Brainspotting, Visual Neuroexperience, and the Science of Clinical Discovery: From Client Observation to Contemporary Visual Neuroscience

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1. Clinical Observation Before Explanatory Science

Brainspotting began with an observation rather than a theory. In 2003, after twenty-seven years of clinical practice, I was working with a competitive ice skater when I noticed an unexpected relationship between the location of her gaze and the activation and processing of an unresolved traumatic experience. I did not know what the observation meant neurologically, nor did I possess a scientific theory capable of explaining it. What I had was a clinical phenomenon that appeared sufficiently significant to continue observing.

That distinction has shaped the development of Brainspotting ever since. Outside Window, Inside Window, and Gazespotting did not originate as techniques constructed from a preexisting neurological model. They emerged from observing clients and following phenomena that repeatedly appeared within therapeutic encounters. Only afterward did theoretical formulations develop in an effort to understand what had been observed. The history of Brainspotting therefore provides an example of a form of clinical discovery in which observation precedes explanation and the therapeutic encounter functions as a primary source of scientific information.

I use the term clinical scientist to describe a clinician who approaches the therapeutic encounter as a site of systematic observation and discovery. The data available there are unusually complex. They include gaze, facial expression, breath, posture, movement and inhibition, bodily activation, affect, autonomic shifts, language and silence, relational responses, attention, memory, spontaneous changes in experience, and the client's report of unfolding neuroexperience. These observations lack some of the controls available in laboratory research, and they are vulnerable to expectation, confirmation bias, theoretical allegiance, selective attention, and other limitations inherent in human observation. Their limitations, however, do not render them scientifically meaningless. They make methodological humility essential.

Controlled research and sustained clinical observation provide different forms of scientific information, each with characteristic strengths, limitations, and vulnerabilities. Experimental research achieves clarity partly by reducing complexity through inclusion and exclusion criteria, diagnostic categories, standardized interventions, specified outcomes, controlled timing, and statistical analysis. These procedures are indispensable for answering particular questions, but they necessarily create a partial representation of the complexity encountered in clinical practice. The therapeutic encounter presents the inverse problem: extraordinarily rich and ecologically meaningful information with substantially less experimental control. Neither form of inquiry should be granted exclusive authority to determine what counts as knowledge.

A productive psychotherapy science requires movement between these forms of inquiry. Clinical observation can detect phenomena. Inquiry into those phenomena can generate hypotheses. Controlled research can test selected

propositions under specified conditions. Neuroscience can investigate possible biological participation. Those findings can then be returned to clinical practice, where the therapeutic encounter inevitably produces new observations that theories and experiments did not anticipate. The laboratory can discover what the clinician cannot see, while the clinical encounter can reveal what the laboratory has not yet thought to look for or has excluded. Scientific progress depends upon preserving both directions of that relationship.

This position also underlies what I have described as the therapist becoming part of the tail of the comet. The therapist follows the client's unfolding neuroexperience not because expertise is irrelevant, but because the client's nervous system continually produces information the therapist's theory does not possess in advance. The same principle should apply to the development of psychotherapy models and to psychotherapy science itself. The phenomenon should remain more important than the explanation developed to account for it.

2. Efficacy Does Not Establish Mechanism

This distinction between observation and explanation becomes especially important when considering psychotherapy outcome research. Evidence that a treatment produces beneficial outcomes is essential, but it does not establish the mechanism through which those outcomes occurred. At least three questions must remain separate: whether an intervention is associated with beneficial change, whether particular components of the intervention contributed causally to that change, and whether the theoretical explanation offered by the treatment model correctly describes why the change occurred. These questions are related but not interchangeable.

Even if future randomized controlled trials were to demonstrate large and highly reproducible effects for Brainspotting, those findings would not establish that current Brainspotting hypotheses about visual processes, eye position, orienting, sensory gating, autonomic activity, memory, or any other nervous-system process are correct. Strong efficacy findings would instead make the mechanism question more scientifically important. If meaningful change is occurring, we should want to know what is actually participating in that change rather than assuming that the theoretical explanation accompanying the treatment has been validated along with its outcomes.

This distinction is relevant far beyond Brainspotting. Psychotherapy models naturally develop explanatory cultures around their clinical practices, and successful outcomes can reinforce those cultures. A treatment works, practitioners observe what appears to happen during successful treatment, and the model's explanatory language can gradually acquire a certainty that exceeds the evidence supporting it. Research demonstrating efficacy may then be interpreted as confirmation not only of the intervention but of the theory through which practitioners understand the intervention. The danger is subtle because the underlying treatment may genuinely be helping people.

A more rigorous scientific response to positive outcomes is therefore: Good. It appears to work. Now let us find out whether anything we believe about why it works is actually true. Evidence that a psychotherapy produces change should be the beginning of scientific inquiry into how healing occurs, not the end of it. The complementary question is equally important: Why doesn't it work better? Differences between profound, partial, slow, temporary, and absent therapeutic change may contain information that efficacy research alone cannot explain.

The ultimate scientific question is therefore not whether a model can demonstrate that it works. It is

whether our evolving understanding of how human beings heal can help us make healing deeper, more complete, more durable, and more efficient, and whether we remain willing to abandon even our most cherished explanations when they interfere with that pursuit.

3. The Neuroexperiential Model and the Epistemology of Uncertainty

The Neuroexperiential Model emerged from increasing recognition that the nervous system involved in psychotherapy is vastly more complex than any explanatory model we can construct about it. The NEM does not attempt to resolve that complexity by identifying a privileged neural structure, pathway, network, psychological process, or level of analysis. It begins instead with uncertainty.

The Uncertainty Principle of Brainspotting is an epistemological position before it is a clinical one. The therapist can possess extensive knowledge of neurobiology, development, trauma, attachment, dissociation, memory, relationship, and psychotherapy while remaining unable to know the full organization of the nervous system of the individual sitting in front of them. Even increasingly sophisticated neuroscience provides selected measurements of an extraordinarily complex, nonlinear, dynamic, and emergent system rather than a complete and accurate map of an individual's neuroexperience. Expertise can expand what we observe and the questions we ask without eliminating this fundamental uncertainty.

The NEM therefore considers potential subsystem participation across the whole nervous system without assuming that identifying these participants is equivalent to discovering a mechanism. Its eight sub-nervous systems—ocular, central, autonomic, peripheral, enteric, cardiac, sensory, and motor—are intended as a heuristic for maintaining awareness of the breadth of possible nervous-system participation rather than as eight anatomically isolated systems. Visual and ocular processes, cranial nerves, sensory gating, interoception, proprioception, autonomic organization, motor activity, affect, memory, attention, orientation, large-scale neural networks, developmental processes, and relational neuroexperience may all participate in therapeutic change. The presence of any one of them does not explain the whole.

The Frame is the clinical response to this uncertainty. Within the Dual Attunement Frame, relational attunement and neurobiological attunement coexist as the therapist follows the client's unfolding neuroexperience. Focused Mindfulness Processing provides sustained attention to that unfolding without requiring that it conform to a predetermined sequence. The Neurobiological Imperative describes the clinical observation of an intrinsic movement toward, adaptation, integration, and healing, while remaining a theoretical proposition rather than an established neuroscientific mechanism.

This makes the NEM intentionally self-critical. Its purpose is not to prove Brainspotting correct but to understand healing more deeply. Brainspotting provides a clinical laboratory from which observations and hypotheses can emerge, but those hypotheses remain subordinate to the larger question of what is occurring within the extraordinarily complex human nervous system when healing takes place and how psychotherapy can become more effective at facilitating that process. The NEM therefore asks not only why Brainspotting may work but why it sometimes does not, not only what psychotherapy has learned but what it has failed to understand, and not only how existing models explain change but whether their assumptions may constrain the discovery of more effective ways of helping people heal.

4. Culture Comes Before Science

The history of Brainspotting illustrates what I have described as Culture Comes Before Science. The

phrase does not place clinical culture in opposition to science or suggest that clinical observation should be exempt from empirical testing. It describes an order of discovery. Clinicians and clients can encounter recurring phenomena before adequate scientific concepts, technologies, or research programs exist to explain them.

The relationship between eye position and active neuroexperience was encountered clinically before Brainspotting was named, let alone possessed a neurological theory of that relationship. Outside Window, Inside Window, and Gazespotting emerged through observation before there was a Neuroexperiential Model capable of situating them within a larger conceptual framework. The Uncertainty Principle, the Frame, Focused Mindfulness Processing, and the Neurobiological Imperative similarly developed from accumulated clinical experience rather than from an attempt to translate an existing neuroscience theory into psychotherapeutic practice.

Science enters this process not merely to validate what clinical culture has already concluded but to investigate it independently. Research may support some observations while limiting, revising, or overturning the explanations clinicians have developed around them. A plausible neurological process does not become a therapeutic mechanism simply because it is compatible with a clinical phenomenon, and scientific findings should not be recruited retrospectively as proof that an earlier clinical theory was correct.

The more useful relationship is reciprocal. Clinical culture can identify phenomena that science has not yet investigated, while scientific methods can reveal processes that are unavailable to clinical observation. The responsibility on both sides is to protect the phenomenon from premature explanation. We should not distort an observation merely to make it acceptable to existing science; we should make science curious enough to investigate the observation properly. At the same time, once science investigates the phenomenon, clinical theory must remain willing to change in response to what is discovered.

5. Brainspotting in the Service of Healing

The scientific purpose of this inquiry is therefore not the preservation, validation, or advancement of Brainspotting as a therapeutic school. If future research demonstrates that some current Brainspotting hypotheses are incorrect, those hypotheses should change. If controlled studies identify processes that have not been considered within the model, those findings should become part of the inquiry. If another therapeutic approach better serves an individual client, the needs of that client always take precedence over allegiance to Brainspotting.

This position is particularly important because therapeutic models can become self-protective precisely when they become successful. A community develops around a treatment, clinicians acquire expertise and identity within it, explanatory language becomes increasingly familiar, and research demonstrating positive outcomes is often experienced as validation of the larger conceptual system. Culture Comes Before Science becomes problematic only when the culture becomes unwilling to permit science, individual clinicians, or clients to challenge its explanations.

Brainspotting is most useful scientifically when it remains a source of observations rather than an object requiring defense. Its successes provide information, but so do its limitations. Rapid or profound change raises questions about what participated in that change, while slow, partial, temporary, or absent change raises equally important questions about what may have remained unaddressed. Asking why

Brainspotting works is therefore inseparable from asking why it does not work better.

The larger purpose is healing. A model should be judged not by how well it can defend its own beliefs, but by whether it can help us understand and facilitate therapeutic change more effectively. The client and the client's unfolding neuroexperience remain primary; the model follows.

6. From Clinical Discovery to Early Neurobiological Hypotheses

The effort to understand the neurobiology potentially participating in Brainspotting began relatively early in its development, but importantly, it followed rather than preceded the clinical observations. Corrigan and Grand (2013) attempted to formulate testable neurobiological hypotheses from phenomena that had already emerged through Brainspotting practice. Their work therefore provides an early example of the scientific sequence proposed in this paper: clinical observation detects phenomena, inquiry into those phenomena generates hypotheses, and hypotheses subsequently become available for scientific investigation.

Corrigan and Grand (2013) began with the observation that bodily activation associated with traumatic experience can correspond with a location in the visual field and that maintaining attention at that location can be associated with continued therapeutic processing. They proposed possible participation by retinocollicular and midbrain processes involving the superior colliculus and medial pulvinar, along with relationships to cingulate, intraparietal, insular, and other regions and processes. Their formulation was explicitly hypothetical rather than a demonstration of a Brainspotting mechanism.

Corrigan, Grand, and Raju (2015) subsequently broadened the inquiry by considering what might occur during the sustained processing following identification of a Brainspot. Their hypotheses included possible participation of spinothalamic pathways, superior-collicular and thalamic processes, intralaminar nuclei, the pulvinar, basal ganglia, cortical systems, orientation, visceral and bodily processes, and memory-related changes. Again, the significance of the paper lies in hypothesis generation rather than proof of mechanism.

In retrospect, these papers also illustrate an evolution in my own thinking. The earlier work understandably sought identifiable neurobiological pathways that might account for observed clinical phenomena. The subsequent development of the NEM has moved me toward a broader and more uncertain position. Retinocollicular pathways, superior colliculus, pulvinar, intraparietal regions, insula, cingulate regions, spinothalamic pathways, thalamic nuclei, basal ganglia, and cortical processes remain potential participants worthy of investigation, but identifying their participation would not by itself establish the mechanism through which Brainspotting facilitates healing.

The 2015 formulation is particularly interesting because it already extended across multiple levels of nervous-system processing, from spinal and brainstem pathways through thalamic and cortical processes. It can therefore be understood retrospectively as one precursor to the broader whole-nervous-system perspective subsequently developed within the NEM, although it should not be represented as the NEM itself. The scientific progression is better understood as continuing clinical observation leading to early neurobiological hypotheses, followed by increasing recognition of nervous-system complexity and uncertainty, the development of the NEM, and now the opportunity to bring contemporary independent neuroscience into conversation with the original clinical phenomena.

7. Visual Neuroexperience as a Scientific Challenge

It is within this larger inquiry that visual neuroexperience becomes an especially important scientific challenge. Visual and ocular processes have been central to Brainspotting from its earliest clinical observations, yet the NEM does not propose that trauma is anatomically stored at particular eye positions or that the visual system alone contains traumatic experience. Trauma-related neuroexperience is instead considered as potentially distributed across interacting processes throughout the nervous system, with visual processes providing one particularly accessible dimension through which aspects of that larger organization may be activated and investigated.

The ocular dimension itself extends beyond visual perception. Cranial nerve II carries visual information, while cranial nerves III, IV, and VI participate directly in extraocular movement. Trigeminal and vagal processes, along with other sensory, autonomic, brainstem, and cortical relationships, may participate indirectly within the larger neuroexperience accompanying visual orientation. Interoception, proprioception, sensory gating, motor activity, autonomic organization, affect, memory, attention, and orientation may likewise participate when a person's neuroexperience changes in relation to where the eyes are positioned. Within the NEM, these processes are potential participants rather than components of a predetermined mechanism.

Visual neuroexperience nevertheless presents a distinctive scientific opportunity because Brainspotting has repeatedly generated the clinical observation that changes in visual orientation and eye position can correspond with changes in affective, bodily, memory-related, autonomic, and other dimensions of neuroexperience. The observation itself is relatively straightforward; its meaning is not. Where a person looks can correspond with changes in what that person experiences, but the nervous-system processes participating in this relationship remain uncertain. The scientific response should therefore neither reduce the phenomenon prematurely to a familiar process such as attention nor elevate it into a specific visual-neural mechanism before that mechanism has been demonstrated.

The more productive question is what occurs across the nervous system when changing where a person looks corresponds with changing what that person experiences. This question allows visual neuroscience to enter the investigation without requiring that it validate Brainspotting. It also allows findings that do not fit current Brainspotting hypotheses to become scientifically useful rather than threatening to the model.

8. Harnett: Trauma and the Ventral Visual Stream

The work of Nathaniel Harnett and colleagues provides an important development within trauma-related neuroscience. Prevailing neurobiological models of PTSD have placed substantial emphasis on prefrontal, hippocampal, and amygdala threat circuitry. Harnett et al. (2025a) draw attention to the fact that threat-related circuitry partly depends upon sensory input and maintains dense reciprocal relationships with visual circuitry, particularly the ventral visual stream. Their review synthesizes emerging evidence that trauma exposure and PTSD are associated with alterations in the structure and function of ventral visual processing and proposes that visual and threat circuitry should be considered together in developing a more complete understanding of PTSD neurobiology.

The relevance to Brainspotting lies not in the possibility of claiming that these findings explain its effects, but in the independent convergence of these two lines of inquiry. Visual and ocular processes have been foundational

clinical variables in Brainspotting for more than two decades, while Harnett and colleagues arrived at the visual system independently through the study of the neuroscience of trauma. The convergence generates a scientific question rather than an answer: might the visual phenomena repeatedly observed clinically in Brainspotting become investigable in relation to visual processes that the neuroscience of trauma is increasingly able to identify and measure?

The developmental dimension of Harnett and colleagues' work is particularly important. Their review considers evidence that traumatic stress occurring at different developmental periods may be associated with different effects on visual and threat-related circuitry and raises the possibility that early traumatic stress may influence visual circuitry during development in ways relevant to subsequent threat-system functioning and PTSD vulnerability. The available evidence does not establish that visual- circuit alterations independently cause PTSD. These limitations make the research more rather than less
relevant to the present inquiry because they leave open questions that can be approached experimentally.

Subsequent experimental work by Harnett and colleagues adds another important dimension. Rather than relying only on threatening or trauma-related visual material, Harnett et al. (2025b) used basic non-affective visual stimulation and found trauma-related differences in visual-cortex reactivity, raising the possibility that trauma-related differences in visual responsivity may extend beyond reactions to explicitly threatening content. This makes it increasingly reasonable to investigate what occurs within visual and interacting nervous-system processes when trauma-related neuroexperience is active and visual orientation changes.

The scientific trajectory is therefore becoming increasingly reciprocal. Brainspotting's visual phenomena were first encountered clinically, Corrigan and colleagues subsequently proposed early neurobiological hypotheses, and Harnett's work has now arrived independently from trauma-focused neuroscience at the importance of visual processing. Rather than declaring that neuroscience has validated Brainspotting, this convergence provides an opportunity to return to the original phenomena with more precise questions and increasingly sophisticated methods.

9. Wadia: Perception, Imagery, and the Complexity of the Visual “What”

Wadia et al. (2026) provide a different but potentially complementary line of independent “visual neuroscience”. Using single-neuron recordings in human ventral temporal cortex, they found that approximately 80% of visually responsive neurons in their sample used a distributed axis code in representing objects and that, during internally generated imagery, approximately 40% of axis-tuned neurons recapitulated aspects of the visual code. Their findings provide single-neuron evidence that internally generated visual imagery can reactivate neuronal coding also involved in visual perception.

The boundaries of this finding are essential to its interpretation here. Wadia and colleagues did not investigate trauma, traumatic memory, flashbacks, psychotherapy, eye-position specificity, or Brainspotting. Their work therefore provides no direct evidence for a Brainspotting mechanism and does not establish how traumatic imagery is neurally organized. Its relevance is more fundamental: internally generated visual experience and externally generated visual perception can recruit overlapping neuronal representations within human ventral temporal cortex.

From a clinical-scientist perspective, this finding complicates the conventional shorthand of the ventral visual stream as the visual “what” pathway. What is experienced visually is not restricted to

what is currently present before the eyes. Internally generated visual representations can recruit aspects of neuronal coding involved in perception, raising the question of what the clinically relevant "what" may encompass when trauma-related experience becomes active.

The initial hypothesis is relatively conservative: the "what" may include what a person is visually perceiving in the present as well as internally generated visual representations and visual dimensions of memory. A broader Neuroexperiential hypothesis extends beyond Wadia's findings. In traumatic neuroexperience, visual representation may participate within a larger configuration involving affect, interoception, proprioception, autonomic activation, sensory processing, movement or inhibition, memory, orientation, attention, and relational experience. This does not mean that these dimensions are contained within the ventral visual stream. It means that visual representation may participate within a distributed neuroexperience whose organization extends far beyond vision.

10. The Dorsal Stream and the Interaction of Visual Systems

The familiar distinction between a ventral "what" stream and a dorsal "where" stream provides a useful historical starting point but is insufficient to describe contemporary understanding of visual organization. The dorsal stream also participates in motion, spatial relationships, eye movements, visually guided behavior, and the organization of action and has consequently been described in terms of both "where" and "how" functions (Creem & Proffitt, 2001; Kravitz et al., 2011). Contemporary work further cautions against treating visual streams as simple, independent information channels with sharply bounded functions (Ritchie et al., 2024).

Equally important, dorsal and ventral processing interact extensively (Cloutman, 2013). For the present inquiry, this interaction may ultimately prove more informative than attempting to assign particular trauma-related phenomena exclusively to one stream or the other. Brainspotting should therefore not be associated with the dorsal stream in opposition to Harnett's or Wadia's ventral findings. Both streams, and particularly their interaction, may be relevant to understanding the relationship between visual orientation and active neuroexperience.

Existing trauma research also requires precision. Dorsal-related visual, attentional, sensory, and motor processes have appeared in PTSD and flashback research, so it would be inaccurate to describe the dorsal visual stream as unstudied in trauma. Mueller-Pfeiffer et al. (2013), for example, identified atypical visual processing in PTSD involving ventral visual processing together with alterations involving dorsal and ventral attention systems; a dorsal attention system should not be equated with the dorsal visual stream. Whalley et al. (2013), however, explicitly investigated the prediction that t flashbacks would involve dorsal visual-stream and related sensory-motor processes. The broader literature therefore suggests relevant findings without yet providing a trauma- focused dorsal-stream research program comparable with the emerging systematic focus on ventral visual circuitry.

This leads to a more precise set of questions. Does the dorsal visual stream reflect trauma-related information, and if so, what form does that information take? In this paper, "carry trauma-related information" is used provisionally to refer to measurable trauma-associated representation, responsivity, processing, connectivity, or functional alteration within a neural system; it does not imply that traumatic experience is literally or exclusively stored within that system. If dorsal processing reflects trauma-related information, is that information similar to, different from, or differently organized than trauma-

related information reflected within ventral processing? If both streams participate, how do they interact with this information and with each other?

The developmental question may ultimately be equally important. If traumatic experience occurs while visual systems themselves are developing, might early adversity influence dorsal and ventral processing or their interaction differently from traumatic experiences occurring later in life? From a Neuroexperiential perspective, the value of the question lies not in predicting its answer but in recognizing that understanding how visual systems participate and interact may provide important information about developmental organization.

11. Flashbacks: From Visual Representation to Whole Neuroexperience

The flashback provides an especially revealing phenomenon through which to consider these questions. A visual flashback appears phenomenologically to present a trauma-related "what": something no longer externally present becomes visually experienced with an immediacy that can make the earlier experience feel present. Wadia's findings make the relationship between perception and internally generated visual representation relevant to this phenomenon, but voluntary imagery and involuntary traumatic re-experiencing should not be conflated. Wadia's work provides a reason to investigate their relationship rather than evidence that they depend upon the same neural processes.

Neuroimaging research on flashbacks provides an additional empirical bridge. Whalley et al. (2013) compared flashbacks with ordinary episodic trauma memories and reported flashback-related differences involving sensory and motor regions, including mid-occipital cortex, insula, precentral gyrus, and supplementary motor area. Their findings do not establish a Neuroexperiential account of flashbacks, but they support investigating traumatic re-experiencing beyond an isolated visual representation and are particularly relevant to questions concerning dorsal visual and sensory-motor participation.

The clinical phenomenon itself extends still further. Visual flashbacks may occur together with intense affective, bodily, autonomic, sensory, and motor experience, while body and affective flashbacks may occur without consciously accessible visual imagery or cognitive content. The apparently visual "what" therefore becomes an entry into the larger question of how dimensions of traumatic neuroexperience become activated together, separately, or in different combinations.

From a Neuroexperiential perspective, one hypothesis is that visual, somatic, and affective flashbacks may represent differently accessible expressions of a larger distributed trauma-related configuration.
Visual representation, affect, interoception, proprioception, autonomic state, sensory processing, motor preparation or inhibition, memory, orientation, attention, and relational neuroexperience may participate in different combinations and with different degrees of conscious accessibility. This remains a hypothesis rather than an established neuroscientific account and should be investigated as such. The visual "what" thus becomes an entry into the larger neuroexperience rather than an explanation of it.

12. Developmental Trauma and the Developing Nervous System

These questions become considerably more complex when the focus shifts from discrete traumatic events to developmental trauma. Early traumatic and adverse experiences occur within a nervous system that is itself undergoing rapid and extensive development. Sensory processing, visual function, movement,

autonomic organization, interoception, proprioception, affect, attachment, relational experience, memory, and higher-order capacities develop continuously through interaction with the environment and with other human nervous systems.

Developmental trauma does not simply occur within a smaller version of an already mature adult nervous system. The nervous system is continuing to develop while the child is adapting to experience. The child senses, orients, approaches and avoids, mobilizes and inhibits, attaches and disconnects, learns and anticipates through the capacities **available at that developmental moment**. Some of these adaptations necessarily occur before mature autobiographical, reflective, and higher-order capacities have developed (Fivush, 2011), which cautions against understanding developmental trauma primarily as a collection of explicit memories, cognitions, or beliefs.

The Neuroexperiential proposition extends one step beyond these established developmental observations and should be identified clearly as a hypothesis: developmental trauma may participate in the organization of the developing nervous system itself. This does not mean that adversity deterministically constructs a particular neural architecture or that a specific traumatic experience can later be located within a particular system. It means that adaptation is occurring while sensory, motor, autonomic, affective, relational, memory, visual, and higher-order processes are themselves developing and interacting. What persists later may therefore include not only memories of what occurred but patterns through which subsequent experience is perceived, embodied, anticipated, and responded to.

Higher-order neocortical capacities subsequently develop within this already organizing nervous system. They participate in interpreting, anticipating, narrating, and sometimes elaborating earlier adaptations through expectation, rumination, meaning-making, self-concept, and attempts to understand or control experience. In this sense, the neocortex can become part of the problem. These same capacities can later contribute importantly to mindful awareness and processing, reflection, contextualization, temporal differentiation, choice, and integration; and can therefore become part of the solution. From a Neuroexperiential perspective, however, the neocortex generally follows more than leads, both developmentally and within the unfolding process of healing.

The central question is consequently much larger than whether childhood trauma changes visual circuitry. It concerns how experience becomes organized across a developing nervous system such that years or decades later some combination of image, bodily state, affect, orientation, movement, autonomic activation, relational/emotional connection, memory, and self-experience can become active as present neuroexperience rather than as experience fully integrated into the past tense.

13. Dissociation and the Organization of Neuroexperience

Dissociation brings this developmental problem into especially sharp relief. Dissociative phenomena are heterogeneous, and current neuroscience does not support reducing them to a single neural structure, circuit, or mechanism. Neuroimaging research has identified findings distributed across multiple cortical and subcortical regions and large-scale networks, with substantial variation according to population, methodology, and the dissociative phenomena being investigated (Lotfinia et al., 2020; Lanius et al., 2012).

The clinical phenomenology is similarly multidimensional. Trauma-related experience may emerge as visual fragments, bodily sensations, affective states, autonomic changes, action tendencies, relational responses, alterations in attention, memory discontinuities, or changes in the experience of self. These

dimensions do not necessarily appear together or with equal conscious accessibility. From a Neuroexperiential perspective, these phenomena raise the question of how dimensions of neuroexperience become differentiated, integrated, accessible, inaccessible, or reorganized.

The question becomes still more complex in severe dissociation involving differentiated self-states. The NEM does not propose that a self-state or part corresponds to a discrete neural structure, isolated circuit, or individually stored memory, and current neuroscience does not justify such a localization. One Neuroexperiential hypothesis is that differentiated states may involve changing configurations at the cellular level, across perception, bodily experience, affect, autonomic organization, memory, action and inhibition, relational expectation, attention, orientation, sensory processing, and higher-order processes. This proposition does not diminish the lived or clinical reality of differentiated self-states; rather, it shifts the scientific question from where a part might be located to how a nervous system organizes and maintains differentiated configurations of experience and how those configurations become increasingly accessible to and integrated with one another.

This formulation requires theoretical humility because dissociation remains an area of continuing scientific debate, and trauma-based accounts are not the only explanatory models in the literature (Lynn et al., 2022). Visual neuroexperience may provide one experimentally accessible window into this larger problem, but its purpose is not to create a visual theory of dissociation. It is to explore whether a scientifically measurable domain may provide one portal into a much larger mystery of integration, differentiation, and healing.

14. “Then and There” and “Here and Now”

The persistence of traumatic neuroexperience can also be approached through the distinction between “then and there” and “here and now.” In an integrated autobiographical memory, a person can recollect an earlier experience while maintaining its temporal context as something that occurred in the past. Research on autobiographical memory supports the importance of temporal organization, self-continuity, and the gradual developmental emergence of autobiographical capacities (Fivush, 2011), while findings concerning fragmentation and temporal organization of traumatic memory are considerably more heterogeneous than some clinical theories have suggested (Crespo & Fernández-Lansac, 2016).

Traumatic re-experiencing can disturb this distinction. A person may explicitly know that an event occurred years or decades earlier while bodily, affective, visual, autonomic, motor, perceptual, or relational processes become organized with an immediacy characteristic of present experience. The distinction between “then and there” and “here and now” should therefore not be interpreted as a claim that traumatic memories are universally fragmented, temporally disorganized, or categorically different from other memories. It is used here as a clinical and Neuroexperiential description of circumstances in which explicit knowledge that an experience is past can coexist with dimensions of neuroexperience that become active with present-tense immediacy.

Developmental trauma makes this problem still more complex because autobiographical memory and a temporally continuous sense of self develop gradually across childhood. Some early adaptations may therefore emerge before mature autobiographical organization and reflective temporal contextualization are available. It is, in all probability, inaccurate to conclude that these experiences are stored “outside time” or remain literally frozen within the nervous system. A more cautious Neuroexperiential proposition is that dimensions of earlier adaptation may later become active without being fully

integrated with current temporal, contextual, and autobiographical experience.

This helps frame an important clinical paradox. A person can know that something is over while dimensions of neuroexperience continue to respond as though some aspect of it remains present. Cognitive knowledge and whole-system organization need not change simultaneously. Healing may consequently involve more than constructing an accurate narrative or consciously recognizing that earlier danger has passed. The larger Neuroexperiential question concerns what changes across interacting processes when an experience increasingly becomes organized as belonging to "then and there" while the person more fully inhabits "here and now."

15. The Frame in the Face of What We Do Not Know

The preceding inquiry leads not toward greater theoretical certainty but toward a more informed recognition of uncertainty. Developmental trauma may involve adaptation across multiple interacting processes while the nervous system itself is developing. Dissociation is associated with heterogeneous phenomena and distributed neurobiological findings. Visual processing may provide an important window into trauma-related neuroexperience without providing a complete explanation of it. Even increasingly sophisticated neuroscience necessarily measures selected dimensions of a much larger system, while the clinician encounters that complexity at the level of a unique individual rather than a group average.

Even if neuroscience eventually identifies highly reproducible patterns associated with developmental trauma, dissociation, visual processing, or treatment response, those findings will not specify in advance the precise organization or moment-to-moment trajectory of an individual client's neuroexperience. The Brainspotting Uncertainty Principle begins there. Uncertainty is not therapeutic ignorance, lack of training, or rejection of scientific knowledge. It is recognition that expertise remains finite while the nervous system being encountered is vastly more complex than the clinician's capacity to fully understand or predict it.

The Frame becomes central under precisely these conditions. The Dual Attunement Frame maintains relational and neurobiological attunement between therapist and client while supporting attention to the client's unfolding process. Focused Mindfulness Processing sustains attention to emerging neuroexperience without requiring that the process follow a theoretically predetermined sequence. The Neurobiological Imperative proposes an intrinsic movement toward processing, adaptation, integration, and healing while remaining a clinical-theoretical proposition rather than an established neuroscientific mechanism.

The therapist's position as part of the tail of the comet follows from this epistemology. Following does not mean passivity and does not diminish the importance of knowledge, clinical judgment, close observation, relational responsiveness, or intervention. It means relinquishing the presumption that the therapist's conceptual map possesses more information about the client's unfolding neuroexperience than the client's system itself. The same principle applies to scientific theory. Brainspotting should follow the phenomena rather than requiring phenomena to follow Brainspotting, and the NEM should follow emerging clinical and scientific information rather than defend its existing formulations. The model must remain more disposable than the phenomena it is attempting to understand.

In the face of uncertainty, all we have is the Frame.

16. Why Doesn’t It Work Better?

The question “Does psychotherapy help?” is important, but it is not sufficient. For severe developmental trauma and dissociation, a more difficult question remains largely unspoken: Why, after decades of increasingly sophisticated treatment, have we still not come close to cracking the code of what keeps people organized in unresolved states rooted in repeated early trauma? I raise this question not as a pessimistic assessment of psychotherapy, but as an optimistic scientific challenge. Meaningful and sometimes profound change is unquestionably possible, and experienced clinicians working with severe dissociation regularly see clients become more stable, more functional, more connected, less symptomatic, and increasingly able to live their lives. At the same time, clinicians with extensive experience in this field also know how frequently people remain caught for years in deeply entrenched patterns of traumatic activation, dissociative organization, bodily and affective experiences, painful relational expectations, as well as inhibition, and segregated self-states. The persistence of these patterns should not be understood solely as evidence of the severity or complexity of the client's history. It is also evidence of the limits of our present understanding.

The published treatment literature does not fully capture this clinical reality. Research on treatment for dissociative disorders remains comparatively small and methodologically limited, and outcome studies necessarily examine selected variables within particular populations and defined periods of time (Yeates et al., 2024). This research is essential, but it cannot by itself answer the larger clinical question: What has to change within a developmentally organized nervous system for deeply entrenched trauma and dissociation to become more fully resolved rather than better managed, partially processed, or incrementally improved? My experience as a clinician, student, teacher, and colleague of many clinicians specializing in dissociation has convinced me that we have not come close to cracking the code of what keeps many people organized in unresolved states rooted in repeated early trauma. I believe this is widely recognized clinically even though it is not often stated so directly in the scientific literature. This is not a criticism of those clinicians or of the therapeutic models they use. Some of the most sophisticated and dedicated clinicians in psychotherapy have devoted their careers to this work, and existing approaches have helped many people substantially. The problem is larger: the depth and persistence of severe developmental trauma and dissociation suggest that our theories may still be describing only portions of what is occurring.

When a client has received years of thoughtful and expert treatment and remains substantially organized around early traumatic experience, that persistence is scientific information. When differentiated self-states remain strongly segregated, body or affective flashbacks continue despite extensive processing, or a person's life becomes more functional while fundamental patterns of traumatic organization remain active, these observations should generate scientific curiosity. Certainly, the extraordinary complexity of severe developmental trauma contributes to the difficulty of treatment, but complexity cannot become an explanation that protects our therapeutic theories from examining their own limitations. The client is complex, and our models may also be incomplete. Both possibilities need to remain open to investigation.

This changes the therapeutic and scientific question. If we view a block simply as resistance, avoidance, pathology, or a barrier to processing, we may focus our efforts on overcoming it without sufficiently understanding why it developed and why the nervous system continues to require it. The more overwhelming the encroaching neuroexperience threatens to become, the more necessary the

protective organization may be. Rather than asking primarily how we can break through, bypass, or eliminate the block, we need to ask what it is protecting against, what might happen if that protection were relinquished prematurely, and what must change within the larger organization so that the protection is no longer necessary in its present form. In severe developmental trauma and dissociation, understanding this dynamic relationship may be one of the central dimensions of the code we have not yet cracked.

One possibility is that we have not adequately understood what we commonly experience clinically as blocks to processing. A block may not simply be an obstacle to healing, nor something the therapist needs to overcome. It may represent a protective organization developed to prevent encroaching neuroexperience from becoming overwhelming. From this perspective, the clinical dilemma can resemble the classic paradox of the irresistible force meeting the immovable object. The unresolved traumatic neuroexperience presses toward emergence, processing, and integration, while the protective organization that developed to prevent overwhelming experience limits or prevents its emergence. The block and the unresolved experience are therefore not necessarily separate problems; they may be dynamically organized in relation to one another.

Brainspotting must be included fully in this scrutiny. I have no interest in claiming that Brainspotting has solved developmental trauma or severe dissociation. It has not, and in my view psychotherapy more broadly has not come close to cracking this code. Brainspotting may contribute important clinical observations and may facilitate substantial therapeutic change, but its limitations are as scientifically informative as its successes. Evidence that Brainspotting or another psychotherapy produces beneficial outcomes cannot establish that our theories about why those outcomes occur are correct, nor can treatment efficacy tell us what remains unaddressed when healing is incomplete. The question “Why doesn’t it work better?” therefore needs to be asked of Brainspotting as it should be asked of every other model.

This is where the Neuroexperiential Model may be most useful, not because it offers another claim that we have finally discovered the missing explanation, but because it asks whether we have been looking at too narrow a portion of the problem. If developmental trauma involves adaptation across visual, sensory, autonomic, interoceptive, proprioceptive, motor, affective, relational, memory, attentional, and higher-order processes within a nervous system that is itself constantly developing, then persistent suffering may reflect forms of organization that our current therapeutic theories only partially describe. Dissociation further raises the possibility that dimensions of neuroexperience can become differently accessible, connected, segregated, or organized across states. These propositions remain hypotheses, but they generate a different kind of scientific question: not simply which treatment reduces symptoms, but what must actually drive change across a developmentally organized nervous system for traumatic adaptations that have persisted for decades to become fundamentally transformed.

Seen from this perspective, acknowledging how far we still have to go is not discouraging. It is exciting, as it creates an opening for discovery. A field that has not yet cracked the code of human suffering, including severe developmental trauma and dissociation, has unfinished work, and recognizing that unfinished work gives us permission to look beyond the assumptions of our existing models for processes we may have overlooked. Clinical observation, controlled psychotherapy research, developmental neuroscience, dissociation research, and emerging investigation of visual neuroexperience may each contribute different pieces of this problem, while none should be expected to provide the answer alone.

There is cause for optimism. We know enough to know that meaningful healing is possible, but we do not yet know enough to make that healing as deep, reliable, complete, and efficient as it might become. Rather than defending what our therapeutic models have already accomplished, we can become more curious about what they have not yet accomplished and why. That gap between what we can presently facilitate and what may ultimately be possible is not evidence that we should expect less from psychotherapy. It is where the next discoveries may emerge, and it is why I believe we can do better.

17. Toward a Neuroexperiential Research Program

The convergence of client-derived clinical observation, earlier Brainspotting hypotheses, and independent contemporary neuroscience creates an opportunity to develop a research program without prematurely declaring a mechanism. The starting point remains the clinical phenomenon: where a person looks can correspond with changes in what that person experiences. The first scientific task should therefore be descriptive. What reliably changes when gaze position changes? How stable is the relationship within an individual and how variable is it across individuals? Do Outside Window, Inside Window, and spontaneous Gazespotting reveal similar or different patterns? Does a relevant eye position remain stable over time, change during processing, or vary according to the neuroexperience being activated? These questions can be investigated without presuming why the phenomenon occurs.

A second level of inquiry can examine measurable ocular and physiological processes. Eye position and eye movements can be recorded precisely, including microsaccades and other ocular behavior, while pupil diameter, respiration, heart rate variability, electrodermal activity, and other physiological variables can provide selected measures of concurrent autonomic activity. Client reports can characterize changes in activation, imagery, memory, bodily experience, affect, and dissociation. These measures would necessarily capture only selected dimensions of a larger neuroexperience, but their convergence or divergence could begin to reveal whether clinically observed changes associated with eye position correspond with reproducible physiological patterns.

A third level can investigate neural participation. EEG, functional neuroimaging, connectivity analyses, and other approaches could examine whether changes associated with gaze position correspond with changes in visual circuitry, orientation and attention systems, sensory and motor processes, autonomic-related networks, interoceptive regions, memory-related systems, or large-scale neural networks. The objective should not be to locate a Brainspotting center in the brain or to identify one structure as the source of the therapeutic effect. It should be to investigate interacting processes when the clinically observed phenomenon occurs.

This research would also provide an opportunity to revisit the earlier hypotheses proposed by Corrigan and colleagues. Retinocollicular processes, superior colliculus, pulvinar, intraparietal regions, spinothalamic pathways, thalamic nuclei, insular and cingulate processes, basal ganglia, and other proposed participants can now be reconsidered alongside newer questions concerning ventral and dorsal visual processing, visual-threat circuitry, internally generated imagery, autonomic processes, development, and large-scale networks. Earlier hypotheses need not be either defended or discarded wholesale; they can be tested, refined, integrated with newer evidence where appropriate, or abandoned where the evidence does not support them.

The dorsal-ventral question provides a particularly clear example. Research can investigate whether trauma-related information is reflected within dorsal visual processing, whether this resembles or differs from ventral findings, and how the two streams interact during trauma activation, internally generated imagery, flashbacks, changes in gaze position, dissociation, and therapeutic processing. Developmental trauma and dissociation should become central rather than peripheral to this research program.

The research should remain multilevel and deliberately resistant to premature reduction. A reproducible visual-cortex change would identify participation, not necessarily a specific mechanism; the same would apply to an autonomic change, ocular pattern, connectivity difference, attentional shift, or large-scale network alteration. Most importantly, studies should be capable of disproving Brainspotting hypotheses. If eye-position specificity fails to replicate under controlled conditions, that matters. If changes attributed clinically to eye position are better explained by another variable, that matters. If the Corrigan hypotheses are unsupported, that matters. If entirely unexpected processes emerge, those findings may matter most of all. The objective is discovery, not validation.

18. Can Visual Neuroexperience Help Us Better Understand the Developmental Trauma and Dissociation Mystery?

The proposed research program ultimately extends far beyond the visual system. If investigation clarifies how trauma-related information is reflected within ventral and dorsal visual processing, understanding their similarities, differences, and interactions could provide new information about traumatic neuroexperience. The next question necessarily concerns how visual processes participate with sensory, autonomic, interoceptive, proprioceptive, motor, affective, memory, relational, developmental, and higher-order processes throughout the nervous system. Visual neuroexperience becomes valuable not because it offers a visual explanation of trauma but because it may provide a scientifically accessible portal into a much larger system.

Developmental trauma and severe dissociation suggest that adaptations can become remarkably persistent, distributed, and resistant to change. We do not yet adequately understand how experience becomes organized across the developing nervous system in ways that permit combinations of visual representation, bodily state, affect, orientation, movement, autonomic activation, relational expectation, memory, and self-experience to re-emerge years or decades later as active present neuroexperience. Our current understanding of developmental trauma raises the possibility that adaptation is a key element in how the developing nervous system subsequently organizes experience.

This remains a Neuroexperiential hypothesis, and its scientific value depends upon whether it generates meaningful questions and remains open to revision when those questions are investigated. Dissociation deepens the challenge by raising the possibility that dimensions of neuroexperience can become differently accessible or organized across states. Utilizing this lens, healing may involve more than reducing activation associated with individual traumatic memories; it may involve changes in how distributed configurations of neuroexperience relate to one another and to present experience.

Visual neuroexperience may provide one portal into this mystery because visual processes participate in perception, recognition, spatial orientation, action, environmental engagement, and internally generated representation. The significance of Harnett's and Wadia's research is not that either

explains developmental trauma or dissociation, but that their work makes aspects of visual neuroexperience increasingly available to scientific investigation. Brainspotting contributes another form of information: more than two decades of clinical observations suggesting relationships between visual orientation and changes across multiple dimensions of neuroexperience. The importance of those observations is not that they prove Brainspotting's theories but that they identify phenomena that can be further investigated using neuroscientific tools.

The broader question can therefore be asked without assuming its answer: if we understand more about how visual neuroexperience participates within trauma, how dorsal and ventral visual processes interact, how internally generated representation relates to perception, and how these processes participate within the larger developing nervous system, might we begin to understand something we have been missing about developmental trauma and dissociation? The possibility remains speculative, but speculation becomes scientifically useful when it generates questions that can be investigated and remains open to being changed by the answers.

19. Optimizing Healing

The ultimate objective of this inquiry is not optimizing Brainspotting. It is optimizing healing. A therapeutic model can become an obstacle to discovery when preserving the model becomes more important than understanding and helping the person. I have long taught Brainspotting therapists not to sit with clients thinking primarily about Brainspotting, but to remain mindful of what may best facilitate the healing of the person in front of them. Sometimes that may involve Brainspotting, while at other times another therapeutic approach, another clinical strategy, or a combination of approaches may better serve the client. The needs and unfolding neuroexperience of the client must remain more important than the integrity of any therapeutic model.

The same principle applies scientifically. If neuroscience supports some Neuroexperiential hypotheses, those findings should deepen inquiry rather than close it. If research contradicts other hypotheses, those hypotheses should change. If processes never considered within Brainspotting prove central to therapeutic change, they should become part of our understanding. The history of Brainspotting itself provides an example of this process. The initial clinical observations led to early neurobiological hypotheses, including those developed with Corrigan, while continuing clinical experience and increasing appreciation of nervous-system complexity contributed to the broader NEM and its Uncertainty Principle. Contemporary work by Harnett, Wadia, and others now opens questions that could not have been asked with the same scientific specificity twenty years ago, and there is no reason to assume that the formulations we hold today will resemble those we may hold twenty years from now.

This openness becomes especially important in developmental trauma and severe dissociation. The persistence of profound dissociative organization, body and affective flashbacks, traumatic activation, relational inhibition, and other manifestations of early adaptation despite years of sophisticated treatment suggests a gap between what we can presently accomplish and what might ultimately become possible. That gap does not diminish the extraordinary work of clinicians specializing in trauma and dissociation or the meaningful healing experienced by many clients. It requires us to consider not only the complexity of the people we treat but also the incompleteness of our present understanding.

The NEM is intended to make that incompleteness scientifically productive. It does not propose that the answer lies in the visual system, the autonomic nervous system, interoception, proprioception, sensory gating, cranial nerves, large-scale neural networks, developmental processes, relational neuroexperience, or any other individual domain. It asks whether healing may involve interactions among processes distributed across the whole nervous system that our therapeutic theories and research methodologies have not yet adequately conceptualized or measured. The eight sub-nervous systems are useful in this regard not because they provide eight mechanisms, but because they continually remind us of how much may be participating in the neuroexperience beyond whatever process happens to be receiving our attention.

Visual neuroexperience is especially interesting within this larger inquiry because it offers an unusual convergence of clinical observation and increasingly sophisticated neuroscience. Brainspotting clients have demonstrated for more than two decades that changes in where they look can correspond with changes in what they experience. Harnett and colleagues have independently demonstrated relationships between trauma and visual processing and circuitry, while Wadia and colleagues have shown that internally generated visual imagery can reactivate neuronal coding involved in perception. Research concerning dorsal and ventral visual processing raises additional questions about recognition, spatial organization, visually guided action, internally generated representation, and the interaction of visual systems. None of these findings explains the mechanisms at work in Brainspotting, but together they make aspects of visual neuroexperience increasingly available to scientific investigation.

The opportunity is therefore larger than determining whether a Brainspotting hypothesis is correct. If visual processes can provide one measurable portal into the organization of trauma-related neuroexperience, this may help us investigate relationships among perception, somatosensory, affect, autonomic state, movement and inhibition, memory, orientation, attention, relationship, and dissociation. Developmental research can ask how these relationships emerge when adversity occurs while the nervous system itself is evolving. Dissociation research can ask how dimensions of neuroexperience become differently accessible or organized across states. Treatment research can ask what changes when healing becomes deeper and what remains unchanged when healing reaches a plateau. Brainspotting can contribute clinical phenomena to these questions without requiring that the answers ultimately belong to Brainspotting.

This is also why incomplete healing should be treated as scientifically valuable information rather than simply as a disappointing outcome. When a therapeutic process produces substantial change in one dimension of a person's experience while another remains remarkably persistent, the discrepancy may tell us something about the organization we do not yet understand. When an intervention works rapidly for one person and slowly or incompletely for another, the difference deserves investigation. When a client understands an early traumatic experience cognitively and autobiographically yet continues to experience it bodily, affectively, relationally, or dissociatively as though some dimension of it remains present, the gap between those forms of experience should become a useful point of inquiry rather than an assumed feature of pathology.

The optimistic challenge is that we can do better. The history of psychotherapy demonstrates that what once seemed mysterious can become increasingly understandable and treatable, while the history of neuroscience repeatedly demonstrates that seemingly adequate explanations can be transformed by new methods and discoveries. There is no reason to assume that our present understanding of developmental trauma and dissociation represents the limit of what can eventually be known or healed.

The appropriate response to what we have not yet "cracked" is therefore neither therapeutic pessimism nor theoretical defensiveness. It is sustained clinical and scientific curiosity directed toward discovering what we have been missing.

Conclusion

Brainspotting began not with a theory of visual neuroscience but with a clinical observation. An unexpected relationship between eye position and active neuroexperience was observed in a client, followed over time by additional observations that evolved into Outside Window, Inside Window, Gazespotting, and other developments within the model. This history illustrates the epistemological position developed throughout this paper: phenomena do not need to wait for an adequate scientific explanation before they can be observed, but observations also do not become mechanisms simply because a plausible scientific explanation can subsequently be proposed.

The early papers by Corrigan and colleagues represented an important next step in the evolution of Brainspotting by attempting to translate Brainspotting's clinical observations into testable neurobiological hypotheses. The subsequent development of the NEM moved this inquiry toward a broader recognition of nervous-system complexity and uncertainty. Contemporary independent neuroscience now creates an opportunity to return to some of the original clinical observations from another scientific direction. Harnett and colleagues have brought increasing attention to trauma-related visual circuitry and visual responsivity following trauma, while Wadia and colleagues have demonstrated that internally generated imagery can reactivate aspects of neuronal coding involved in visual perception. Questions concerning the dorsal visual stream and dorsal-ventral interaction further expand the inquiry. None of these findings proves that Brainspotting's earlier hypotheses were correct. Their importance lies in making aspects of the territory revealed through clinical observation increasingly accessible to scientific investigation.

Ultimately, the scientific inquiry must extend beyond vision. Visual flashbacks can occur with bodily, affective, autonomic, sensory, and motor experience, while body and affective flashbacks can occur without consciously accessible visual imagery. Developmental trauma occurs while multiple nervous-system processes are themselves developing, and dissociation raises profound questions about how dimensions of neuroexperience become differently organized, accessible, segregated, and integrated. Visual neuroexperience may therefore be most valuable not as an explanation of trauma but as one scientifically tractable portal into a much larger distributed organization.

This brings the inquiry back to the clinical problem that gives rise to this paper. After decades of work with trauma and dissociation, we know that people can heal in ways that once may have seemed impossible, and the accumulated experience of clinicians working with severe developmental trauma and dissociation should give us reason for hope. At the same time, my experience as a clinician, student, teacher, and colleague of many clinicians specializing in dissociation has convinced me that we have not come close to cracking the code of what keeps many people organized in unresolved states rooted in repeated early trauma. I believe this is widely recognized clinically even though it is not often stated so directly in the scientific literature. The point is not that our treatments do not help; they do. The point is that helping is not the same as fully understanding what keeps traumatic organization in place or knowing how to facilitate its deepest and most efficient transformation.

The limitations of our treatments are therefore part of the data. When healing remains partial,

prolonged, or elusive, we should resist attributing that limitation solely to the complexity of the client. The client may indeed be extraordinarily complex, but our models may also be incomplete. A psychotherapy science committed to optimizing healing must be willing to study treatment failures, plateaus, incomplete change, and unexplained differences in response with the same seriousness with which it studies efficacy. Evidence that a treatment works should begin rather than end the inquiry into what occurred and what may still be missing.

Brainspotting should be held to precisely this standard. Its purpose within the present scientific landscape is not to prove itself correct but to contribute clinical observations that can generate questions. Controlled research can test selected propositions, neuroscience can investigate possible biological participation, and the resulting findings can return to clinical practice, where clients will inevitably reveal phenomena our existing theories did not anticipate. In this reciprocal scientific process, the laboratory can discover interrelationships that the clinician cannot see, while the clinical encounter can reveal what the laboratory has not yet thought to look for.

The NEM is therefore most useful if it remains unfinished. Its value lies not in providing a final explanation of Brainspotting, trauma, dissociation, or healing, but in providing a framework within which uncertainty can remain generative. The model must remain open to continual evolution and more disposable than the phenomena it is attempting to understand. Most importantly, every theory must remain subordinate to the person whose healing it is intended to serve.

The ultimate objective is not the preservation, validation, or optimization of Brainspotting. It is the optimization of healing. We know enough to know that meaningful and sometimes profound healing is possible, but we do not yet know enough to make that healing as deep, reliable, complete, and efficient as it might become. Rather than defending what our therapeutic models have already accomplished, we can become more and more curious about what they have not yet accomplished and why. That gap between what we can presently facilitate and what may ultimately be possible is where the next discoveries may emerge.

In the face of uncertainty, all we have is the Frame.

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