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Theory of the Distributed Informational Field (TDIF) A Proposal on the Nature and Location of Human Consciousness Cavali Method Multidisciplinary Research Series

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Abstract

This paper proposes the Theory of the Distributed Informational Field (TDIF), a framework that repositions human consciousness not as a product generated by the brain, but as a property of a physico-quantum informational field, from which the central nervous system operates as a transducer. Individual consciousness is, in this perspective, a localized instance of access to that field differentiated between organisms by neural architectural complexity, experiential history, and the dynamic state of the nervous system. The theory further proposes that the quality of this access is modiable by training, grounded in the Cavali Protocol of Progressive Multimodal Stimulation (CPPMS), developed and self-applied by the author over four years. The TDIF is presented in critical dialogue with the leading contemporary approaches Global Workspace Theory, Integrated Information Theory, CEMI Theory, and Extended Mind identifying gaps that the TDIF seeks to ll. Testable predictions are formulated and a three-phase empirical research agenda is outlined.

Keywords: Consciousness, Informational Field, Neural Transduction, Multimodal Sensory Integration, Neuroplasticity, Hard Problem Of Consciousness, Cavali Protocol, Distributed Informational Field

1. Introduction

Consciousness does not feel like something generated from within. It feels like access something that arrives, that induces action in ways that precede rational thought rather than follow from it. That distinction between generation and accessis where this theory begins [1,2]. The question of the nature of consciousness remains without consensus in neuroscience and philosophy of mind. Decades of advances in neuroimaging and electrophysiology have identi ed robust neural correlates of conscious experience, but have not explained why any physical activity gives rise to subjective experience. Chalmers called this gap the hard problem of consciousness and, despite all the technical sophistication accumulated since then, the problem remains conceptually open [3].

The dominant theories respond to the hard problem in distinct ways. The Global Workspace Theory describes consciousness as the result of information broadcast across a distributed cortical network, explaining conscious access well but circumventing the problem of subjective experience [4-6]. Integrated Information Theory proposes that consciousness is identical to the integrated information (Φ) of a system, providing mathematical formalism but implying panpsychism and generating significant empirical difficulties [7-12]. The CEMI Theory proposes that the brain's endogenous electromagnetic field is the physical substrate of consciousness a physically grounded approach, but one that remains internalist [13,14]. None of these theories systematically addresses the possibility that consciousness is, in part, a property extrinsic to the organism.

This paper proceeds from a different premise: the brain does not generate consciousness, but mediates access to an informational field of physical nature that transcends the individual organism. This position has partial precedents in the extended mind hypothesis, in the CEMI Theory, and in field proposals such as those of Shfieldrake and László but differs from all of them in central aspects detailed below [4,11,15]. The specific contribution of this work is twofold: to propose a coherent theoretical framework for this repositioning the TDIF and to present pilot evidence that the mechanism of access to the field is modifiable by systematic sensory training, as demonstrated by the Cavali Protocol.

2. Theoretical Discussion

2.1. The Hard Problem and the Limits of Internalist Theories

What Chalmers called the hard problem is distinguished from the easy problems of consciousness perception, attention, working memory, sensory integration which, though complex, are in principle approachable by functional explanations. The hard problem is more fundamental: why is the execution of these functions accompanied by subjective experience? Why is there something it is like to be this system?

Internalist theories assume the answer lies entirely within the skull. The GWT locates consciousness in the broadcast dynamics of broad cortical networks, the IIT locates it in the topology of physical systems with high causal integration, the CEMI locates it in the electromagnetic field generated by the brain. Each describes certain aspects of consciousness well, but none offers a satisfying answer to the hard problem. Dennett's functionalism is internally coherent but pays a high price: it denies as primary datum what, for the subject, is the only indubitable datum experience [7]. A theory that explains consciousness by eliminating experience resolves the problem by dissolution, not by understanding.

2.2. Field Theories and their Current Limitations

Proposals situating consciousness in a field external to the individual organism exist in the literature but have not constituted a consolidated research program. Shfieldrake proposed morphic fields that organize both the form and behavior of organisms an intriguing proposal that remains unfalsi able: it does not specify the physical mechanism of the field nor the interface through which organisms access it [16]. László proposed the Akashic field as the informational substrate of the universe, derived from properties of the quantum vacuum [11]. The ontology is more rigorous, but the framework lacks testable predictions and sufficient mechanistic speci city to guide empirical research.

McFadden's CEMI Theory is the closest example of a physically rigorous field theory. The CEMI demonstrates that the electromagnetic field generated by the brain has properties making it a plausible candidate for the substrate of consciousness. Its limitation is remaining internalist: the field it describes is generated by the brain and, for CEMI, contained by it. The extended mind hypothesis expands the boundaries of the cognitive system beyond the skull, but this expansion is pragmatic-functional, not ontological [4].

2.3. The Postulates of the TDIF

The TDIF departs from the limitations identified above to propose a theory that is physically grounded, capable of integrating existing neural evidence, and mechanistically speci ed enough to generate testable predictions.

Postulate 1 The Distributed Informational Field (DIF)

There exists an informational field of physico-quantum nature that is not localized in any individual neural system. The DIF is conceived as an emergent property of the structure of spacetime at the quantum scale possibly derived from quantum vacuum fluctuations and the non-local entanglement properties of matter. Individual consciousness is not generated by organisms: it is an instance of access to the DIF. The precise ontological nature of the field remains an open question that the theory formulates without resolving prematurely, de ning a specific research agenda.

Postulate 2 The Brain as Transducer

The central nervous system operates as a bidirectional transducer between the organism and the DIF. It converts informational structures from the field into subjective experience and feeds back into the field patterns generated by lived experience. The primary physical mechanism of transduction is the endogenous electromagnetic field generated by collective neural activity the same field described by the CEMI Theory, reinterpreted here as a local interface between organism and DIF, not as the seat of consciousness. This allows the TDIF to absorb the empirical data of CEMI without inheriting its internalist limitations.

Postulate 3 The Interface is Differentiated and Trainable

The quality of transduction fidelity, bandwidth, signal-to-noise ratio is a function of three variables: neural architectural complexity, which determines the transducer's capacity, experiential history, which shapes habitual patterns of access over the organism's life, and the dynamic state of the nervous system at the moment of access, which defines which informational structures of the DIF are available at a given instant. The interface is modifiable by training.

Postulate 4 Individual Variability

The response to interface training is heterogeneous between individuals, as a function of the interface's initial state existing neural architecture, established sensory gating patterns, and history of multimodal stimulation. This variability is not noise: it is informative data about the state of the transducing interface. It is predicted that individuals with greater prior exposure to high sensory complexity environments will show lower initial resistance to training and greater amplitude of response in the resulting cognitive effects.

Postulate 5 The Cavali Principle

Simultaneous and progressive multimodal sensory stimulation constitutes a calibration protocol for the transducing interface. By forcing parallel processing of multiple modalities at increasing intensity until reaching a state of attentional saturation called the Induced Chaos State (ICS) the protocol compels the nervous system to reorganize its filtering patterns. Systematic training in the ICS expands the effective bandwidth of the EM interface and, consequently, the quality of access to the DIF. The observed effects attentional expansion, multidisciplinary creative fluency, emotional regulation, and reduction of intrusive thoughts are predictions derived from this postulate, corroborated by the longitudinal pilot observation reported in Section 3.

2.4. Positioning in Relation to Existing Theories

The TDIF is not incompatible with all existing theories in relation to some, it is a reinterpretation of the same set of facts. In relation to GWT, the broad cortical broadcast is compatible with the TDIF as a description of the local neural integration mechanism that precedes and sustains access to the DIF. In relation to IIT, the TDIF rejects the identity between Φ and consciousness, but accepts that high information integration may be a necessary condition for a quality transducing interface. In relation to the Extended Mind, the TDIF radicalizes Clark and Chalmers's proposal: where the extended mind says the cognitive system includes tools and environment, the TDIF says consciousness accesses a field that precedes and exceeds any individual organism.

3. The Cavali Protocol Description and Pilot Evidence

3.1. Methodological Framework

This section presents the Cavali Protocol of Progressive Multimodal Stimulation (CPPMS) as the empirical anchor of the TDIF. The available evidence consists of: (a) a longitudinal self-experimentation case report over four years (ages 45 49), with daily practice, and (b) exploratory preliminary observations with 6 participants (ages 6 78), each submitted to a single session. There were no systematic objective measurements, control group, or ethics committee approval for the observations with third parties. This material must be interpreted as a pilot observational study that justifies controlled future investigation not as evidence of efficacy or causality. This caveat is part of the theory, not a concession to it.

3.2. Protocol Description

The Cavali Model is organized into three integrated functional modules. Module 1 is multiple and intentional sensory stimulation: coordinated presentation of stimuli from different modalities visual, linguistic-auditory, musical-auditory, binaural-auditory, analytical-auditory following a structured progression of intensity and complexity. Module 2 is bifocal attentional modulation: exercises that develop the capacity to transition between focused attention (directed at a specific stimulus) and expanded attention (open to multiple stimuli simultaneously). Module 3 is integration and consolidation: practices to transfer the cognitive states induced in sessions to daily functioning.

The Induced Chaos State (ICS). The standard session is structured in three phases. In Phase I, a multimodal baseline is established with six simultaneous channels of stimulation: (1) visual stimulation of high chromatic and compositional complexity, (2) linguistic-auditory in a non-dominant language, (3) orchestral-auditory with high harmonic complexity, (4) binaural activation audio, (5) analytical-verbal auditory, (6) melodic solo auditory. In Phase II, channels are progressively doubled in number and intensity until the ICS is reached: a condition of complete attentional saturation in which no channel can be processed by conventional sequential selective attention. The ICS is the central instrument of the protocol, not a side effects. In Phase III, the subject receives instruction to identify and track specific elements within the total chaos. The ability to selectively extract within the ICS is the central functional variable of the training.

The discovery was empirical: excess works. Inducing chaos through multiple simultaneous exposures does not overwhelm the system it unlocks it. What focused attention filters out, saturated attention lets through.

3.3. Self-Experimentation Case Report

The author conducted systematic self-experimentation over 4 years (ages 45 49), with daily practice of the basic protocol. There were no objective measurements neuroimaging, standardized cognitive tests, or validated scales which significantly limits the possible conclusions. The report is based on subjective observation and documentable production of creative works. Over the practice period, the author reports progressive development in: sustained attention and focus capacity, perception of visual details, capacity to absorb and process information in parallel, clarity of thought, emotional regulation, with absence of depressive episodes and greater control of irritability, resistance to external manipulation, and creative production across multiple domains.

The phenomenon of sudden skill emergence. After approximately 4 years of regular practice, a sudden emergence of drawing ability previously absent occurred. The context: the author possessed no drawing ability before the event incapable of drawing even basic shapes. No formal or informal training in visual arts. That day was extraordinary. The impulse to draw arrived with an intensity never experienced before and with it, the certainty of already knowing how. Drawing continued without stopping, out of fear that if the practice paused, the ability would vanish. It did not vanish. The ability was maintained and continuously developed in the modalities of painting, cinema, and sculpture. What that day revealed is that the theory works but it requires time, regularity, and sustained exposure.

The phenomenon admits four non-mutually exclusive neuroScientific interpretations: cortical disinhibition of latent capacities, accelerated neuroplasticity reaching a critical threshold, access to previously subliminal implicit processing, and a facilitating altered state reducing self-criticism and behavioral inhibition. In the language of the TDIF, these four interpretations are complementary they represent different aspects of the same process of expanding the transducing interface [17-22].

3.4. Exploratory Observations with Third Parties

Exploratory observations were conducted with 6 participants (ages 6 78), each submitted to a single session of the basic protocol. The most significant datum: one participant (male, 20 years) presented significant adverse reaction within approximately 5 minutes, including nausea and headache. The session was immediately interrupted. This indicates the method has uncharacterized contraindications and that the safety pro le needs systematic investigation before any broader application.

4. Testable Predictions and Research Agenda

4.1. Falsifiability Criterion

A theory that does not generate falsifiable predictions is not Scientific. The TDIF was constructed to avoid that outcome. The five postulates imply observable and measurable consequences that can, in principle, be refuted by empirical evidence.

4.2. Predictions from Postulate 3 The Interface is Trainable

Prediction 3.1 Measurable attentional expansion. Subjects submitted to the CPPMS in an 8-week progressive protocol (3 sessions per week) will show statistically significant improvement in selective and sustained attention measures compared to a control group, measured by Trail Making Test parts A and B, Sustained Attention Test, and reaction time in target detection tasks with distractors. Refutation criterion: Absence of significant difference between groups ($p > 0.05$) after controlling for practice and expectancy effects, with sample size suffcient for statistical power of 0.80. Prediction 3.2 Increased electroencephalographic coherence. Individuals with established CPPMS practice will show, during the ICS, a gamma-band EEG coherence pattern (30 80 Hz) and functional connectivity between frontal and parietal regions significantly distinct from those observed in resting condition and simple stimulus condition. Prediction 3.3 Transfer to emotional regulation. Subjects with long-term practice (minimum 6 months, 3 sessions per week) will show significantly lower scores on rumination and intrusive thought scales and greater heart rate variability at rest an autonomic marker of emotional regulation.

4.3. Predictions from Postulate 4 Individual Variability

Prediction 4.1 Tolerance pro le. Adverse response to the CPPMS will positively correlate with measures of heightened sensory sensitivity and history of migraine, allowing development of screening criteria and formal contraindications.

Prediction 4.2 Response amplitude and prior neural complexity. Individuals with greater prior exposure to high sensory and cognitive complexity environments musicians, visual artists, polyglots will show lower adaptation latency to the ICS and greater amplitude of measurable cognitive effects.

4.4. Predictions from Postulate 5 The Cavali Principle

Prediction 5.1 The ICS as a neurologically distinct state. The Induced Chaos State corresponds to a pattern of neural activation functionally distinct from: (a) rest, (b) simple selective attention, and (c) non-specific cognitive overload by a single complex task.

Prediction 5.2 Skill emergence through prolonged training. Subjects without prior training in specific domains submitted to the CPPMS in a long-term protocol (12 months, daily practice) will show skill gains in creative domains measurably superior to control groups submitted to direct training in the target skill for the same period. This is the most ambitious and most distinctive prediction of the TDIF relative to any alternative theory.

4.5. Structured Research Agenda

Phase	Central Objective	Timeline
Phase 1	Safety and feasibility. Characterize tolerance pro le. N =30, single session.	12 18 months
Phase 2	Efficacy and neural mechanism. Test Predictions 3.1, 3.2, 3.3, 4.1. RCT, high-density EEG, N ≥60.	24 36 months
Phase 3	Nature of the state and field. fMRI and MEG. Skill emergence. Requires institutional collaboration.	36 60 months

Phase 1 is ethically mandatory: before any broader application of the protocol, it is necessary to systematically characterize who should not be submitted to it. The adverse reaction case documented in Section 3 makes this step non-negotiable.

5. Concluding Remarks

5.1. Summary of Contribution

This paper proposed the Theory of the Distributed Informational Field as a response to the hard problem of consciousness from a premise that dominant theories do not systematically explore: the brain does not generate consciousness, but mediates access to an informational field that transcends the individual organism. This repositioning is not arbitrary it follows from identifiable limitations in internalist theories and engages with field physics and existing neurophysiology without requiring ad hoc entities. The limitations are real. More time, broader analysis, and rigorous methodology are needed to qualify and structure this theory fully. Nothing here was invented every observation came from development and sustained attention to results. That is precisely why the limitations are stated explicitly: not to weaken the proposal, but to de ne honestly what the next steps must be.

5.2. Recognized Limitations

The principal ontological limitation of the theory is that the precise nature of the DIF remains unspecified. Proposing a field without defining its physical parameters is a problem the theory recognizes and converts into a research agenda. The principal empirical limitation is the pilot basis: long-term self-experimentation by a single subject without objective measurements, and exploratory observations with a very small sample without controls. What these data establish is plausibility and motivation for controlled investigation which is the legitimate role of a pilot study.

5.3. Perspectives

If the predictions of Phase 2 of the research agenda are confirmed measurable attentional expansion, differential EEG coherence in the ICS, and transfer to emotional regulation the TDIF will have

demonstrated that the transducing interface is real, trainable, and measurable. That would justify investigation of the more ambitious predictions about the nature of the DIF. Instead of asking how the brain produces subjective experience from nothing, the TDIF asks how the brain accesses and translates informational structures that exist independently of it. It is a die rent question with a die rent geometry of answer. This work is a starting point. The theory will need to berend, contested, and in parts probably corrected as empirical evidence accumulates. That is the normal Scientific process and it is precisely the process that the TDIF invites.

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