UK). Same dataset as Camuffo et al. (2024, *SMJ*) and Agarwal et al. (2025, *Organization Science*).

Method: Heterogeneous treatment effects with two cognitive moderators measured at baseline: (i) SDM capability, coded from five RA-rated interview dimensions; (ii) ambiguity aversion, from the Ellsberg urn task in the baseline survey. The main specification is:

$$Y_{it} = \alpha + \beta_1 T_i + \beta_2 M_i + \beta_3 (T_i \times M_i) + \mathbf{X}_i'\gamma + \delta_r + \varepsilon_{it}$$

where T_i is the randomized treatment indicator, M_i is the baseline moderator, $\mathbf{X}_i$ includes controls (BM development stage, learning orientation), and δ_r are country/RCT/cohort fixed effects. Standard errors clustered at the cohort level. β_3 is the coefficient of interest. The prediction for ambiguity aversion is non-obvious: high aversion could mean resistance to sitting with open hypotheses, or precisely the condition where structured theory-based guidance adds the most value.

Outcomes: Business model change, pivoting, cumulative sales, idea dropout.

Contributions. *To the program:* this paper shifts the heterogeneity agenda from contextual to person-level, asking whether individual cognitive traits predict training response. *To the external literature:* it speaks to the gap McKenzie et al. document and connects to policy-relevant questions about who to target and how to adapt training design, including in the development economics context where the ION Lab network (Åstebro, HEC Paris) is active. *To my research agenda:* I study heterogeneity in decision-making capability under uncertainty, how to measure it, when it matters, and whether it can change. Paper 1 establishes SDM as an individual trait; this paper asks when that trait matters most.

Why now. The ERC grant has generated the data and the instrument. The theoretical framework is in place. This paper uses what the lab already has to answer the question the external literature is explicitly asking, and lays the groundwork for designing future experiments with cognitive moderators built in from the start.