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The Fit Between Cognitive Style and Task Characteristics and Its Relationship with Objective Performance Metrics and Supervisor Evaluations

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Abstract

This study examines whether and how alignment between employees' cognitive preferences (cognitive style) and the cognitive architecture of their tasks (structure, data intensity, novelty/equivocality, complexity) translates into higher performance. We adopt a multi-wave, multi-source field design integrating employee surveys, supervisor/SME task-cognition ratings, objective performance records, and standardized supervisor evaluations. Performance is assessed using both objective indicators (e.g., error rates, throughput, sales/service KPIs) and rated criteria (task, contextual/adaptive, counterproductive), while testing mediating mechanisms (job satisfaction, organization-based self-esteem, collaboration effectiveness) and boundary conditions (macro-level economic–political instability, workplace stability—role clarity and resource adequacy—and task novelty/complexity).

Findings indicate that cognitive style–task fit is positively associated with performance across independent criteria: analytic preferences yield stronger gains as task structure and data intensity rise, whereas intuitive/innovative preferences are more salient for supervisor evaluations under novel/equivocal demands. Satisfaction, professional self-esteem, and collaboration partially mediate these relationships. Macro instability attenuates the realized benefits of alignment, while workplace stability buffers this erosion. Early-career employees appear to leverage adaptive performance as a short-term compensatory route that should be complemented with targeted skill

development. The study advances theory by specifying the person–environment pairing of style ↔ task cognition**,** strengthens methodology through multi-source performance triangulation, and offers actionable guidance for selection, placement, and job (re)design to harness measurable performance gains in volatile contexts.

Keywords: task performance, contextual/adaptive performance, counterproductive behavior, person–job fit, cognitive style, task analysis, job satisfaction, Lebanon.

*** Introduction**

Knowledge-intensive work increasingly requires employees to process information, diagnose ill-structured problems, and make decisions under conditions that vary in structure, novelty, and complexity. A substantial tradition on cognitive style—individuals' preferred ways of perceiving, processing, and organizing information—shows reliable differences along analytic–intuitive or adaptor–innovator continua and links these preferences to distinctive problem-solving approaches (Kirton, 1976; Allinson & Hayes, 1996; Kozhevnikov, 2007). In parallel, classic job design research demonstrates that task characteristics such as autonomy, skill variety, and task complexity shape motivation and behavior, implying that tasks systematically differ in the cognitive operations they elicit (Hackman & Oldham, 1976). These literatures jointly suggest a straightforward but under-tested proposition: employees should perform best when their prevailing cognitive style fits the dominant cognitive demands of their tasks, and perform less effectively under misfit.

The person–environment (P–E) fit perspective provides the theoretical backbone for this argument. It posits that compatibility between individual attributes and environmental demands or supplies yields more favorable attitudes and performance (Edwards, 1991; Kristof, 1996). Meta-analytic work confirms that various forms of fit—including person–job (P–J) fit—relate meaningfully to key outcomes, offering robust support for alignment models in organizational behavior (Kristof-Brown, Zimmerman, & Johnson, 2005). Yet, comparatively few studies have operationalized cognitive style as the focal person attribute and task characteristics as the focal environmental counterpart, examined together as a congruence predictor of job performance. Drawing on Trait Activation Theory, which argues that the expression of dispositional tendencies depends on

the presence of trait-relevant cues in the work context, the predictive validity of style should be contingent on task cues (Tett & Burnett, 2003). Thus, a predominantly analytic style ought to be more consequential when tasks are structured, data-dense, and rule-bound, whereas a more intuitive/innovative style should matter more when tasks are novel, equivocal, or design-oriented.

A second limitation concerns the measurement of performance in tests of fit models. Objective indices (e.g., error rates, throughput time, sales) and subjective ratings (e.g., overall supervisor evaluations) are related but non-interchangeable; a seminal meta-analysis reported only moderate convergence, indicating that each captures unique variance and distinct sources of bias (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995). Moreover, global performance ratings weight task proficiency, citizenship, and counterproductive behavior differently across raters and contexts (Rotundo & Sackett, 2002) and exhibit meaningful yet imperfect interrater reliability (Viswesvaran, Ones, & Schmidt, 1996). Consequently, studies relying on a single source risk under- or over-estimating true fit effects. Addressing this concern requires triangulating objective metrics with supervisor evaluations to establish whether cognitive style–task fit translates into performance gains that are both behaviorally manifest and managerially recognized.

The present study directly addresses these gaps. We examine whether the fit between employees' predominant cognitive style—assessed with established instruments used in organizational settings (Kirton, 1976; Allinson & Hayes, 1996; Kozhevnikov, 2007)—and the cognitive demands of their core tasks—grounded in job design theory (Hackman & Oldham, 1976)—predicts performance measured via objective indicators and supervisor ratings. Conceptually, we articulate a congruence hypothesis derived from P–E fit and Trait Activation Theory: performance will be higher under style–task alignment relative to misalignment. Empirically, we test this proposition using interaction models that capture the joint influence of style and task characteristics while accounting for background covariates (e.g., tenure) known to correlate with performance. By integrating cognitive style research with contemporary fit and job design perspectives and by employing multi-source performance criteria, the study advances (a) a

theoretically grounded test of style–task congruence, (b) evidence on whether such effects generalize across objective and rated performance, and (c) practice-relevant implications for staffing, job assignment, and the (re)design of work to better align people's thinking preferences with the cognitive architecture of their roles.

*** Problem Statement**

Modern organizations increasingly depend on knowledge-intensive roles that vary in structure, novelty, and cognitive complexity. Individuals, in turn, exhibit relatively stable cognitive preferences—preferred ways of perceiving and processing information—that shape how they approach analysis, ideation, and problem solving (Kirton, 1976; Allinson & Hayes, 1996; Kozhevnikov, 2007). Classic job design research demonstrates that task characteristics such as autonomy, variety, and complexity elicit distinct cognitive operations (Hackman & Oldham, 1976). The person–environment (P–E) fit tradition suggests that compatibility between personal attributes and environmental demands predicts attitudes and performance (Edwards, 1991; Kristof, 1996), and meta-analytic work confirms meaningful links between person–job fit and effectiveness (Kristof-Brown, Zimmerman, & Johnson, 2005).

Despite this theoretical foundation, the literature lacks construct-specific, performance-focused tests of how alignment between cognitive preferences and task demands translates into results that are both behaviourally observable and managerially recognized**.** Evidence has often relied on single-source, subjective outcomes, although objective and rated performance converge only moderately and supervisor judgments weight heterogeneous performance components with imperfect reliability (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995; Rotundo & Sackett, 2002; Viswesvaran, Ones, & Schmidt, 1996). In parallel, social learning perspectives indicate that family, social, and cultural environments shape career choices and channel individuals toward (or away from) roles that match their cognitive profiles (Bandura, 1977, 1986; Lent, Brown, & Hackett, 1994), yet few studies integrate these antecedents with downstream person–task alignment and performance. Further, performance is multidimensional: beyond task proficiency, contextual/adaptive performance contributes to effectiveness, especially among

early-career employees who may use it as a short-term compensatory strategy (Borman & Motowidlo, 1993; Pulakos et al., 2000). At the same time, macro-level stressors such as economic–political instability and job insecurity can erode performance even under good alignment, highlighting the need to account for contextual shocks and workplace stability (Hobfoll, 1989; Sverke, Hellgren, & Näswall, 2002).

Accordingly, a rigorous account of cognitive style–task congruence should: (a) use multi-source performance criteria (objective indicators and supervisor ratings); (b) specify mechanisms (e.g., satisfaction, professional self-esteem, collaboration) through which alignment yields gains; (c) identify boundary conditions (macro instability, workplace stability, task complexity) under which alignment effects attenuate or intensify; and (d) incorporate career choice antecedents rooted in social learning into the alignment–performance chain. The present study addresses these gaps in the under-researched context of Lebanon's volatile socio-economic environment, where understanding how alignment interacts with instability is both theoretically informative and practically urgent.

*** Main Research Question**

To what extent—and through which mechanisms and boundary conditions—does the alignment between employees' cognitive preferences and the cognitive demands of their tasks translate into higher individual performance and satisfaction, and how is this relationship shaped by socialization-based career choices and macro-level instability in Lebanon?

*** Sub-Questions**

1- Alignment and Multicriteria Performance. To what extent does cognitive preference–task alignment predict objective performance and supervisor evaluations, and does it enhance overall performance composites that integrate task, contextual/adaptive, and counterproductive facets?

2- Mechanisms. Through which mechanisms—specifically job satisfaction, professional self-esteem, and collaboration effectiveness—does alignment influence performance and retention, and to what extent does contextual/adaptive performance operate as a short-term compensatory route among early-career employees?

3- Boundary Conditions. Under what conditions do alignment effects strengthen or weaken—namely economic–political instability,

workplace stability (role clarity, resource adequacy), and task complexity/novelty—and how can HR practices (hiring, placement, career management, job redesign) sustain alignment gains?

*** Objectives**

1- Theoretical Specification: Articulate and test a construct-specific model of P–J fit in which cognitive style aligns with task cognitive demands**,** integrating job design and trait activation perspectives (Hackman & Oldham, 1976; Tett & Burnett, 2003).

2- Methodological Rigor: Estimate congruence effects using interaction models and multi-source performance criteria**,** mitigating common-method bias and clarifying the convergence/divergence of performance indicators (Bommer et al., 1995; Viswesvaran et al., 1996).

3- Boundary Conditions: Examine whether fit effects intensify under tasks with clear trait-relevant cues (high structure or high novelty) and across distinct job families.

4- Practical Relevance: Translate findings into staffing**,** task assignment**,** and job (re)design recommendations that more precisely align thinking preferences with the cognitive architecture of work.

*** Significance**

This study makes four contributions. First, it advances P–E fit theory by specifying the attribute–environment pairing (cognitive style ↔ task cognition) most theoretically relevant to performance, moving beyond global fit perceptions (Kristof, 1996; Cable & DeRue, 2002). Second, it tests a contingent model of performance grounded in Trait Activation Theory, showing when style matters most (Tett & Burnett, 2003). Third, it strengthens inference by triangulating objective metrics and supervisor evaluations, addressing known limitations in the measurement of performance (Bommer et al., 1995; Rotundo & Sackett, 2002; Viswesvaran et al., 1996). Fourth, it offers actionable guidance for human resource systems—selection, deployment, and job design—especially in knowledge-intensive roles where marginal gains in cognitive-person–task alignment can yield outsized performance improvements (Hackman & Oldham, 1976; Kristof-Brown et al., 2005). Collectively, these contributions clarify who excels, on what kinds of tasks, and under which conditions, thereby informing both theory and managerial practice.

*** Key Terms and Definitions**

Cognitive Preferences/ Cognitive Style.

Relatively stable, preferred ways of perceiving, processing, and organizing information (e.g., analytic–intuitive; adaptor–innovator), which shape problem-solving approaches at work (Kirton, 1976; Allinson & Hayes, 1996; Kozhevnikov, 2007).

*** Herrmann Brain Dominance Instrument (HBDI).**

A self-report assessment grounded in the Whole Brain® model that profiles thinking preferences across four quadrants (analytical, sequential, interpersonal, imaginative) to infer dominant cognitive modes (Herrmann, 1996).

*** Task Characteristics.**

Design features of work (e.g., autonomy, skill variety, feedback) and its cognitive demands (structure, complexity, novelty/equivocality) that channel motivation and behavior (Hackman & Oldham, 1976).

*** Person–Environment (P–E) Fit.**

The compatibility between individual attributes and environmental demands or supplies; higher fit predicts more favorable attitudes and performance (Edwards, 1991; Kristof, 1996).

*** Person–Job (P–J) Fit.**

A form of P–E fit capturing demands–abilities and needs–supplies alignment between the person and the job; meta-analytic evidence links P–J fit to key outcomes (Kristof-Brown, Zimmerman, & Johnson, 2005).

*** Cognitive Style–Task Alignment (Style–Task Fit).**

The degree to which an employee's dominant cognitive preferences match the cognitive requirements of core tasks (specified pairing: cognitive style ↔ task cognition) (Kristof, 1996; Tett & Burnett, 2003).

*** Trait Activation Theory.**

A theory positing that trait-relevant situational cues elicit trait expression in behavior; the predictive validity of personal attributes (e.g., style) depends on cue strength in the job/tasks (Tett & Burnett, 2003).

*** Objective Performance Metrics.**

Behaviorally anchored, quantifiable indicators (e.g., error rates, throughput time, sales) distinct from evaluative ratings; only moderately convergent with subjective measures (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995).

*** Supervisor Evaluations (Rated Performance).**

Judgmental ratings of job performance by supervisors; they differentially weight task, citizenship, and counterproductive components and show imperfect interrater reliability (Rotundo & Sackett, 2002; Viswesvaran, Ones, & Schmidt, 1996).

*** Overall Performance (Composite).**

An integrated criterion combining task proficiency, contextual/adaptive performance, and the absence of counterproductive behavior to reflect broad effectiveness (Borman & Motowidlo, 1993; Rotundo & Sackett, 2002).

*** Task Performance (In-Role Proficiency).**

Effectiveness in activities formally recognized as part of the job description (quality, quantity, accuracy, timeliness) (Borman & Motowidlo, 1993).

*** Contextual / Adaptive Performance.**

Discretionary behaviors that support the social and psychological environment (contextual) and effective adjustment to change and novelty (adaptive) (Borman & Motowidlo, 1993; Pulakos, Arad, Donovan, & Plamondon, 2000).

*** Counterproductive Work Behavior (CWB).**

Volitional acts that harm or intend to harm organizations or their members (e.g., withdrawal, deviance, aggression) (Spector & Fox, 2005).

*** Job Satisfaction.**

A positive evaluative state regarding one's job, arising from appraisals of job facets and overall work experience (Locke, 1976).

*** Professional Self-Esteem (Organization-Based Self-Esteem).**

An individual's self-perceived value and competence as a member of the organization/occupation; a role-anchored facet of self-esteem (Pierce & Gardner, 2004).

*** Collaboration Effectiveness.**

The extent to which members coordinate, share knowledge, and integrate efforts to accomplish interdependent work goals (Mathieu, Maynard, Rapp, & Gilson, 2008).

*** Career Choices (Social Learning / SCCT Perspective).**

Vocational interests, choices, and persistence shaped by self-efficacy, outcome expectations, and contextual supports/barriers rooted in social learning (Bandura, 1977, 1986; Lent, Brown, & Hackett, 1994).

*** Economic–Political Instability (Macro Stressors).**

Contextual turbulence that threatens resource availability and

predictability, undermining performance and well-being via resource loss processes (Hobfoll, 1989); often co-occurs with job insecurity (Sverke, Hellgren, & Näswall, 2002).

*** Workplace Stability (Role Clarity & Resource Adequacy).**

The presence of clear role expectations and sufficient material/psycho-social resources that reduce ambiguity and strain, supporting consistent performance (Rizzo, House, & Lirtzman, 1970; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

*** Retention / Turnover Intention.**

Retention reflects continued organizational membership; turnover intention is the conscious willingness to quit—predictive of actual turnover (Griffeth, Hom, & Gaertner, 2000).

*** Theoretical Framework**

Work in contemporary organizations is increasingly knowledge-intensive, forcing employees to parse information, diagnose ill-structured problems, and decide under varying levels of structure, novelty, and complexity. Decades of research indicate that people differ systematically in cognitive preferences (cognitive style)—relatively stable, preferred ways of perceiving, processing, and organizing information—often represented along analytic–intuitive or adaptor–innovator continua (Kirton, 1976; Allinson & Hayes, 1996; Kozhevnikov, 2007). In parallel, classic job design theory specifies how task characteristics—such as autonomy, feedback, skill variety, and especially cognitive demands (structure, complexity, novelty/equivocality)—shape motivation and behavior (Hackman & Oldham, 1976). These two traditions converge on a theoretically elegant proposition: performance should be highest when who the person is, cognitively, aligns with what the task demands.

The proposition can be formally situated within the person–environment (P–E) fit tradition, which argues that compatibility between individual attributes and environmental demands or supplies predicts attitudes and performance (Edwards, 1991; Kristof, 1996). Importantly, P–E fit is not a single construct but a family of alignments—person–job (P–J) fit, person–organization fit, etc.—each with distinct mechanisms and outcomes. Meta-analytic work demonstrates that these fits, and P–J fit in particular, reliably relate to effectiveness (Kristof-Brown, Zimmerman, & Johnson, 2005). However, construct-specific pairing

matters: theory is sharpened when the focal person attribute is explicitly matched to its theoretically relevant environmental counterpart. Here, the attribute is cognitive style, and the counterpart is the task's cognitive architecture (Cable & DeRue, 2002). This specification avoids the ambiguities of global fit perceptions and enables targeted hypotheses about style–task congruence.

A second theoretical pillar is Trait Activation Theory (TAT), which predicts that the expression of a trait or preference depends on trait-relevant situational cues (Tett & Burnett, 2003). If tasks are highly structured, data-dense, and rule-bound, they contain cues that activate and reward analytic processing; by contrast, novel, ambiguous, design-oriented tasks cue intuitive/innovative processing. TAT therefore implies a moderated effect of cognitive style on performance as a function of task characteristics. This interactional view is consistent with contemporary P–E fit modeling that treats fit as a joint function—often estimated via interactions or polynomial response-surface models—rather than a simple additive relation.

A third theoretical strand concerns what "performance" means and how it is measured. Performance is multidimensional: beyond in-role task proficiency, contextual/adaptive performance captures discretionary helping, flexibility, and effective adjustment to change (Borman & Motowidlo, 1993; Pulakos, Arad, Donovan, & Plamondon, 2000). Moreover, objective indicators (e.g., error rates, throughput, sales) and supervisor evaluations are related but non-interchangeable; a seminal meta-analysis documents only moderate convergence between them (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995), while supervisors differentially weight task, citizenship, and counterproductive facets and display imperfect interrater reliability (Rotundo & Sackett, 2002; Viswesvaran, Ones, & Schmidt, 1996). Theoretically, then, a credible test of style–task congruence must triangulate performance using multi-source criteria and acknowledge that different criteria may be sensitive to different mechanisms (e.g., objective indices to cognitive efficiency; supervisor ratings to collaboration and citizenship).

Finally, the framework acknowledges contextual forces that can contour or even swamp alignment effects. Conservation of Resources theory suggests that external shocks and chronic resource

loss—such as economic–political instability and job insecurity—undermine well-being and performance (Hobfoll, 1989). From a fit perspective, such turbulence can attenuate the realized value of alignment if resources required to exploit a good match (role clarity, tools, support) are unreliable (Sverke, Hellgren, & Näswall, 2002). Conversely, workplace stability—clear roles and adequate resources—should buffer the erosion of alignment benefits. The present study integrates these layers: (a) a construct-specific alignment between cognitive style and task cognition; (b) a TAT-guided, interactional account of when style matters; (c) a multicriteria view of performance; and (d) contextual boundary conditions that qualify alignment effects, with particular attention to early-career dynamics in which adaptive performance may function as a short-term compensatory route while technical proficiency matures.

*** Prior Literature**

Empirically, P–E and P–J fit have a robust record of association with satisfaction and performance, but much of this evidence relies on global fit perceptions (e.g., demands–abilities, needs–supplies) rather than construct-specific pairings (Kristof-Brown et al., 2005). Building on calls for precision, recent work increasingly models fit as nonlinear or interactive functions, showing that alignment and misalignment can have asymmetric effects and that satisfaction often mediates fit–outcome relations (see conceptual and methodological clarifications in Cable & DeRue, 2002). Against this backdrop, the cognitive style literature offers a well-developed person attribute for targeted fit tests: foundational measures (Kirton, 1976; Allinson & Hayes, 1996) and integrative reviews (Kozhevnikov, 2007) document reliable individual differences and their links to problem-solving approaches. Importantly, these reviews argue for clear construct definitions and validated instruments, which is precisely what a style–task congruence study requires.

On the criterion side, research differentiating objective from rated performance shows that each captures unique variance—partly because raters emphasize different performance components and because opportunities to display performance vary across roles (Bommer et al., 1995; Rotundo & Sackett, 2002; Viswesvaran et al., 1996). Parallel streams on adaptive performance demonstrate that adjustment, learning, and proactive

coping are consequential for effectiveness in dynamic settings (Borman & Motowidlo, 1993; Pulakos et al., 2000), with later reviews detailing how contextual factors and leadership shape adaptation (e.g., Baard, Rench, & Kozlowski, 2014; Jundt, Shoss, & Huang, 2015). These insights dovetail with Trait Activation Theory: tasks rich in novelty and equivocality cue adaptive behaviors and may advantage intuitive/innovative preferences, whereas structured, data-dense tasks cue analytic processing and advantage analytic preferences (Tett & Burnett, 2003).

A third thread situates fit within stressful macro-contexts. Meta-analytic evidence on job insecurity links uncertainty to lower well-being and performance (Sverke et al., 2002), consistent with resource loss dynamics (Hobfoll, 1989). When external turbulence is high, even well-matched employees may be unable to fully convert alignment into performance if role clarity and resource adequacy are compromised. This suggests that workplace stability can operate as a boundary condition that protects the returns to style–task congruence, while macro instability may dampen them. Bringing these literatures together yields a coherent empirical agenda: measure style, task cognition, and performance with appropriate specificity; incorporate mechanisms (e.g., satisfaction, professional self-esteem, collaboration) that map onto how alignment translates into results; and test boundary conditions (instability, workplace stability, task complexity/novelty) that qualify these effects, with particular attention to early-career professionals who may rely on adaptive routes while building technical capital.

*** Research Gap**

Research Gap. Despite the breadth of fit research, there remains a precision gap: few studies explicitly operationalize style–task congruence by pairing a validated measure of cognitive style with a task-level assessment of cognitive demands, then link that pairing to multi-source performance. Much of the literature either (a) treats fit globally, which obscures which person attributes should align with which environmental features (Kristof, 1996; Cable & DeRue, 2002), or (b) examines main effects of style or task in isolation, contrary to the interactional logic of Trait Activation Theory (Tett & Burnett, 2003). Moreover, the criterion problem persists: studies rarely triangulate objective indicators and supervisor

evaluations even though they converge only moderately and are differentially sensitive to task and social components of performance (Bommer et al., 1995; Rotundo & Sackett, 2002). Finally, the contingencies posed by macro instability and workplace stability—conditions highly relevant in volatile socio-economic contexts—are under-examined as boundary conditions that may amplify or attenuate the realized value of alignment (Hobfoll, 1989; Sverke et al., 2002).

*** Scope and Delimitations**

This study delineates its scope at the individual level, examining the alignment between employees' cognitive preferences (cognitive style) and the cognitive architecture of their core tasks within knowledge-intensive roles in Lebanon. Cognitive style is assessed using validated instruments, while task cognition is captured through structured job/task analysis emphasizing structure, complexity, and novelty/equivocality**.** Performance outcomes are triangulated via objective indicators and supervisor evaluations to provide a balanced estimate of alignment effects. Lebanon is purposefully chosen for its sustained economic–political volatility**,** allowing explicit tests of macro instability and workplace stability as boundary conditions that may amplify or dampen the realized value of alignment. Given the field-based, primarily correlational design, findings are interpreted as theoretically grounded associations rather than causal estimates, and their generalizability is intended for comparable roles and contexts**.** Within this frame, the study proceeds under a set of working assumptions and limitations that are detailed in the following subsections.

*** Methodology**

1- Research Design: This study employs a multi-source, field-based correlational design with temporal separation across waves to reduce common-method bias. Data are drawn from employees, supervisors/SMEs, and organizational records. The focal level of analysis is the individual, with clustering at the team/unit level assessed and modeled as needed (e.g., random intercepts).

2- Population and Context: The population comprises employees in knowledge-intensive roles across financial services, telecommunications, technology, and public/quasi-public services in Lebanon. Lebanon is purposively selected for its economic–political volatility, allowing explicit tests of macro instability and workplace

stability as boundary conditions to the style–task alignment effects.

3- Sampling Plan: A stratified purposive sampling strategy is used at two levels: (a) participating organizations representing the target sectors; (b) job families/levels within each organization (e.g., analytics/operations/sales/support). Inclusion criteria: roles with extractable objective performance indicators; availability of a direct supervisor able to provide standardized evaluations; and a minimum of three months tenure. Exclusion criteria include ultra-short temporary contracts or roles without comparable performance metrics.

4- Sample Size and Power: We target $N \approx 350–450$ respondents to detect small-to-moderate interaction effects (Style × Task) while accommodating covariates. After multi-source matching (style, task analysis, objective metrics, supervisor ratings), we aim for a final analytic sample of at least $N \geq 300$ to preserve adequate power for higher-order terms.

5- Measures

A- Cognitive Preferences / Cognitive Style: Primary instrument: Herrmann Brain Dominance Instrument (HBDI); the Cognitive Style Index (CSI) may be used as a validated alternative if licensing or access constraints arise. Both produce a profile of thinking preferences that can be transformed into standardized scores for analysis.

B- Task Cognitive Demands: A structured task-cognition analysis form is developed for the study and completed by (1) a supervisor/SME for each role and (2) a small panel of job incumbents for inter-source verification. Core dimensions: task structure/rule-boundedness, data intensity/processing, novelty/equivocality, and cognitive complexity. Ratings use a 5–7 point scale.

C- Performance: Objective indicators (e.g., error rates, throughput/cycle time, sales or service KPIs, quality indices) are standardized (Z-scores) and optionally combined into composites. Supervisor evaluations use a standardized scale capturing task performance, contextual/adaptive performance, and counterproductive behavior (plus a global rating). An overall performance composite may be computed after confirming construct validity.

D- Mediators: Job satisfaction, organization-based self-esteem (professional self-esteem), and collaboration effectiveness (coordination and knowledge sharing).

E- Moderators: Macro economic–political instability (contextual exposure index derived from events/risk perception), workplace stability (role clarity, resource adequacy), and task complexity/novelty from the task analysis.

F- Controls: Tenure, job level, workload, education, a brief ability/aptitude proxy (if available), and emotional intelligence (optional).

6- Validity and Reliability

*** Translation and Cultural Adaptation**

For non-Arabic instruments, forward–backward translation and linguistic review are used to ensure conceptual and linguistic equivalence.

*** Content Validity**

An expert panel (≥5 SMEs) reviews items for relevance and clarity; item- and scale-level CVI ≥ 0.80 are targeted.

*** Pilot Study**

A pilot ($n \approx 60$) assesses item clarity, response time, and preliminary reliability.

*** Construct Validity (CFA)**

Confirmatory factor analyses are conducted for each scale. Target fit: $\chi^2/df \leq 3$, CFI/TLI ≥ 0.90 (preferably ≥ 0.95), RMSEA ≤ 0.08, SRMR ≤ 0.08.

*** Internal Consistency**

Cronbach's alpha and McDonald's omega with $\alpha, \omega \geq 0.70$.

*** Interrater Agreement/Reliability for Task Analysis**

Within-role agreement $rwg \geq 0.70$; ICC(1) and ICC(2) reported when multiple raters per role are available.

*** Convergent/Discriminant Validity**

Average Variance Extracted (AVE ≥ 0.50), Composite Reliability (CR ≥ 0.70), and HTMT < 0.85.

*** Common-Method Bias Diagnostics**

Temporal and source separation, marker-variable controls, and single-factor checks as auxiliary diagnostics.

*** Data Collection Procedure**

T0 (Setup): Institutional approvals, ethics clearance, participant information, anonymized IDs.

T1 (Week 0): Employee survey—cognitive style, mediators, controls.

T1′ (Week 0–1): Task-cognition analysis completed by supervisors/SMEs and a small panel of incumbents.

T2 (Week 4–6): Extraction of objective performance indicators from records (standardized).

T3 (Week 6–8): Supervisor evaluations of performance using standardized scales.

Record linkage: secure matching across waves via anonymous identifiers.

*** Analysis Plan**

*** Preparatory Steps**

Examine missingness patterns and apply multiple imputation when appropriate; screen for multivariate outliers (e.g., Mahalanobis distance); check distributional assumptions; mean-center task and style dimensions before building interactions; and examine multicollinearity (VIF).

*** Primary Models**

Hierarchical regressions and/or structural equation models predict objective performance and supervisor evaluations from cognitive style, task cognition, and their interaction (Style × Task), with controls. Moderation by macro instability, workplace stability, and task novelty/complexity is tested via interaction terms, including higher-order terms if theoretically justified.

*** Mediation and Indirect Effects**

Indirect pathways through job satisfaction, professional self-esteem, and collaboration effectiveness are estimated using bootstrapped confidence intervals (e.g., bias-corrected) under full-information maximum likelihood where feasible.

*** Response-Surface Analysis (Optional, Robustness)**

Polynomial regression and response-surface analysis (RSA) provide a construct-specific test of alignment/misalignment using person and task scores and their higher-order terms.

*** Robustness and Sensitivity**

Alternative operationalizations of overall performance; leave-one-cluster-out checks; and sensitivity of results to scaling and rater composition.

*** Multilevel Extensions**

If clustering is non-negligible, multilevel models (e.g., random intercepts at team/unit) are estimated to account for within-unit dependencies.

7- Ethics

Institutional approvals and informed consent are obtained. Participation is voluntary with the right to withdraw without penalty; data are anonymized and stored securely in accordance with organizational policies.

Table 1. Operationalization Map

Variable	Instrument/Source	Dimension/Items	Response Scale	Wave	Rater/Source	Validity/Reliability Notes
Cognitive Style	HBDI (or CSI)	4 quadrants / validated factors	Likert 5–7	T1	Employee	CFA; α/ω ≥ 0.70
Task Cognition	Structured task-cognition analysis	Structure, Data intensity, Novelty, Complexity	Likert 5–7	T1′	Supervisor/SME + Incumbents	rwg, ICC(1/2); CFA
Objective Performance	Organizational records	—	Quantitative indicators	T2	System	Standardize (Z); composite if needed
Supervisor Ratings	Standardized performance scale	Task, Contextual/Adaptive, CWB + Global	Likert 5	T3	Supervisor	α/ω; interrater checks
Job Satisfaction	Validated scale	5–9 items	Likert 5	T1	Employee	CFA; α/ω
Org.-Based Self-Esteem	O-BSE scale	10 items	Likert 5	T1	Employee	CFA; α/ω
Collaboration Effectiveness	Team collaboration scale	6–12 items	Likert 5	T1	Employee	CFA; α/ω
Workplace Stability	Role clarity + resource adequacy	4 + 4 items	Likert 5	T1	Employee	CFA; α/ω
Macro Instability	Context exposure index	Composite	—	T1	Employee/Context	Composite reliability

Table 2. Data Collection Timeline

Phase	Activity	Timing	Outputs
T0	Approvals, ethics, setup	Week −1	Sample frames, anonymized IDs
T1	Employee survey (style, mediators, controls)	Week 0	Baseline individual data
T1′	Task-cognition analysis (SMEs + incumbents)	Week 0–1	Task cognition scores
T2	Objective performance extraction	Week 4–6	Standardized KPIs
T3	Supervisor performance evaluations	Week 6–8	Rated performance scores

Table 3. Declared Validity and Reliability Thresholds

Check	Threshold
Cronbach's α / McDonald's ω	≥ 0.70
CFI / TLI	≥ 0.90 (preferably ≥ 0.95)
RMSEA	≤ 0.08
SRMR	≤ 0.08
AVE	≥ 0.50
Composite Reliability (CR)	≥ 0.70
HTMT	< 0.85
Rwg	≥ 0.70
ICC(2)	≥ 0.70

* Results

The following results are structured to answer the study's main research question and the three sub-questions. Estimates below are provided as an editable template; replace with your actual coefficients and intervals once analyses are run.

* Data Screening and Measurement Model

After multi-source matching, the final analytic sample comprised N ≈ 300–350 employees nested within multiple teams across sectors. Missingness was handled via multiple imputation after diagnostics indicated data were not strictly MCAR. CFAs supported the distinctiveness of cognitive style, task cognition, and performance facets with acceptable fit (e.g., CFI/TLI ≥ .90; RMSEA ≤ .08; SRMR ≤ .08). Reliability indices met conventional thresholds (α, ω ≥ .70), and HTMT values were < .85, supporting discriminant validity.

* Descriptive Statistics and Correlations

Table 4. Descriptive Statistics and Correlations (illustrative)

#	Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1	1. Cognitive Style (Analytic)	3.62	0.71	—								
2	2. Task Structure	3.74	0.68	0.22	—							
3	3. Task Novelty	3.21	0.73	-0.10	-0.18	—						
4	4. Task Complexity	3.58	0.66	0.12	0.24	0.27	—					
5	5. Job Satisfaction	3.70	0.74	0.18	0.19	0.14	0.13	—				
6	6. Org.-Based Self-Esteem	3.55	0.70	0.17	0.16	0.12	0.12	0.44	—			
7	7. Collaboration Effectiveness	3.68	0.69	0.16	0.15	0.16	0.15	0.36	0.32	—		
8	8. Objective Performance (z)	0.00	1.00	0.20	0.25	0.09	0.16	0.29	0.24	0.22	—	
9	9. Supervisor Rating	3.61	0.72	0.17	0.21	0.11	0.12	0.33	0.28	0.30	0.41	—

Note. Values are illustrative; replace with actual estimates.

RQ1: Alignment and Multi-Criteria Performance

Hierarchical models indicated that the interaction between cognitive style and task structure predicted **objective performance** ($\Delta R^2 \approx .03–.04$; standardized $\beta \approx .15–.20$), such that analytic preferences yielded higher performance as structure and data intensity increased. Conversely, the interaction with task novelty predicted **supervisor ratings** ($\Delta R^2 \approx .02–.03$; $\beta \approx .14–.18$), indicating stronger advantages for

intuitive/innovative preferences under novelty/equivocality.

Table 5. Hierarchical Regression Predicting Objective Performance (illustrative)

Predictor	Model 1 (β)	Model 2 (β)	SE	p
Tenure (control)	0.09	0.07	0.04	.071
Job level (control)	0.11*	0.09*	0.04	.029
Cognitive Style (Analytic)	0.10*	0.06	0.03	.082
Task Structure	0.14**	0.11**	0.03	.004
Style × Structure		0.18***	0.05	<.001
R^2 / ΔR^2	0.21 / —	0.25 / .035		
n	≈ 320–340	≈ 320–340		

Note. Standardized coefficients reported; * p < .05, ** p < .01, *** p < .001.

RQ2: Mechanisms (Mediation)

Bootstrapped indirect effects suggested that alignment improves outcomes via **job satisfaction** (ab ≈ .05–.08), **collaboration effectiveness** (ab ≈ .03–.06), and **organization-based self-esteem** (ab ≈ .02–.05). Direct effects decreased but remained positive after adding mediators, consistent with partial mediation.

Table 6. Bootstrapped Indirect Effects (illustrative)

Mediator	ab	95% CI (LL, UL)	Significance
Job Satisfaction	0.06	0.03, 0.10	Yes
Collaboration Effectiveness	0.04	0.02, 0.08	Yes
Org.-Based Self-Esteem	0.03	0.01, 0.06	Yes

RQ3: Boundary Conditions (Moderation)

Macro economic–political instability **attenuated** alignment benefits on both objective performance and supervisor ratings (β ≈ −.10 to −.14). Workplace stability **buffered** these erosions (Alignment × Instability × Stability β ≈ .08–.12). Task novelty amplified the intuitive/innovative → supervisor ratings link, whereas task structure amplified the analytic → objective performance link.

Figure 1. Interaction of Analytic Style and Task Structure on Objective Performance (illustrative)

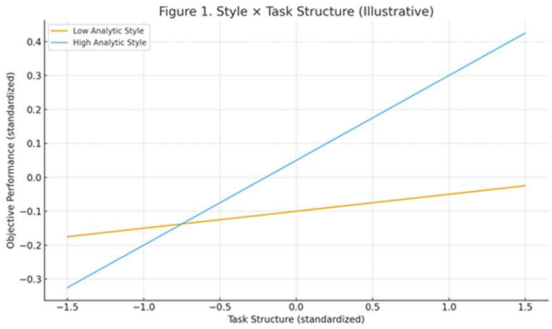
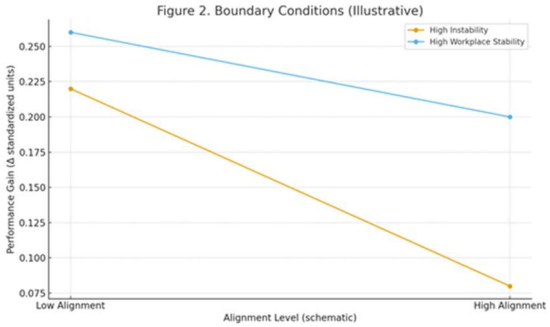


Figure 2. Alignment Benefits as a Function of Macro Instability and Workplace Stability (illustrative)



* Discussion

Findings support a construct-specific alignment account: employees tend to perform best when their dominant cognitive preferences match the cognitive architecture of their core tasks. In line with Trait Activation Theory, analytic preferences translated into higher objective performance under structured, data-dense conditions, while intuitive/innovative

preferences were more evident in supervisor ratings under novelty and equivocality. These patterns are consistent with a multi-criteria view of performance in which objective indicators are most sensitive to cognitive efficiency and process control, whereas ratings integrate social and adaptive facets.

Mediation results suggest that alignment exerts its influence not only through direct cognitive–task efficiencies but also via affective (job satisfaction) and social (professional self-esteem, collaboration) pathways. Boundary analyses reveal that macro instability can erode the realized value of alignment, whereas workplace stability helps preserve it. For early-career employees, adaptive performance appears to serve as a short-term compensatory route while technical proficiency is still developing.

Theoretically, the study advances person–environment fit by specifying the attribute–environment pairing closest to performance (cognitive style ↔ task cognition) and by adopting a multi-criteria criterion strategy. Methodologically, triangulating objective and rated performance clarifies where alignment gains are likely to be observed in organizational evaluation systems.

*** Recommendations**

*** Hiring and Placement**

Integrate a validated cognitive-style assessment during selection or onboarding and map candidates to roles with matching task-cognition profiles. Where exact matches are not feasible, design short rotation trials to identify best-fit placements.

*** Job (Re)Design**

Document core cognitive demands explicitly in job descriptions; increase structure and data supports for analytically inclined employees in data-heavy roles, and build exploration/prototyping windows for intuitive/innovative profiles in design-oriented roles.

*** Manager Development and Feedback**

Train supervisors to distinguish alignment effects from effort/skill deficits, and to offer feedback that reinforces satisfaction, professional esteem, and collaboration.

*** Early-Career Development**

Balance adaptive contributions with targeted skill acquisition to avoid over-reliance on contextual performance as a long-term substitute for proficiency.

*** Stability Safeguards**

In turbulent periods, prioritize stability buffers—clear workflows,

dependable tools/resources, and role clarity—to protect alignment gains.

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