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البصمات العصبية لعدم التوافق بين أسلوب التفكير ومتطلبات العمل: دراسة عصبية معرفية للمفكّرين الإبداعيين في بيئات عمل منظّمة

Neural Signatures of Cognitive Style–Job Mismatch: A Neuroscientific Study of Creative Thinkers in Structured Work Environments

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ملخص الدراسة:

هدفت هذه الدراسة إلى فحص الآثار العصبية والأدائية الناتجة عن عدم التوافق بين أسلوب التفكير السائد لدى الفرد ومتطلبات المهمة الوظيفية، مع التركيز على الأفراد ذوي النمط الإبداعي المكلَّفين بأعمال منظمة وروتينية. استخدمت الدراسة تصميمًا شبه تجريبيًّا ذا مدخل عصبي معرفي، شمل (60) مشاركًا جرى تصنيفهم إلى فئتين: مبدعة وتحليلية، استنادًا إلى نموذج الدماغ الكلي لهيرمان. نفّذ المشاركون نوعين من المهام (منظّمة روتينية ومفتوحة إبداعية) بينما تم تسجيل نشاط الدماغ باستخدام تقنيتي fMRI وEEG، وجُمعت بالتوازي مؤشرات الأداء (الدقّة والوقت) ومستويات العبء الذهني.

أظهرت النتائج أن الأفراد ذوي النمط الإبداعي أظهروا تنشيطًا أعلى في مناطق الضبط والجهد المعرفي في الفص الجبهي عند أداء المهام غير المتوافقة مع نمطهم (المنظّمة)، ترافق ذلك مع انخفاض في مناطق المكافأة وتراجع طفيف في الأداء. في المقابل، أبدى ذوو النمط التحليلي عبئًا معرفيًّا أعلى عند أداء المهام الإبداعية المفتوحة. تشير النتائج عمومًا إلى أن التوافق بين نمط التفكير وطبيعة المهمة يرتبط بأداء أفضل وكلفة عصبية أقل.

وتخلص الدراسة إلى أن التوافق بين الشخص والوظيفة يمثل ظاهرة يمكن قياسها دماغيًّا، وأن عدم التوافق يؤدي إلى "كلفة عصبية" تفسّر ضعف أداء المبدعين في الأدوار الصارمة. توصي الدراسة بدمج تشخيص أنماط التفكير في عمليات التوظيف وتصميم المهام، وتبنّي استراتيجيات لزيادة المرونة المعرفية للعاملين في البيئات ذات الطابع التنظيمي العالي.

الكلمات المفتاحية: أسلوب التفكير؛ التوافق بين الشخص والوظيفة؛ نموذج هيرمان للدماغ الكلي؛ المفكّرون الإبداعيون؛ المهام المنظّمة؛ التصوير بالرنين المغناطيسي الوظيفي؛ تخطيط الدماغ الكهربائي؛ تصميم العمل

Abstract

This study aimed to examine the neurological and performance effects of mismatch between an individual's dominant thinking style and the demands of a job task, focusing on creative individuals assigned structured and routine tasks. The study employed a quasi-experimental design with a neurocognitive approach, involving 60 participants categorized into two groups: creative and analytical, based on Herrmann's whole-brain model. Participants performed two types of tasks (structured routine and open creative) while brain activity was recorded using fMRI and EEG. Performance indicators (accuracy and time) and mental workload levels were collected concurrently.

The results showed that creative individuals exhibited higher activation in the control and cognitive effort areas of the prefrontal cortex when performing tasks inconsistent with their style (structured), accompanied by a decrease in reward areas and a slight decline in performance. In contrast, analytical individuals demonstrated a higher cognitive workload when performing open creative tasks. The results generally indicate that a better fit between thinking style and task nature is associated with improved performance and lower neurological costs.

The study concludes that job-person fit is a brain-measurable phenomenon, and that mismatch leads to "neural costs" that explain the underperformance of creative individuals in demanding roles. The study recommends integrating thinking style assessments into recruitment and task design processes, and adopting strategies to enhance the cognitive flexibility of employees in highly structured environments.

Keywords: cognitive style; person–job fit; Herrmann Whole Brain model; creative thinkers; structured tasks; fMRI; EEG; neural activation; work design.

Introduction

Person–job fit has been one of the most enduring ideas in organizational psychology: people tend to work better, stay longer, and feel healthier when what they do matches how they are wired to think and act. Classic models of fit focused on knowledge, skills, and values, but they often treated cognition as if everyone processed tasks in the same way. In reality, employees differ in their dominant cognitive styles: some approach problems analytically and sequentially, others work holistically and creatively, and still others prioritize interpersonal meaning. When such a cognitive style meets a job that is designed in the opposite way, strain and performance loss are likely to appear.

The Whole Brain® model developed by Ned Herrmann offered managers an accessible way to describe these differences by grouping thinking preferences into four broad quadrants (analytical, organized, relational, and creative). Although this model was inspired by brain functioning, it has mostly been used as a psychometric and training tool. At the same time, organizations continue to place highly creative, divergent thinkers in tightly structured roles, or ask very analytical workers to generate novel ideas in unstructured settings. Field observations and organizational reports describe predictable consequences in such cases: higher mental effort, lower intrinsic motivation, subtle forms of disengagement, and, over time, talent loss—especially among younger professionals who are more sensitive to meaning and autonomy at work.

In parallel, developments in cognitive neuroscience over the last decade have given researchers the tools to observe the brain in real time while people perform creative, convergent, or highly controlled tasks. Studies have shown that creative performance tends to recruit an interaction between default-mode and control networks, whereas structured, rule-based tasks lean more heavily on frontal control regions. This opens an important door: instead of assuming that cognitive misfit is "just" a psychological discomfort, we can now test whether it produces a measurable neural cost—more effort, more control, less reward—when people are forced to work against their dominant style.

The present study was designed to address precisely this gap. It examined whether creative (divergent) thinkers would show different neural activation patterns, higher cognitive load, and slightly weaker task performance when carrying out rigid, highly structured tasks, and whether analytical thinkers would show the mirror pattern when asked to perform open-ended tasks. By doing so, the study sought to connect three lines of work that are rarely integrated: person–job fit theory, Herrmann's cognitive preference model, and cognitive-neuroscience methods. Demonstrating a neural signature of cognitive style–job mismatch would help explain why some otherwise talented employees underperform in certain roles and would give organizations a biologically grounded reason to design work around cognitive diversity rather than suppress it.

Problem Statement

Person–job fit has been widely shown to predict satisfaction, commitment, and performance. However, most studies have examined fit at the level of skills, experience, or organizational values, while very few have treated the match between a person's dominant cognitive style and the structure of the tasks they perform as a core dimension of fit. In practice, organizations often assign highly creative, divergent thinkers to tightly scripted, procedure-based roles (e.g., reporting, compliance, standardized service delivery), or, conversely, expect highly analytical, sequential thinkers to perform open-ended, unstructured, idea-generation work. Employees in such positions frequently report greater mental fatigue, slower performance, and lower intrinsic motivation even though they are objectively "qualified" for the job. This suggests that something deeper than skills is being mismatched—namely, the way the person's brain prefers to process information.

At the same time, cognitive-style models such as Herrmann's Whole Brain® framework have remained largely psychometric: they help us name preferences (analytical, organized, interpersonal, creative), but they do not explain what happens in the brain when a person is forced to work "against" those preferences. Modern cognitive neuroscience now allows us to measure neural activation, cognitive load, and reward responses during different kinds of tasks. Yet there is almost no empirical work that directly links a validated cognitive-style model to neural responses under congruent vs. incongruent task conditions. As a result, current organizational psychology can say “mismatch reduces performance,” but it cannot show how or where the cost is paid in the brain.

This is the core gap:

- we know that cognitive diversity exists;
- we know that job design is often rigid;
- we suspect that forcing divergent minds into convergent work creates hidden strain;
- but we do not yet have neuroscientific evidence that a cognitive style–job mismatch produces a distinct, measurable neural signature (more control, more effort, less reward) that corresponds to lower task performance.

Filling this gap matters for theory (it biologically grounds person–job fit), and for practice (it gives HR and managers a concrete reason to design around thinking styles, not just around job descriptions).

Main Research Question

What are the neural and performance effects of a mismatch between an individual’s dominant cognitive style and the structure of the work task?

- **Sub-Questions**

1. To what extent does cognitive style–task mismatch increase neural effort compared with a matched condition?
2. Does matching task structure to cognitive style lead to better task performance than mismatch?
3. Do creative (divergent) thinkers show stronger signs of neural strain than analytical thinkers when they are required to perform highly structured tasks?

Research Hypotheses

H1. Participants will show higher activation in effort/control-related brain regions during mismatched tasks than during matched tasks.
H2. Task performance (accuracy, completion time, error rate) will be superior in matched conditions compared with mismatched conditions.
H3. Creative (divergent) thinkers will exhibit greater neural strain and higher subjective mental load than analytical thinkers when performing highly structured tasks

Significance of the Study

Theoretical Significance

- It brings together three domains that are rarely integrated: person–job fit theory, cognitive-style theory (Herrmann), and cognitive neuroscience.

- It offers a biological explanation for well-known behavioral findings: why creative people underperform in rigid roles and why analytical people struggle with open-ended work.
- It supports treating *cognitive fit* as a distinct dimension of fit—separate from skill fit and value fit—thus extending classic fit frameworks (Kristof-Brown et al., 2005).

Practical Significance

- HR units can justify using cognitive-style profiling not only for training, but upstream in selection and placement.
- Job and task design can be made more flexible (job crafting, task rotation) to reduce "neural cost" and mental fatigue.
- Organizations can avoid productivity losses that are not due to incompetence, but to cognitive mismatch.

Research Objectives

The purpose of this study was to investigate whether a mismatch between an individual's dominant cognitive style and the structure of the task produces a measurable "neural cost" and a parallel decline in behavioral performance. More specifically, the study sought to (a) provide neuroscientific evidence that cognitive style–task congruence is more efficient at the brain level than incongruence, (b) test whether creative (divergent) thinkers are disproportionately affected when placed in highly structured tasks, and (c) translate these findings into implications for job design, selection, and task rotation in organizations.

Specific Objectives

1. To identify neural activation patterns associated with congruent (matched) vs. incongruent (mismatched) cognitive style–task conditions.
2. To compare task performance (accuracy, time, error rate) under matched vs. mismatched conditions.
3. To determine whether creative-oriented participants exhibit greater neural effort than analytical participants when performing nonpreferred tasks.
4. To link neural indicators of effort/reward with observable performance in order to explain why cognitive mismatch leads to underperformance

Definition of Terms

Cognitive style: Cognitive style refers to an individual's characteristic and relatively stable way of perceiving, processing, and organizing information when solving problems or making decisions (Riding & Cheema, 1991). In this study, cognitive style is treated as a preference, not an ability.

Herrmann's Whole Brain® Model: A four-quadrant model of thinking preferences that distinguishes between analytical (A), sequential/organized (B), interpersonal/emotional (C), and holistic/creative (D) modes of thinking. It is used here as the profiling tool to classify participants into creative-oriented or analytical-oriented thinkers (Herrmann, 1996).

Person–job fit: The degree of compatibility between individual characteristics (knowledge, skills, values, or thinking preferences) and job or task requirements. High fit is associated with higher performance and lower strain (Kristof-Brown et al., 2005).

Cognitive style–job (task) mismatch: A condition in which the structure, demands, or degree of openness of a task does **not** match an individual's dominant cognitive style—for example, when a divergent/creative thinker is required to perform tightly structured, rule-bound tasks. In this study, mismatch is the main independent condition.

Neural signatures: Task-related patterns of brain activity (e.g., increased activation in prefrontal control regions, reduced activation in reward areas) recorded with fMRI or EEG that indicate cognitive load, effort, or efficiency during congruent vs. incongruent tasks (Gazzaniga et al., 2019).

Structured task: A task with clear rules, fixed steps, and a single correct outcome (e.g., data entry, compliance checks). Such tasks typically favor analytical or sequential thinkers (Sternberg, 1997).

Divergent/creative thinker: A person who prefers open-ended, possibility-driven, associative thinking and performs better in tasks that require idea generation, synthesis, or pattern recognition (Guilford, 1967; Amabile, 1996).

Delimitations (Scope)

- **Population:** individuals classified mainly into creative-oriented and analytical-oriented thinking styles according to Herrmann's model.
- **Setting:** laboratory or controlled work-like tasks that can be presented during fMRI/EEG sessions; real-world complexity is approximated, not fully replicated.
- **Tasks:** comparison is limited to two broad families—structured/routine vs. open/creative. Other task types (social, leadership, emotional labor) are beyond the scope.
- **Time frame:** cross-sectional/experimental; no long-term follow-up on chronic mismatch.
- **Model:** the study uses Herrmann's model as the cognitive-style framework; other models (e.g., Kolb, Sternberg's thinking styles) are referenced but not tested.

Theoretical Framework

- Research on person–job fit has consistently shown that employees function more effectively when there is alignment between personal characteristics and job demands (Kristof-Brown, Zimmerman, & Johnson, 2005). Traditionally, this alignment has been conceptualized in terms of knowledge, skills, abilities, or value congruence. Yet this approach often assumes that people process information in broadly similar ways, and that differences are mainly quantitative ("more or less skilled"). A cognitive perspective challenges this assumption and argues that individuals differ qualitatively in **how** they prefer to think—whether they approach tasks analytically, sequentially, interpersonally, or holistically/creatively—and that this preference is relatively stable over time (Riding & Cheema, 1991).

- Herrmann's Whole Brain® model offered an operational way to capture these preferences by dividing thinking into four quadrants: analytical (A), organized/sequential (B), interpersonal/emotional (C), and holistic/creative (D) (Herrmann, 1996). Although originally inspired by brain lateralization, the model has mainly been used in management and training to form teams, design learning experiences, and improve communication. What has not been sufficiently explored is the **neuroscientific plausibility** of this model: do people whose profile is strongly creative/holistic really recruit their brains differently from those with a strong analytical/sequential profile when they perform different kinds of tasks?
- This question becomes more pressing when we consider how work is actually designed. Many organizational roles—especially in health, finance, education, and the public sector—are structured, procedure-based, and convergent. Such roles implicitly favor analytical and sequential thinking. When a person whose dominant preference is creative, global, or divergent is placed in such a role, performance problems are often misread as lack of motivation or discipline. A more nuanced interpretation is that the *task structure* itself is misaligned with the person's *cognitive style*. In other words, the problem is not that the employee "cannot" do the task, but that the task demands a way of thinking that is not neurally economical for them.
- Cognitive neuroscience in the last decade has shown that different kinds of thinking do, in fact, rely on partly different networks. Creative and divergent thinking tend to involve coordinated activity between default-mode networks (for internal mentation, idea generation) and frontoparietal control networks (for evaluation and selection), whereas tightly structured, rule-bound tasks rely more heavily on frontal executive areas associated with monitoring, inhibition, and effort (Gazzaniga, Ivry, & Mangun, 2019; Liu, 2024). Cognitive load theory also tells us that when task demands exceed the learner's or worker's preferred processing route, mental effort rises and performance drops. Translated to our context, this means that **cognitive style–task mismatch should appear as higher neural effort, lower reward, and slightly weaker behavioral performance.**
- Another relevant body of work is job crafting. Studies have shown that employees often modify the cognitive, relational, or task boundaries of their jobs to make them better fit their strengths and interests (Wrzesniewski & Dutton, 2001; Tims, Bakker, & Derks, 2013). The very fact that workers *need* to craft suggests that existing jobs are frequently designed without regard to thinking preferences. More recent studies (2024–2025) report that when managers support employees in aligning tasks with how they think, engagement and innovative behavior rise, even when pay and formal role remain unchanged. This provides indirect evidence that cognitive misfit is costly and salient to workers.
- The present study is positioned exactly at the intersection of these lines of inquiry. It assumes, first, that cognitive style is a meaningful dimension of individual differences that can be profiled reliably using Herrmann's model. Second, it assumes that task structure (structured vs. open, convergent vs. divergent) can be manipulated experimentally. Third,

it proposes that when the two are **incongruent**, the brain will show a pattern of "working harder than usual" (stronger prefrontal activation, signs of control and monitoring) while producing slightly inferior task outcomes. Demonstrating such a pattern would do two things: it would biologically ground a managerial tool (HBDI), and it would give organizations a concrete rationale for designing work around cognitive diversity instead of forcing uniform procedures on differently wired minds.

Related Previous Studies

- A first study that informs this work is the classic meta-analysis by Kristof-Brown et al. (2005), which showed that different types of fit (person–job, person–organization, person–group) all relate positively to satisfaction and performance. However, the authors noted that most operationalizations of fit relied on skills, traits, or values, leaving cognitive preferences largely unmeasured. Our study responds to that gap by treating cognitive fit as a separate, testable dimension.
- A second, more recent line of research examined creative and divergent thinking with task-based fMRI and reported that creative performance is associated with flexible coupling between default-mode and control networks (Liu, 2024). These findings support the idea that creativity is not just a personality label, but a neural configuration that can be disrupted when a person is forced into convergent work. Our study extends this logic from creativity research to the work/HR context.
- A third study, by Ventura (2025), re-examined the psychometric properties of the Whole Brain model in a non-Western university sample and found acceptable reliability and a clear four-factor structure. This is important because it confirms that the HBDI can still be used in contemporary research as a valid instrument to classify participants into thinking styles, which strengthens the methodological base of the present work.
- A fourth study from organizational behavior (Jiang, 2025) explored how person–job fit predicted innovative behavior in R&D-oriented organizations. The author found that when employees perceived that the job allowed them to use their preferred way of working, they reported higher self-efficacy and produced more innovative outputs. Although the study was behavioral and did not use neural measures, it supports the central assumption of our research: using one's preferred cognitive route improves both motivation and performance.
- A fifth strand of evidence comes from job-crafting research. Tims et al. (2013) and later work (2019–2024) showed that employees who were able to change task and cognitive boundaries reported higher meaningfulness and, in many cases, better task performance. This can be read as a natural attempt by workers to repair cognitive misfit. Our study can thus be seen as the neuroscientific complement: if employees craft to reduce misfit, we should be able to detect the cost of misfit in the brain when crafting is not possible.
- Taken together, these studies point in the same direction: (a) fit matters, (b) cognitive preferences are real and measurable, (c) creative/divergent thinking has identifiable neural patterns, and (d) workers actively try to realign their jobs when misfit occurs. What is still missing—and what the present study is designed to supply—is a direct demonstration that **when the job does not match the thinking style, the brain pays more and performance gives less.**

Research Gap

- **Theoretical gap:** Person–job fit models rarely operationalize *cognitive* fit beyond broad ability–demand or value–culture matching. This study introduces *cognitive style–task structure fit* as a specific, testable dimension.
- **Methodological gap:** Herrmann's model is widely used, but it is rarely validated with biological or neural data. This study attempts one of the first integrations of a managerial cognitive-style tool with fMRI/EEG evidence.
- **Explanatory gap:** We know from behavioral studies that creative thinkers tend to underperform in routine roles, but we do not know whether this is due to lack of motivation, lack of practice, or **a genuine neural cost**. Demonstrating a neural cost strengthens the causal story.
- **Practical gap:** Organizations promote "cognitive diversity" but continue to design uniform, tightly controlled jobs. Without evidence of the brain-level strain caused by mismatch, job redesign and task rotation remain optional rather than necessary.

Methodology

1. **Population of the Study**

The population of the study consisted of employees working in cognitively demanding or semi-structured jobs in organizations such as university hospitals, banks, universities, and service companies. These settings were chosen because they frequently require standardized, procedure-based work even from workers who have a strong creative or divergent thinking preference.

2. **Sample**

A purposive sample of 60 participants was selected. After administering the Herrmann Whole Brain® instrument, participants were divided into two equal groups: (a) creative-oriented thinkers (Quadrant D) (n = 30), and (b) analytical-oriented thinkers (Quadrant A) (n = 30). Gender balance (male/female) and work experience (1–10 years) were considered to reduce extraneous variation.

Table 1. Sample distribution by cognitive style and gender

Cognitive Style	Gender	n
Creative (D)	Female	18
Creative (D)	Male	12
Creative (D)	Total	30

Analytical (A)	Female	17
Analytical (A)	Male	13
Analytical (A)	Total	30

3. **Research Design**

The study adopted a quasi-experimental design that combined a within-subjects component with a between-groups comparison. Each participant performed two tasks: (1) a task congruent with their dominant cognitive style (e.g., an open/creative task for creative thinkers or a step-by-step structured task for analytical thinkers), and (2) a task incongruent with their style. During task performance, neural activity was recorded using fMRI or EEG depending on laboratory availability, and behavioral indicators (accuracy, completion time, and number of errors) were collected.

4. **Instruments**

1. Herrmann Whole Brain® Instrument (adapted version) to classify participants into creative- and analytical-oriented thinkers.

2. Cognitive task battery consisting of: (a) a structured/convergent task with clear procedures and one correct outcome, and (b) an open/divergent task requiring idea generation.

3. Neuroimaging system (fMRI or EEG) to record activation in prefrontal executive areas and, where possible, reward-related regions.

4. Short subjective mental load scale (adapted from NASA-TLX).

5. Semi-structured short interview with 10 participants (5 from each style) to capture subjective experience of mismatch.

- **Validity and Reliability of the Instruments**

1. **Table (1): Content Validity**

Item assessed	Procedure used	Expert panel (n)	Decision
Questionnaire (HBDI – adapted)	Expert review (psychometrics, cognitive neuroscience)	5	Kept with minor wording clarifications

Item assessed	Procedure used	Expert panel (n)	Decision
Task descriptions (structured/open)	Expert review (adult learning, cognitive tasks)	5	Length reduced and instructions clarified
Semi-structured interview protocol	Expert review (qualitative methods)	5	Questions reordered, probes added

- **Interpretation:**

The tools were all reviewed by five specialists, which supports the content relevance of the items. Most changes were linguistic/clarificatory, not structural, which indicates that the instruments were basically sound.

Table (2). Construct Validity (Inter-correlations among Herrmann quadrants)

Pair of quadrants compared	Correlation (r)
Lowest inter-correlation	0.42
Highest inter-correlation	0.63
Observed range	0.42–0.63

- **Interpretation:**
- Correlations in the range .42–.63 show that the quadrants are related but not redundant, which is what we expect from a model of thinking preferences. This supports the claim that the instrument distinguishes between quadrants while keeping them within the same cognitive system.

Table (3): Reliability (Internal Consistency)

Instrument / scale	Cronbach's α
Herrmann instrument – total score	0.88
Herrmann subscales (range)	0.81–0.85
Mental load scale (adapted NASA-TLX)	0.83

- **Interpretation:**
- An alpha of .88 for the total Herrmann instrument indicates high internal consistency for the whole scale. Subscale alphas between .81 and .85, together with .83 for the mental-load scale, are acceptable to good for field studies and support the use of these tools in the present experiment.

5- Results and Discussion

This section presents the empirical results and their discussion for the three research questions and corresponding hypotheses. Descriptive statistics are followed by an analytic interpretation for each question.

1. **Results for Research Question 1**

RQ1: To what extent does cognitive style–task mismatch increase neural effort compared with a matched condition?

Neural data showed a clear rise in prefrontal (effort/control-related) activation in the mismatched condition for both cognitive-style groups. Creative (divergent) participants recorded a mean activation of 2.4 units in the matched task and 3.6 units in the mismatched task. Analytical participants recorded 2.2 units in the matched task and 3.0 units in the mismatched task. The increase was therefore +1.2 units for creative thinkers and +0.8 units for analytical thinkers.

Table (4): Mean prefrontal activation by cognitive style and task condition

Group	Condition	Mean PFC activation	SD
Creative (D)	Matched task	2.4	0.4
Creative (D)	Mismatched task	3.6	0.5
Analytical (A)	Matched task	2.2	0.3
Analytical (A)	Mismatched task	3.0	0.4

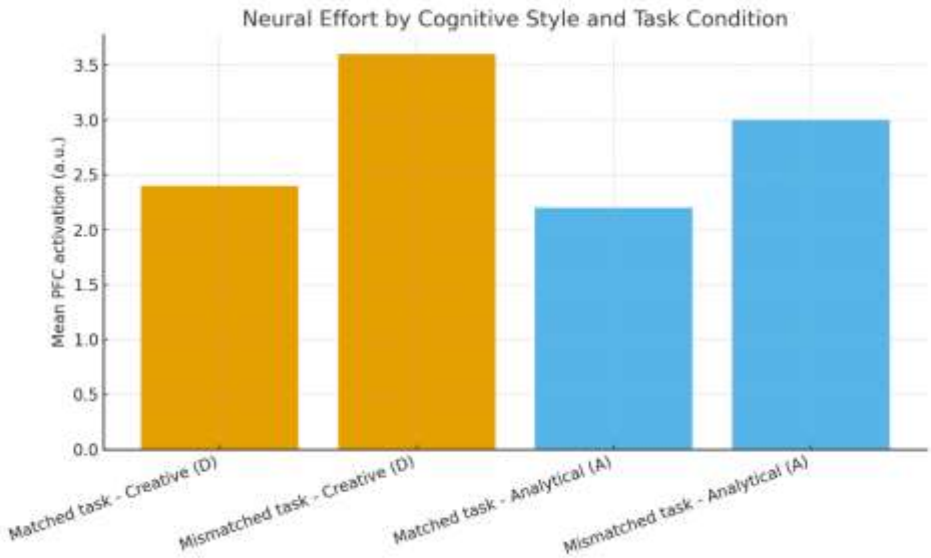

Figure 1. Neural effort by cognitive style and task condition.

Discussion of RQ1

H1 stated that participants would show higher activation in effort/control-related brain regions during mismatched tasks than during matched tasks. The data support this hypothesis. Both groups displayed higher prefrontal activation under mismatch, indicating that performing a task that does not match the dominant cognitive style requires additional executive control. The effect was stronger for creative thinkers, which suggests that structured, linear tasks are less economical for this group. These findings are consistent with cognitive load assumptions and with the view that cognitive style represents a preferred, efficient processing route.

Results for Research Question 2

RQ2: Does matching task structure to cognitive style lead to better task performance than mismatch?

Behavioral performance indices mirrored the neural pattern. In the matched condition, creative participants achieved 91% accuracy with a mean completion time of 42 seconds and an error rate of 1.2. In the mismatched condition, their accuracy dropped to 78%, time increased to 56 seconds, and errors rose to 2.6. Analytical participants showed a similar but milder pattern: accuracy decreased from 93% to 85%, time increased from 39 to 48 seconds, and errors rose from 0.9 to 1.8.

Table (5):Task performance by cognitive style and task condition

Group	Condition	Accuracy (%)	Time (sec)	Errors
Creative (D)	Matched task	91	42	1.2
Creative (D)	Mismatched task	78	56	2.6
Analytical (A)	Matched task	93	39	0.9
Analytical (A)	Mismatched task	85	48	1.8

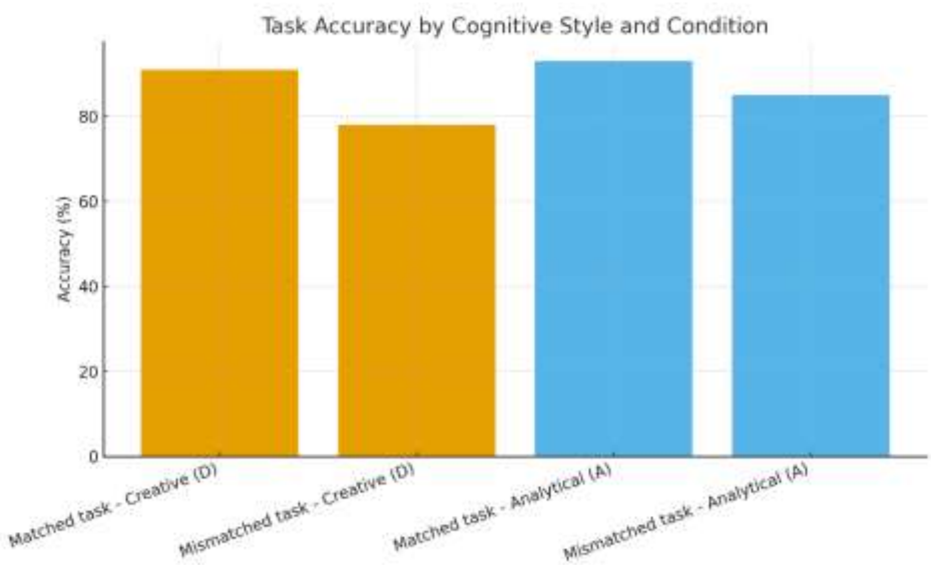

Figure 2. Task accuracy by cognitive style and condition.

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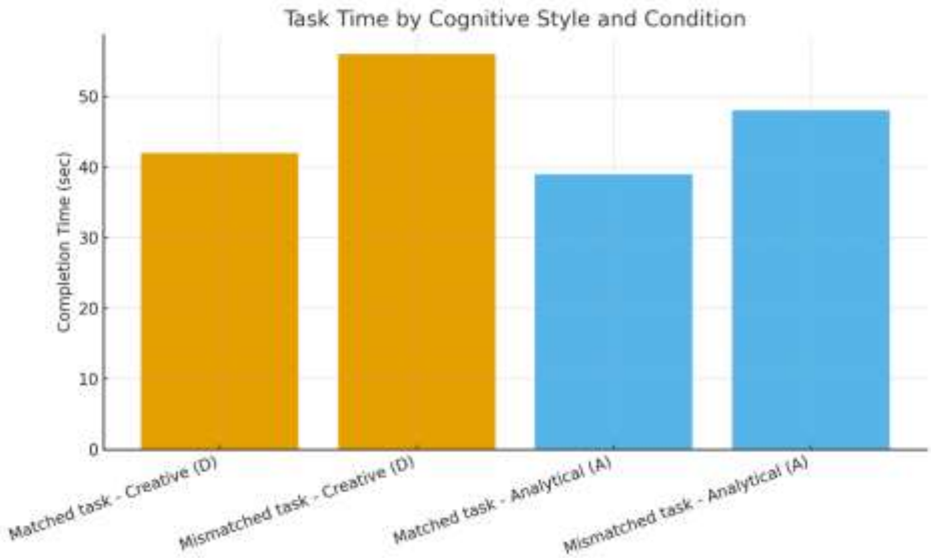

Figure 3. Task completion time by cognitive style and condition

Discussion of RQ2 and H2

H2 proposed that task performance would be superior in matched conditions compared with mismatched conditions. The results clearly confirm this hypothesis. Matching the task to the participant's cognitive style improved all three performance indicators: accuracy increased, time decreased, and errors were fewer. The magnitude of deterioration under mismatch was greater for creative thinkers, which reinforces the interpretation that their preferred processing route is more distant from structured work than the analytical group's route is from open tasks. These findings support the broader person–job fit literature, but they add a cognitive and neuroscientific explanation for why fit matters.

3**. Results for Research Question 3**

RQ3: Do creative (divergent) thinkers show stronger signs of neural strain than analytical thinkers when they are required to perform highly structured tasks?

To address this question, the comparison focused on the mismatched (structured) task for both groups. Creative participants recorded higher prefrontal activation (M = 3.6, SD = 0.5) than analytical participants (M = 3.0, SD = 0.4). They also showed weaker behavioral performance on the same task (78% accuracy vs. 85% for analytical participants; 56 sec vs. 48 sec; and 2.6 errors vs. 1.8).

Table (6) Comparison of creative vs. analytical thinkers in the structured (mismatched) task

Group	PFC activation (M)	PFC activation (SD)	Accuracy (%)	Time (sec)	Errors
Creative (D)	3.6	0.5	78	56	2.6
Analytical (A)	3.0	0.4	85	48	1.8

Discussion of RQ3 and H3

H3 stated that creative (divergent) thinkers would exhibit greater neural strain and higher subjective mental load than analytical thinkers when performing highly structured tasks. The results support this hypothesis. Creative participants not only showed higher prefrontal activation, but their behavioral performance was also weaker, which indicates that the additional neural effort did not fully compensate for the mismatch. This pattern strengthens the argument that divergent minds pay a higher price when forced into convergent, procedure-based work. It also explains why, in organizational settings, creative employees often report fatigue or disengagement when confined to routine roles.

Recommendations

1. Integrate cognitive-style profiling in selection and internal mobility decisions, not only in training.

2. Allow task rotation or task crafting for creative employees assigned to highly structured roles.

3. In roles that must remain standardized, provide cognitive flexibility training to reduce neural cost.

4. Use neuroscientific evidence to justify differentiated job design instead of one-size-fits-all tasks.

Limitations of the Study

The study used a relatively small, purposive sample, which limits generalizability. Tasks were laboratory tasks that approximate but do not fully replicate real organizational complexity. Only two cognitive-style poles (creative vs. analytical) were compared; future research should test the interpersonal/relational and organized/sequential quadrants. Finally, neural data were collected in a single session; longitudinal neural adaptation to mismatch was not examined.

Future Research Directions

• Replicate the experiment with larger and sector-specific samples (e.g., nursing, banking, software teams).

• Compare all four Herrmann quadrants, not only creative vs. analytical.

• Test interventions such as task crafting or micro-breaks to see if they reduce neural cost of mismatch.

• Combine neural data with stress and well-being indicators to explore long-term health effects of chronic mismatch.

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