THE EUROPEAN SOCIETY OF MEDICINE
Medical Research Archives, Volume 14 Issue 4

REVIEW ARTICLE

A Narrative Review of Eidetic Imagery and the Early Architecture of Mental Imagery Research: Revisiting Akhter Ahsen's Foundational Contributions

Akhtar Ali Syed, PhD [1], Shazia Neelofur, PhD.[2]

[1] Principal Clinical Psychologist, Corlann Ireland, Waterford
[2] Principal Clinical Psychologist, Corlann Ireland, South Tipperary.

Correspondence: akhtaralisyed@gmail.com

OPEN ACCESS

PUBLISHED
30 April 2026

CITATION
Syed, AA., and Neelofur, S., 2026. A Narrative Review of Eidetic Imagery and the Early Architecture of Mental Imagery Research: Revisiting Akhter Ahsen's Foundational Contributions. Medical Research Archives, [online] 14(4).

ISSN
2375-1924

ABSTRACT

Akhter Ahsen's eidetic theory, particularly his Image-Somatic-Meaning (ISM) model remains one of the most comprehensive phenomenological frameworks for understanding mental imagery developed in the 20th century. Despite its conceptual depth and clinical sophistication, Ahsen's work has been largely overlooked within mainstream cognitive psychology. Over the past four decades, however, cognitive scientists such as Stephen Kosslyn, Emily Holmes, Andrew Mathews, and Joel Pearson have advanced empirical models that converge strikingly with Ahsen's earlier formulations. This paper offers a systematic analysis of the conceptual intersections between Ahsen's eidetic theory and contemporary cognitive imagery research. It argues that many of the "discoveries" now regarded as foundational, such as the depictive nature of imagery, its somatic and affective correlates, its causal influence on cognition, and its therapeutic potential were theoretically formulated and operationally structured by Ahsen decades earlier. Moreover, Ahsen developed a rigorous method for tracing psychopathology through experiential imagery and articulated systematic psychotherapeutic techniques grounded in these principles.

This paper is based on an extensive narrative review of the literature, drawing on primary texts by Akhter Ahsen alongside contemporary cognitive, neuroscientific, and clinical research. Relevant sources were identified through structured searches of major academic works, supplemented by targeted cross referencing with historical and theoretical works on imagery science. This approach enabled the identification and synthesis of conceptual convergences, divergences, and overlooked continuities across epistemological, methodological, and clinical domains. The paper concludes by calling for the acknowledgement and reintegration of Ahsen's contributions into the contemporary scientific narrative and proposes a unified framework that bridges phenomenology, clinical science, and cognitive neuroscience.

Keywords: Akhter Ahsen, eidetic imagery, eidetic psychotherapy, mental imagery.

1. Introduction

Philosophical interest in mental imagery stretches back to antiquity. Aristotle [1,2] described images as lingering traces of perception, *phantasmata* that remain after the external object has disappeared. His account of *phantasia* became foundational for later theories of memory, imagination, and thought [3, 4, 5]. Contemporary philosophers continue to treat imagery as central to cognition, particularly in discussions of modal reasoning, perceptual simulation, and the nature of mental representation [6].

Early modern philosophers also wrestled with the status of imagery. Hobbes [7] characterised imagination as "nothing but decaying sense" (p 15), while Descartes treated ideas as quasi-perceptual forms produced by the imagination [8]. Hume famously argued that images differ from perceptions only in their degree of vivacity, a distinction that resonates strongly with current research on vividness, aphantasia, and hyperphantasia [9, 10]. Locke compared the relation between an image and its object to that between a word and its referent [11], a view that later resurfaced in the descriptionalist position within the modern imagery debate. Contemporary cognitive science continues to grapple with the tension between depictive and propositional forms of representation [12].

Wittgenstein's later work added a different dimension. As Nyiri [13] notes, Wittgenstein argued that pictures have no inherent meaning; their significance depends on how they are used within linguistic practices. Wittgenstein also emphasised that imagery is subject to intention in ways unlike perception [14].

The first empirical turn came with Francis Galton (1883), who systematically studied individual differences in imagery vividness [15]. He regarded imagery as essential to creativity, noting that skilled craftsmen and scientists often relied on vivid internal visualisation. Modern research continues to support this intuition, linking imagery to creative problem-solving and innovation [16].

Across these philosophical traditions, mental images were generally treated as perceptually grounded representations. Some, such as Locke, may have overstated imagery's role in thought [11, 5], but their debates laid the conceptual groundwork for psychological inquiry. When psychologists eventually took up the topic, they expanded it dramatically, first through introspective methods, then through behaviourism's rejection of inner experience, and later through the cognitive research and contemporary neuroscience. The last major work before behaviourism's rise was Betts's *The Distribution and Functions of Mental Imagery* published in 1909 [17], after which the field fell largely silent for decades. Imagery research re-emerged through eidetic theory in the mid-twentieth century and then flourished within cognitive psychology and neuroscience, where it has been repeatedly rediscovered and reinterpreted.

Within this shifting landscape, Akhter Ahsen stands out as a pioneering yet under-recognised theorist. Beginning in the 1950s, he developed a sophisticated account of imagery that integrated phenomenology, somatic experience, memory, trauma, and meaning-making [18]. At the centre of his system is the Image–Somatic–Meaning (ISM) triad, which conceptualises imagery as a dynamic, embodied, and interpretive process.

In parallel, cognitive scientists such as Stephen Kosslyn, Emily Holmes, Andrew Mathews, and Joel Pearson developed empirical models that despite emerging from different epistemological traditions arrive at strikingly similar conclusions. These include the depictive nature of imagery (Kosslyn), the emotional and psychopathological functions of imagery (Holmes & Mathews), and the perceptual and neural mechanisms underlying imagery (Pearson). Although these researchers do not cite Ahsen, their findings often echo his earlier insights.

This paper examines the conceptual overlaps between Ahsen's eidetic theory and contemporary cognitive models. It argues that Ahsen anticipated many principles now regarded as foundational in imagery science, and that integrating his work into current discourse would enrich the field by providing a coherent theoretical framework and a structured therapeutic system, both of which remain underdeveloped in contemporary approaches.

Methodologically, this paper employs an extensive narrative literature review integrating historical, philosophical, cognitive, neuroscientific, and clinical sources. Primary texts by Ahsen are examined alongside empirical research from imagery science, affective neuroscience, and psychotherapy, identified through structured searches of major academic works and targeted citation network exploration. This integrative approach enables a comparative analysis of theoretical constructs, empirical findings, and clinical applications across traditions that have rarely been examined together.

2. Imagery in Psychology

The renewed interest in mental phenomena within psychology began in earnest with Akhter Ahsen's *Eidetic Psychotherapy: A Short Introduction* published in1965 [19]. His early work reopened a field that had been largely dormant since the rise of behaviourism. Following Ahsen's two foundational volumes [18, 19], Richardson's *Mental Imagery* (1969) offered one of the first systematic classifications of imagery in modern psychology [20]. Richardson distinguished among afterimages, eidetic images, memory or thought images, and imagination images; categories that helped re-establish imagery as a legitimate topic of scientific inquiry. Contemporary research has since expanded this taxonomy to include spontaneous imagery, and involuntary autobiographical imagery, and task-unrelated imagery [21, 22].

A major shift occurred when Allan Paivio introduced a distinctly cognitive approach to imagery. His dual-code theory [23,24] proposed that information is represented in two interacting systems; verbal and imaginal, and demonstrated empirically that imagery is one of the most powerful mnemonic tools available. This work helped launch the imagery debate of the 1970s and 1980s,

centred on the relative contributions of imaginal and verbal processes to memory. Contemporary research continues to support the mnemonic value of imagery, particularly in episodic simulation and future thinking [25].

Yuile and Marschark highlighted three key implications of Paivio's theory: imagery facilitates problem-solving through percept-like properties; images can be accessed through both verbal and visual cues; and retrieval in both systems proceeds through associative chains [26]. Neuroimaging evidence has delivered one of the strongest challenges to the traditional verbal–visual distinction, demonstrating that verbal processing inherently recruits mental imagery mechanisms [27]. On another note, Paivio's studies were conducted with typically developing adults, leaving open important questions about how dual-code processes operate in populations with cognitive or verbal impairments. Emerging research suggests that imagery abilities are present in individuals with intellectual disability and may have implications for learning and therapeutic intervention [28,29]. Paivio's pro-imagery stance ultimately laid the foundation for broader debates in cognitive psychology, and dual-code theory continues to shape contemporary models of multimodal cognition.

Despite its influence, dual-code theory offers a relatively disembodied and affect-neutral account of mental representation. It treats imagery and verbal processes as abstract internal codes, largely independent of the bodily, sensorimotor, and affective systems that contemporary research identifies as central to imagery generation. Embodied and enactive approaches show that imagery recruits motor, proprioceptive, and interoceptive systems and is shaped by bodily states and action readiness, dimensions absent from Paivio's framework [30, 31]. The model also overlooks the emotional modulation of imagery, despite extensive evidence that affect influences imagery vividness, accessibility, and functional impact across memory, simulation, and problem-solving contexts [32]. In this sense, dual-code theory provides a powerful but incomplete account of imagery's role in real-world cognition.

The empirical landscape shifted again with Shepard and Metzler's (1971) mental rotation studies, which demonstrated that imagery involves analogue spatial transformations rather than purely symbolic [33]. Their findings challenged amodal theories of cognition and laid the groundwork for Stephen Kosslyn's influential theory of depictive representation. From the 1970s onward, Kosslyn [34, 35] developed cognitive-neuroscientific models proposing that mental images preserve spatial structure and rely on perceptual-like representations. Experimental paradigms involving image scanning, size effects, and spatial resolution consistently supported this view. Neuroimaging research further strengthened the case: studies using fMRI and PET showed that visualisation activates early visual cortical regions, particularly V1 and V2 [36, 37, 38]. These findings demonstrate that imagery engages the same neural systems involved in perception, supporting the view that mental imagery is functionally equivalent to seeing.

Building on this foundation, Joel Pearson and colleagues developed a mechanistic account of imagery that treats it as a perceptual, neurally grounded process. Evidence from behavioural tasks, neuroimaging, and transcranial magnetic stimulation shows that imagery recruits early visual cortex in ways that closely resemble sensory processing. Imagery-driven modulation of binocular rivalry and the disruption of imagery following Transcranial Magnetic Stimulation (TMS) to primary visual cortex provide causal support for the involvement of early visual areas in generating and sustaining imagery [39, 40, 41]. Imagery strength varies reliably across individuals and is linked to differences in cortical excitability [42], spanning the continuum from aphantasia to hyperphantasia [43]. Pearson's framework conceptualises imagery as a dynamic perceptual event with measurable neural consequences, rather than a static internal representation.

Although Ahsen's major work predates contemporary neuroscience, his emphasis on vivid, spatial, percept-like imagery resonates strongly with Pearson's findings. The key distinction lies in scope: Pearson provides neural evidence for imagery's perceptual grounding, whereas Ahsen offers a phenomenological and embodied framework that integrates sensory, somatic, and meaning-making processes.

A parallel development occurred in clinical psychology. While Kosslyn established the perceptual and neural foundations of imagery, Emily Holmes and Andrew Mathews brought its emotional and clinical significance into focus. Across the 2000s and 2010s, they demonstrated that imagery evokes stronger emotional reactions than verbal thought and plays a central role in anxiety, depression, and PTSD. Their work showed that imagery drives intrusive memories, flashbacks, and distressing future simulations, highlighting its causal role in emotional disorders [44, 45]. Though the imagery-emotion connection is still looking for a valid justification [46]. However, these researchers also have demonstrated that imagery is a modifiable therapeutic target. Techniques such as imagery rescripting can reduce distress and shift maladaptive meanings, offering a powerful route for treating trauma and mood related difficulties [47,48]. Holmes and Mathews (2010) captured these insights in their "emotional amplifier" hypothesis, arguing that imagery intensifies emotion because it mimics perceptual experience more vividly than words [44].

Holmes's account aligns in striking ways with Ahsen's earlier ISM model (Image–Somatic–Meaning). Writing decades earlier, Ahsen [18, 19, 49, 50, 51] proposed that imagery naturally integrates a vivid perceptual image, a bodily response, and an interpretive meaning frame. This triadic structure also provides the imagery-emotion link which is missing in Holmes's conclusions. The emotional intensity attributed to imagery in the "emotional amplifier" [45] hypothesis echoes Ahsen's view that imagery evokes stronger affective and physiological reactions than verbal thought because it functions as a quasi-perceptual event. Ahsen's emphasis on somatic involvement also resonates with evidence that imagery triggers autonomic and emotional activation central to

anxiety and trauma. Both frameworks view imagery as causally implicated in psychopathology, Holmes through intrusive memories and future-oriented simulations, Ahsen through maladaptive ISM units that perpetuate distress. Likewise, the therapeutic use of imagery rescripting parallels Ahsen's eidetic psychotherapy, where altering the image–somatic–meaning configuration produces clinical change. Yet despite these conceptual convergences, Ahsen's pioneering contributions remain largely absent from contemporary citation practices.

3. Imagery in Psychotherapy: A Historical Review

Curtis (2023) offers a historical look at how therapists across different eras and schools have used mental imagery in their work. She moves from Freud's earliest attempts to evoke images, through Jung's use of active imagination, Ferenczi's forced fantasies, Desoille's waking dreams, Assagioli's symbolic work, Leuner's guided affective imagery, and onward to modern behavioural and cognitive approaches [52]. The richness of her account shows that imagery has never been a stranger to psychotherapy. Yet, despite the breadth of this overview, Curtis treats these diverse practices as though they belong to a single therapeutic tradition. What is missing is an exploration of the very different epistemological assumptions and therapeutic goals underlying each model's use of imagery.

In most psychodynamic traditions, imagery is understood as a representation of something deeper, an expression of unconscious conflict or symbolic material. Freud, for example, initially used a concentration technique to draw out images, but he ultimately set it aside in favour of verbal free association, which he believed was more consistent with the aims of psychoanalysis. Even when later analysts such as Jung, Ferenczi, and interpersonal writers made more deliberate use of imagery, they did so to *uncover* something: images were doorways into feelings, conflicts, and transferential meanings. In this framework, imagery is not changed; it is interpreted. It serves as a communication channel within a model of therapy that prioritises insight and meaning-making.

A very different attitude toward imagery appears in only a handful of approaches. These models treat imagery not just as a window into the psyche, but as a lived experience in which change can actually happen. In the range of methods covered by Curtis, Ahsen's Eidetic Therapy stands out as uniquely grounded in this experiential perspective. Rather than treating images as symbols that point to something else, Ahsen emphasises their sensory vividness and their bodily and emotional resonance. His ISM model; image, somatic response, and meaning treats imagery as a direct experience that can be worked with, shaped, and transformed. In this approach, the therapeutic change occurs *inside the image itself*, not through interpreting its symbolic significance or cognitive intervention.

Although Curtis does not discuss it, this same logic is central to contemporary imagery rescripting approaches. These methods, used in CBT, schema therapy, and trauma-focused treatments, employ imagery to *modify* emotionally encoded memories. Therapists help clients change the narrative, perspective, or emotional tone of an image so that the underlying emotional learning changes as well. In these models, imagery is not a diagnostic or interpretive tool; it is the mechanism through which emotional transformation occurs.

Recognising these differences highlights the central limitation of Curtis's review. She treats imagery used for insight as if it were the same as imagery used to create change, despite the substantial gap between these approaches. Psychoanalytic, interpersonal, Jungian, and projective methods use imagery instrumentally, as a route to meaning, whereas Eidetic Therapy and imagery rescripting use imagery transformationally, as the very place where change occurs. Their aims, methods, and theoretical foundations differ sharply.

Once these distinctions are acknowledged, it becomes clear that imagery-based psychotherapy is not a single field but at least two different paradigms:

1. **Imagery for insight** approaches, in which images are interpreted, elaborated, or verbalised.
2. **Imagery as change** approaches, in which images are modified to create emotional and experiential transformation. A further refinement of this distinction is also warranted: while some models rely on therapist-led modifications (cognitive approaches) of imagery to drive emotional and experiential change, others emphasise client-led transformations (Eidetic Therapy), positioning the individual as the active agent in reshaping their own experiential images.

Although both Eidetic Psychotherapy (EP) and Imagery Rescripting (ImRs) work with mental images as vehicles for change, the two approaches differ profoundly in how they understand and engage with imagery. EP, grounded in Ahsen's ISM model, views imagery as a *lived, unfolding experience* in which image, bodily response, and meaning are inseparably intertwined; therapeutic change emerges as these eidetic images naturally reveal and transform their own internal structure, rather than through any direct alteration imposed by the therapist. ImRs, by contrast, reflects cognitive-behavioural and schema-therapy traditions and treats imagery as a *modifiable representation* of emotionally encoded memories; here, the therapist actively guides the process, helping clients rewrite distressing scenes in ways that meet unmet emotional needs and create corrective emotional experiences [45]. In essence, EP prioritises phenomenological exploration and client-led transformation [50], while ImRs relies on deliberate, therapist-directed modification to update maladaptive schemas and trauma memories.

Table 1: Chronological Development of Imagery Approaches in Psychotherapy

Therapeutic Approach	Epistemological Assumptions	Primary Therapeutic Goal	How Imagery Is Used	Change Imagery?
Freud – Concentration Technique (1890s–1910s)	Imagery reflects unconscious conflict	Access unconscious material	Image reported then interpreted	No
Jung – Active Imagination (1910s–1930s)	Images express archetypal processes	Dialogue with unconscious	Allow imagery to unfold	Partially
Ferenczi – Forced Fantasy (1910s–1930s)	Imagery reveals repressed affect	Elicit authentic emotion	Press for vivid aggressive fantasies	No
Assagioli – Psychosynthesis (1920s–1960s)	Symbols reflect developmental processes	Integration of personality	Guided symbolic imagery	No
Interpersonal / Warren / Reyher (1940s–1960s)	Imagery reveals relational themes	Deepen emotional insight	Report imagery during pauses	No
Leuner – Guided Affective Imagery (GAI) (1950s–1960s)	Standard symbols evoke affective schemas	Uncover conflict	Guided archetypal imagery	No
Lazarus / Mayer – Story Techniques (1960s–1970s)	Imagery is projective	Reveal interpersonal patterns	Narrate imagery scenarios	No
Ahsen – Eidetic Therapy (1960s–2000s)	Image–somatic–meaning unity	Transform emotional memory	Actively work with eidetic images	Yes, client-led
CBT Exposure Imagery (1970s onward)	Imagery activates fear structures	Reduce fear	Repeated visualisation	No
Rational Emotive Imagery (REI) (1970s onward)	Emotions arise from evaluative beliefs	Strengthen rational, adaptive emotions	Imagine distressing scenario and practise healthier emotional responses	No
EMDR (late 1980s onward)	Imagery activates trauma networks	Reduce distress	Visualise while bilateral stimulation	Not primarily
Imagery Rehearsal Therapy (IRT) (1980s–1990s)	Nightmare imagery encodes fear	Reduce nightmares	Rewrite nightmare ending	Yes, therapist-led
Imagery Rescripting (IR) (1990s onward)	Schemas stored imaginally	Transform emotional memory	Alter imagery events/outcome	Yes, therapist-led

Table 1 illustrates three distinct uses of mental imagery across therapeutic models: first, as a technique employed to support broader therapeutic aims; second, as a process in which therapists deliberately reshape experiential images in predetermined ways; and third, as a dynamic experiential phenomenon that transforms when individuals are supported to re-enter and relive it. Within this landscape, Ahsen stands apart as the only theorist who engages imagery in its full experiential and dynamic form, without cognitive manoeuvring, while placing it at the heart of both theory and practice. His ISM model, descriptive rather than directive, not only explains how imagery functions but consistently facilitates therapeutic change[53,88,89,90].

4. Historical Context and Intellectual Positioning

The concept of eidetic imagery first emerged in the early twentieth century within the Marburg School under the direction of E. R. Jaensch, who described it as a vivid, quasi-perceptual visual phenomenon most frequently observed in children and interpreted it as evidence of an early, "undifferentiated" cognitive unity characteristic of a distinct developmental or constitutional type [54]. This typological and quasi-evolutionary framework was challenged by Gordon Allport [55]. In his 1924 paper, Allport offered the first major English-language critique of the Marburg findings. While acknowledging the descriptive richness of the Marburg observations, he rejected their broader theoretical claims, arguing that the evidence did not justify positing a separate eidetic "type." Instead, he reframed eidetic imagery as a variant within the normal range of memory imagery and cautioned against what he viewed as methodological overreach within the Marburg programme.

A generation later, in 1960s Akhter Ahsen transformed the field by relocating eidetic imagery from

developmental typology to clinical phenomenology. Rejecting both Jaensch's typological essentialism and Allport's reduction of eidetic imagery to ordinary mnemonic processes, Ahsen conceptualised eidetic images as structurally organised, affect-laden, and meaning-bearing units of experience, formalised in his ISM model (Image–Somatic response–Meaning). Through this framework, Ahsen advanced eidetic imagery as a universal human capacity with therapeutic and developmental significance, forming the foundation of Eidetic Psychotherapy, which was adapted as the Eidetic Model of Growth for people intellectual disability and associated developmental disorders [28, 55]. Across these three stages, the construct evolved from a purported perceptual anomaly of childhood, to a contested psychological category, to a central mechanism of experiential transformation within clinical and phenomenological psychology.

Akhter Ahsen's eidetic theory represents one of the original and comprehensive contributions to the psychology of imagery in the twentieth century. Developed during a period when mainstream psychology was dominated by behaviourism and early cognitivism, Ahsen's work emerged in a scientific climate largely hostile to introspective and phenomenological approaches. Imagery, when acknowledged at all, was often treated as an unreliable epiphenomenon or a secondary cognitive by-product. Against this backdrop, Ahsen advanced a bold theoretical and clinical framework that placed imagery at the centre of psychological life, not as a derivative of cognition but as a primary mode of experiencing, organising, and transforming the self. Drawing on clinical practice, phenomenology, and a sustained engagement with the lived experience of imagery, he offered a structural and experiential model that anticipated many developments that would later emerge in cognitive neuroscience, trauma studies, and imagery-based therapies.

Ahsen's early writings in the 1960s and 1970s [18, 19] challenged the prevailing assumption that imagery was too subjective to be scientifically meaningful. He argued instead that imagery possesses a stable internal structure, is accessible through systematic methods, and plays a central role in emotion, memory, trauma, and development. His approach, which he termed eidetic theory, emphasised the vivid, percept-like quality of certain images (eidetic images) and their capacity to evoke powerful somatic and emotional responses. This emphasis on the experiential richness of imagery set Ahsen apart from contemporaries who were beginning to conceptualise imagery in computational or representational terms. While early cognitivists such as Paivio [23,24] framed imagery as a mental code, and later neuroscientists such as Kosslyn [34, 35] focused on depictive neural representations, Ahsen insisted that imagery is fundamentally embodied, affective, and meaning-laden.

5. Ahsen's Eidetic Theory: Foundations and Framework

Ahsen's eidetic theory developed through a combination of the imagery research available at the time, anthropological work from both Eastern and Western traditions, his own experiments on eidetics, and his observations on the role and functions of eidetic imagery [58]. Later, his clinical observation, phenomenological analysis, and theoretical synthesis further refined his work. Working with clients who spontaneously produced vivid images during therapy, Ahsen noticed that these images were not merely symbolic or metaphorical but carried direct sensory, emotional, and autobiographical force. They were experienced as perceptually real, often accompanied by bodily sensations and emotional shifts. This led him to conceptualise imagery not as a passive mental picture but as an active experiential event integrating multiple dimensions of psychological functioning.

Ahsen later developed a model to account for a striking clinical observation: when clients worked with their mental images, they often found themselves re-living the emotional force of the original experience. To explain this phenomenon, he proposed the ISM model, arguing that significant experiences are not stored as abstract cognitive traces but as vivid, dynamic and reproducible experiential units he termed "eidetics." In this view, an eidetic is a richly encoded triad in which image, bodily response, and meaning remain an interactive, dynamically interwoven construct, allowing the past to be re-experienced with immediacy when the image is activated [58].

During the 1960s and 1970s, Ahsen refined his theory through extensive clinical work and systematic phenomenological inquiry. He observed that eidetic images often contained developmentally significant material, including early memories, unresolved conflicts, and traumatic experiences. These images were not static snapshots but dynamic scenes that could unfold, transform, and reveal new layers of meaning when explored in a therapeutic context. This insight led Ahsen to propose that imagery is a primary pathway into the psyche, capable of accessing material that may be inaccessible through verbal reflection alone.

Ahsen's theoretical development occurred largely outside the mainstream academic institutions that shaped cognitive psychology. As a result, his work remained marginalised within the dominant research paradigms of the time. Yet, in retrospect, many of his insights anticipated later developments in cognitive neuroscience, trauma therapy, and embodied cognition. His insistence that imagery is percept-like, emotionally potent, and somatically grounded foreshadowed findings that would only be empirically validated decades later [59, 60, 34].

5.1. THE ISM MODEL: AHSEN'S NEW STRUCTURALISM

The nucleus of Ahsen's eidetic theory is the ISM model, also known as the triple-code model. First articulated in the 1960s and elaborated in later works [18, 19, 47, 48, 49], the ISM model posits that every eidetic image consists of three inseparable components:

- **Image (I):** the vivid, sensory-perceptual representation of an (internal or external) experience.
- **Somatic (S):** the bodily sensations and physiological responses accompanying the image.

- **Meaning (M):** the interpretive, symbolic, and autobiographical significance.

Ahsen argued that these three components form a structural unit that cannot be reduced to any single element. The image is not merely a visual representation; it is embedded within a somatic field and infused with personal meaning. Likewise, bodily sensations are not random physiological reactions but are intimately tied to the imagery and its significance. Meaning, in turn, is not an abstract cognitive interpretation but emerges from the interplay between image and somatic experience.

This structural integration led Ahsen to describe his approach as a form of new structuralism, in which psychological phenomena are understood through their internal organisation rather than through external behavioural measures. The ISM model positions imagery as a dynamic process that integrates perception, emotion, and interpretation. It challenges the dualistic separation between cognition and emotion, proposing instead that imagery is a multimodal experiential event unifying these domains.

The ISM model also provides a framework for understanding how imagery can evoke powerful emotional responses. Because the image is percept-like, it activates sensory systems; because it is somatically grounded, it triggers bodily responses; and because it carries meaning, it engages autobiographical memory and symbolic interpretation. This triadic structure anticipates contemporary models of imagery as an emotional amplifier [61] and aligns with neuroscientific findings showing that imagery recruits perceptual and interoceptive systems [12].

5.2. NEURAL EVIDENCE FOR THE PERCEPTUAL AND SOMATIC FOUNDATIONS OF EIDETIC IMAGERY

Recent advances in cognitive neuroscience provide compelling support for two core pillars of Ahsen's eidetic theory: the vivid, percept-like nature of imagery and its intrinsic coupling with somatic and interoceptive processes. Neuroimaging studies consistently show that visual imagery recruits early visual cortex (V1/V2) in a top-down manner, with activation magnitude predicting subjective vividness [12,34,35]. Individuals with hyper-vivid imagery show stronger sensory cortical engagement, whereas those with aphantasia exhibit reduced or absent activation [41], findings that align closely with Ahsen's emphasis on the perceptual realism of eidetic images.

Parallel research has illuminated the somatic dimension of imagery. Emotional imagery activates interoceptive and autonomic networks, including the insula, anterior cingulate cortex, and brainstem nuclei involved in visceral regulation [59, 62]. Imagery of threat, pain, or interpersonal distress elicits measurable changes in heart rate, skin conductance, and breathing [63], demonstrating that imagery is an embodied simulation with physiological consequences. These findings substantiate Ahsen's claim that imagery inherently evokes somatic responses integral to its experiential structure.

Contemporary predictive-processing models propose that imagery operates as an internally generated perceptual prediction engaging the same hierarchical sensory and interoceptive circuits involved in perception and emotion [64, 65]. This framework provides a mechanistic account of the ISM model: imagery (I) generates top-down perceptual predictions; somatic activation (S) reflects interoceptive prediction and error signalling; and meaning (M) emerges from higher-order interpretive networks integrating these signals. Modern neuroscience thus not only validates but extends Ahsen's structural insights.

6. Eidetic Psychotherapy

Building on the ISM model, Ahsen developed Eidetic Psychotherapy, a therapeutic approach that uses imagery as a direct route into emotionally significant and developmentally rooted experience. Unlike cognitive-behavioural approaches, which often treat imagery as a technique for modifying beliefs or schemas, Ahsen viewed imagery as an experiential gateway into the psyche itself. The therapeutic process involves eliciting vivid eidetic images, attending to the accompanying somatic responses, exploring the personal and symbolic meanings that arise, and facilitating emotional integration and transformation.

In practice, the therapist invites the client to engage with the image as a living, unfolding experience rather than as a metaphor or symbol. The image is allowed to develop in real time, revealing layers of autobiographical and emotional significance. Somatic responses like tightness, warmth, trembling, constriction are treated as essential components of the experience, offering access to embodied memories and affective states. Meaning emerges organically from the interaction between image and bodily response, enabling clients to understand the origins and functions of their symptoms in a deeply personal way.

This approach anticipated several developments that would later become central to trauma therapy, including imagery rescripting [45,47], somatic therapies emphasising bodily activation and interoception [66], and memory reconsolidation models that describe how emotional memories can be updated when reactivated in safe contexts [67]. Ahsen's insistence on integrating image, body, and meaning foreshadowed contemporary understandings of trauma as an embodied phenomenon that cannot be fully addressed through verbal or cognitive interventions alone.

6.1. PHENOMENOLOGICAL EPISTEMOLOGY

Ahsen's method is grounded in phenomenology rather than experimentalism. He prioritised first-person experience, arguing that imagery cannot be adequately understood through cognitive-behavioural proxies or neuroimaging alone. This epistemological stance contributed to his marginalisation within mainstream cognitive psychology, which favoured quantifiable, third-person methods. Yet phenomenology has gained renewed relevance in contemporary cognitive science, particularly in embodied cognition, enactivism, and neurophenomenology [68]. Ahsen's commitment to lived

experience aligns closely with these movements, which argue that subjective experience is not an obstacle to scientific inquiry but a necessary dimension of understanding consciousness and cognition. Several later theorists expressed similar concerns, suggesting that psychotherapy would benefit from a more open and integrative theoretical stance [53]. It has been argued widely and forcefully that staying locked inside one's own epistemological territory often had less to do with genuine conceptual conviction and more to do with the pressures of professional identity, branding, and competition for research funding [69].

Ahsen's commitment to the phenomenological epistemology led him to prioritise practice-based evidence over randomized controlled trials (RCTs) when demonstrating the efficacy of Eidetic Therapy. Although RCTs have frequently been positioned as the *gold standard* for evaluating psychotherapeutic interventions [91], this designation has been widely critiqued for its limited applicability to complex, relational, and experiential treatments [92]. This context helps explain Ahsen's long-established rejection of the RCT framework for assessing his model. Instead, he relied on extensive case material that remains strongly suggestive of the efficacy, procedural clarity, and technical distinctiveness of eidetic psychotherapy.

6.2. AHSEN'S THEORY AND THERAPY FOR TRAUMA

Ahsen's contributions to trauma psychology represent one of the most comprehensive integrations of imagery, embodiment, and meaning in the clinical literature. Developed from the 1960s onward, his work offered a structural and phenomenological account of trauma at a time when behaviourism and early cognitivism largely dismissed imagery as unreliable or epiphenomenal. Against this backdrop, Ahsen proposed that imagery is not a secondary cognitive artefact but a primary experiential mode through which traumatic events are encoded, maintained, and transformed.

Central to his trauma theory is the ISM model (Image–Somatic–Meaning), which conceptualises every eidetic image as a triadic experiential unit comprising a vivid percept-like image, a somatic response, and a personal or symbolic meaning [18, 19, 47, 48, 49, 72]. Trauma, in this framework, is encoded as a unified experiential event in which sensory imagery, bodily activation, and autobiographical significance are fused. This formulation predates and aligns with contemporary understandings of trauma as a multimodal memory system involving sensory, affective, and meaning-making processes [66,74,75].

Ahsen described trauma as an "eidetic fixation," a state in which the ISM unit becomes frozen and repeatedly reactivated by internal or external cues. The vividness of the image, the intensity of the somatic response, and the rigidity of the meaning combine to create a self-perpetuating cycle of distress. This understanding parallels contemporary models of intrusive memories, flashbacks, and trauma-related imagery, which emphasise the involuntary and sensory-dominant nature of traumatic recall [44,75].

Eidetic Psychotherapy operationalises the ISM model into a structured therapeutic method. Clients are guided to access the vivid sensory representation of the traumatic event, explore the accompanying somatic responses, and allow meaning to emerge through the interaction of image and bodily experience. Through this process, the ISM unit can shift, unfold, or resolve, producing emotional release, cognitive insight, and physiological regulation [18, 19, 49,50,51,72,73]

This therapeutic process anticipates several contemporary innovations. Imagery rescripting modifies the sensory and emotional components of traumatic memories in ways that closely resemble Ahsen's method [45,47,48]. Somatic therapies emphasise bodily activation and interoceptive awareness; principles embedded in the ISM model from the outset. Memory reconsolidation research proposes that emotional memories can be updated when reactivated in safe contexts [67], mirroring the experiential transformation of the ISM unit. Emotion-focused therapies also treat imagery as a gateway to core emotional experience [76], echoing Ahsen's insistence that imagery is a direct pathway to emotional truth.

Contemporary neuroscience further validates Ahsen's claims about the perceptual and somatic nature of traumatic imagery. Neuroimaging studies show that traumatic recall activates early sensory cortices, limbic structures, interoceptive regions, and motor areas, support the view that traumatic imagery is percept-like, embodied, and emotionally charged [59,60]. These findings align closely with Ahsen's phenomenological descriptions, which emphasised vividness, spatiality, and bodily immediacy long before such mechanisms could be empirically measured.

A distinctive feature of Ahsen's trauma theory is its developmental and symbolic depth. Traumatic images often contain developmental residues, linking present distress to earlier experiences. The meaning component of the ISM unit captures autobiographical themes, identity structures, and symbolic narratives that shape the individual's response to trauma. This anticipates contemporary models of developmental trauma, schema-level meaning structures, autobiographical memory networks, and narrative integration [77,78].

Although Ahsen's work has not been widely recognised within mainstream cognitive psychology, its influence can be traced, directly or indirectly, across several contemporary therapeutic domains. Modern imagery-based therapies echo his emphasis on vivid, percept-like images as vehicles for emotional change. Somatic and embodied approaches reflect his insistence that trauma is encoded in the body and must be processed somatically. Memory reconsolidation research mirrors his method of transforming the ISM unit through experiential engagement. And contemporary movements in neurophenomenology and embodied cognition resonate with his epistemological stance that subjective experience is not an obstacle to scientific inquiry but a necessary dimension of understanding consciousness and trauma.

6.3. POSITIONING AHSEN'S EIDETIC THEORY AND THERAPY WITHIN CONTEMPORARY IMAGERY RESEARCH

While Stephen Kosslyn's programme established the perceptual and neural foundations of mental imagery, the work of Emily Holmes and Andrew Mathews brought renewed attention to its emotional and clinical significance. Their experimental and theoretical contributions showed that mental imagery evokes stronger emotional responses than verbal thought and plays a central role in maintaining anxiety, depression, and post-traumatic stress disorder (PTSD). Imagery was found to drive intrusive memories, flashbacks, and maladaptive future simulations, highlighting its causal role in emotional disorders [44,45]. Crucially, they demonstrated that imagery is a modifiable therapeutic target: interventions such as imagery rescripting can reduce distress, transform maladaptive meanings, and restructure autobiographical memory [47,79,80].

Holmes and Mathews [44]formalised these insights in their "emotional amplifier" hypothesis, arguing that imagery intensifies emotion because it simulates perceptual reality more vividly than verbal thought. Affective neuroscience has since supported this claim, showing heightened amygdala and insula activation during emotional imagery [41,62]. This body of work helped establish imagery as a central mechanism in the pathology and treatment of emotional disorders, bridging cognitive psychology, affective neuroscience, and clinical science.

What becomes increasingly clear, however, is that many of these "modern" insights were anticipated decades earlier by Akhter Ahsen's Image–Somatic–Meaning (ISM) model. Developed in the 1960s and elaborated in later writings [18,19, 49,50,51,72], the ISM framework conceptualised imagery as a triadic experiential unit comprising a vivid percept-like image, a somatic response, and an associated meaning. This phenomenological formulation predates and aligns with several major developments in contemporary imagery research.

First, Holmes's "emotional amplifier" hypothesis closely mirrors Ahsen's earlier claim that imagery evokes stronger affective and physiological responses than verbal thought because it functions as a quasi-perceptual event embedded in sensory and bodily processes [19, 49]. Ahsen's emphasis on the somatic component anticipated later findings showing that imagery recruits perceptual, motor, and interoceptive systems involved in emotional activation central to anxiety and trauma [44, 81]. In this sense, Ahsen's model foreshadowed the embodied cognition perspective, which treats imagery as an enactive rather than purely representational process [72,73].

Second, Ahsen's phenomenological descriptions of imagery as vivid, spatial, and percept-like resonate with neuroscientific evidence demonstrating that mental imagery engages early sensory cortices and shares neural substrates with perception. Although Ahsen worked outside the neuroscientific tradition, his account anticipated findings from neuroimaging and neurostimulation studies showing activation of early visual cortex (V1/V2) during imagery and a causal role for these regions in imagery generation [12,59]. His phenomenology thus prefigured the perceptual–neural continuity now central to cognitive neuroscience.

Third, Ahsen's therapeutic system; Eidetic Psychotherapy anticipated modern imagery-based interventions[78, 79, 80]. Though the models used different techniques, however, theoretical overlap is significantly notable. This approach parallels contemporary techniques such as imagery rescripting and compassion-focused imagery, which similarly target the emotional, bodily, and meaning components of distressing imagery [45,47,48]. Ahsen's claim that experiential transformation within imagery can generate profound emotional change rests on a coherent and systematically articulated theoretical framework, whereas Imagery Rescripting (ImRs) continues to grapple with articulating a unified explanatory model for its reported therapeutic effects[46].

Although developed independently, Eye Movement Desensitization and Reprocessing (EMDR) and Eidetic Psychotherapy share notable points of convergence. Both approaches emphasise the primacy of sensory-perceptual experience in traumatic memory and rely on vivid imagery to facilitate therapeutic change. EMDR conceptualises trauma as stored in maladaptively encoded sensory fragments that can be reprocessed through bilateral stimulation while the client attends to distressing images, bodily sensations, and associated cognitions [81]. EMDR's reliance on a central "target image" mirrors the eidetic image that Ahsen had theorised and clinically employed decades earlier. Unlike EMDR, which emerged from empirical observation instead of strong theoretical foundations [82,83], Eidetic Psychotherapy is grounded in a comprehensive theoretical framework which has been supported by converging evidence from phenomenology and neuroscience.

Taken together, the convergence between Ahsen's ISM model and contemporary imagery research underscores the theoretical prescience and clinical significance of his work. His framework anticipated the now dominant view of imagery as a multimodal, embodied, emotionally dynamic, and therapeutically pragmatic cognitive process. Modern neuroscience and clinical psychology have only recently begun to articulate, with empirical precision, the experiential principles Ahsen outlined long before the advent of neuroimaging or the formalisation of imagery-focused interventions.

6.4. IMAGERY AND INTELLECTUAL DISABILITY

One of Ahsen's most innovative contributions was his application of Eidetic Psychotherapy to individuals with cognitive deficits [84], including intellectual disability (ID). Contrary to longstanding assumptions that such individuals lack the capacity for complex imagery, Ahsen demonstrated that they often possess vivid, emotionally charged eidetic images [57] that can be therapeutically accessed [28,29,56]. His work showed that imagery can support emotional regulation, autobiographical coherence, trauma processing, symbolic meaning-making, and developmental integration. The results of these studies highlighted the fact individuals with varied level of ID can experience the eidetic imagery despite their

cognitive deficits. This finding raises a question on considering imagery a cognitive function.

Findings from Syed et al. [57] show that individuals with mild and moderate intellectual disability (ID) can experience vivid mental imagery at levels comparable to typically developing individuals, whereas those with severe ID score lower but still demonstrate meaningful imagery capacity. These results challenge the longstanding theoretical position of cognitivists that imagery is one of the highest cognitive functions [63]. More importantly, no significant differences emerged between mild ID, moderate ID, and typically developing individuals on the VVIQ-2, a measure grounded in Marks's (1995) definition of vividness as clarity and liveliness [85].

Debates about vividness and reportability have been revisited in meta-analytic work by Runge, Cheung, and D'Angiulli (2017). They compared trial-by-trial vividness ratings (VR) with VVIQ scores, arguing that vividness fluctuates moment-to-moment and is better captured by VR. Their meta-analysis, integrating behavioural and neuroscientific evidence, concluded that vividness correlates more strongly with neural than with cognitive indices [86]. Dijkstra, Bosch, and van Gerven further demonstrated that imagery relies on distributed neural networks beyond visual cortex, suggesting that vividness reflects stimulus category and neural dynamics more than stable cognitive ability [87].

Taken together, these findings indicate that vividness is modulated by moment-to-moment experience rather than by fixed cognitive capacity. Syed et. al.'s findings show comparable performance among mild ID, moderate ID, and typically developing groups, supporting the view that cognitive ability plays a less central role in vividness than the cognitivists assumed. This underscores the importance of continuing to examine eidetic imagery in the research on vividness, imagery science and intellectual disability.

Therapeutically, individuals with intellectual disability (ID) responded remarkably well to the eidetic-imagery-based Eidetic Model of Growth (EMG). The pre- to post-treatment gains were statistically robust, yielding a large effect size of 1.54 and requiring an average of only 9.3 sessions, an outcome we did not find replicated elsewhere in the psychotherapy literature for this population [28]. In a separate study, the EMG was effectively utilized to support the deinstitutionalization of individuals with intellectual disabilities transitioning from long-term institutional care, including those with dual diagnoses, multiple disabilities, and significant verbal impairments [91]. Importantly, these findings arise from a group historically marginalised in clinical practice; individuals with substantial cognitive deficits and significant verbal deficits who have often been deemed "unsuitable" for psychotherapy and, within dominant cognitive frameworks, presumed to lack the imagery capacities on which EMG relies. This pattern of results points to two critical implications: first, that people with ID can benefit from imagery-based therapeutic work; and second, that the capacity to experience and transform imagery does not necessarily depend on higher-order cognitive abilities. Together, these findings challenge long-held assumptions about both the therapeutic potential of individuals with ID and the cognitive prerequisites of imagery itself.

Conclusion

Methodologically, this paper has drawn on an extensive narrative literature review spanning historical, philosophical, cognitive, neuroscientific, and clinical sources. By synthesising these diverse literatures, the analysis has highlighted conceptual continuities and overlooked intersections between Ahsen's eidetic theory and contemporary imagery research.

The outcome of literature reviewed demonstrates that Akhter Ahsen's eidetic theory, particularly the ISM model offers a conceptual and clinical framework whose sophistication anticipated many developments that now define contemporary imagery science. Across cognitive psychology, affective neuroscience, and clinical research, the core principles repeatedly rediscovered in recent decades; imagery's depictive and percept-like nature, its somatic and emotional correlates, its causal role in psychopathology, and its therapeutic modifiability, were articulated by Ahsen long before they entered mainstream discourse.

The convergence between Ahsen's work and modern research is striking. Kosslyn's depictive theory and Pearson's sensory-based models echo Ahsen's insistence that imagery is perceptual and embodied. Holmes and Mathews's "emotional amplifier" hypothesis parallel the ISM model's integration of image, somatic response, and meaning. Contemporary trauma therapies mirror the experiential transformations central to Eidetic Psychotherapy. At the same time, the divergences, particularly in epistemology and methodology, highlight the unique contribution of a phenomenological and clinically grounded approach that remains largely absent from computational and neuroscientific models.

Given the current scientific landscape, characterised by embodied cognition, neurophenomenology, and renewed interest in imagery's clinical functions, reintegrating Ahsen's work into mainstream imagery science is both timely and necessary. His framework offers a coherent theoretical foundation capable of bridging phenomenology, neuroscience, and clinical practice. Far from being an historical curiosity, Ahsen's eidetic theory represents a foundational system whose relevance has only grown with advances in contemporary science. Restoring his contributions to the centre of the field is an intellectual, ethical and disciplinary imperative that promises to deepen our understanding of imagery as a core mechanism of human cognition, emotion, and psychological change.

Despite serving as the founding editor of the first, and still the only *Journal of Mental Imagery*, and despite his pioneering theoretical and clinical contributions to the study of imagery, Ahsen's work remains strikingly under-acknowledged in contemporary scholarship. While the neglect of earlier contributions by individual authors can be attributed to a range of factors, the near-total

absence of Ahsen's work from major encyclopaedic entries on mental imagery is considerably harder to justify. When authoritative reference sources systematically omit a figure who played such a formative role in establishing the field, it raises substantive concerns about how the intellectual history of imagery research is being constructed, and whether certain theoretical traditions are at risk of being marginalised in ways reminiscent of how behaviourist orthodoxy suppressed alternative approaches during the first half of the twentieth century. Such patterns warrant systematic scholarly examination, particularly regarding the epistemic and sociopolitical forces that shape what is included and excluded in the evolving historiography of mental imagery research.

What this paper adds

This paper brings renewed attention to Akhter Ahsen's largely overlooked role in shaping modern imagery theory across disciplinary boundaries. His pioneering, structured use of imagery in psychotherapy still reverberates through contemporary techniques, often under different labels, yet these later models frequently lack the theoretical coherence that distinguished his original work.

References

1. Aristotle. *On Memory and Reminiscence*. Beare JI, translator. 1930. Available at: http://psychclassics.yorku.ca/Aristotle/memory.htm.
2. Aristotle. *De Anima*, Books II & III. Hamlyn DW, translator. 2002. Available at: http://faculty.smcm.edu/mstaber/arisdeanhamlyn.htm.
3. Nanay B. Mental imagery. In: Zalta EN, Nodelman U, eds. *The Stanford Encyclopedia of Philosophy*. 2026 ed. Available at: https://plato.stanford.edu/archives/spr2026/entries/mental-imagery/.
4. Gregorić P, Grgić F. Aristotle's notion of experience. *Archiv für Geschichte der Philosophie*. 2006;88(1):1-30.
5. Roeckelein JE. *Imagery in Psychology: A Reference Guide*. Westport, CT: Praeger; 2004.
6. Kind A, ed. *The Routledge Handbook of Philosophy of Imagination*. London, UK: Routledge; 2020.
7. Hobbes T. *Leviathan*. Tuck R, editor. Cambridge, UK: Cambridge University Press; 1996.
8. Thomas NJT. Mental imagery. In: Zalta EN, ed. *The Stanford Encyclopedia of Philosophy*. Fall 2013 ed. Available at: https://plato.stanford.edu/archives/fall2013/entries/mental-imagery/.
9. Zeman A, Dewar M, Della Sala S. Lives without imagery: Congenital aphantasia. *Cortex*. 2015;73:378-380. doi:10.1016/j.cortex.2015.05.019
10. Milton F, Fulford J, Dance C, et al. Behavioral and neural signatures of visual imagery vividness extremes: Aphantasia versus hyperphantasia. *Cereb Cortex Commun*. 2021;2(2):tgab035. doi:10.1093/texcom/tgab035
11. Tye M. *The Imagery Debate*. Cambridge, MA: MIT Press; 1991.
12. Pearson J. The human imagination: The cognitive neuroscience of visual mental imagery. *Nat Rev Neurosci*. 2019; 20(10):624-634. doi:10.1038/s41583-019-0202-9
13. Nyíri K. Wittgenstein's philosophy of pictures. Presented at: Wittgenstein Research Revisited Conference; 2001. Available at: http://www.hunfi.hu/nyiri/nyiri_bergen_tlk.htm.
14. Wittgenstein L. *Philosophical Investigations*. Anscombe GEM, translator. Oxford, UK: Blackwell; 2005.
15. Galton F. *Inquiries into Human Faculty*. London, UK: Dent; 1883.
16. Palmiero M, Piccardi L, Nori R, et al. Editorial: Creativity and mental imagery. *Front Psychol*. 2016;7:1280. doi:10.3389/fpsyg.2016.01280
17. Betts GH. *The Distribution and Functions of Mental Imagery*. New York, NY: AMS Press; 1990.
18. Ahsen A. *Eidetic Psychotherapy: A Short Introduction*. New York, NY: Brandon House; 1965.
19. Ahsen A. *Basic Concepts in Eidetic Psychotherapy*. New York, NY: Brandon House; 1968.
20. Richardson A. *Mental Imagery*. New York, NY: Springer Publishing Company; 1969.
21. Berntsen D. Involuntary autobiographical memories and their relation to other forms of spontaneous thoughts. *Philos Trans R Soc Lond B Biol Sci*. 2021; 376(1817):20190693.
22. Poulos C, Zamani A, Pillemer D, Leichtman M, Christoff K, Mills C. Investigating the appraisal structure of spontaneous thoughts: evidence for differences among unexpected thought, involuntary autobiographical memories, and ruminative thought. *Psychol Res*. 2023;87:2345-2364.
23. Paivio A. Mental imagery in associative learning and memory. *Psychol Rev*. 1969;76(3):241-263.
24. Paivio A. *Imagery and Verbal Processes*. New York, NY: Holt, Rinehart & Winston; 1971.
25. Schacter DL, Benoit RG, Szpunar KK. Episodic future thinking: Mechanisms and functions. *Curr Opin Behav Sci*. 2017;17:41-50. doi:10.1016/j.cobeha.2017.06.002
26. Yuile JC, Marschark M. Imagery effects on memory: Theoretical interpretations. In: Sheikh A, ed. *Current Theory, Research, and Application*. New York, NY: Wiley; 1983:131-154.
27. Nanay B. *Mental Imagery: Philosophy, Psychology, Neuroscience*. Oxford, UK: Oxford University Press; 2023.
28. Syed AA, Neelofur S, Moran A, O'Reilly G. Investigating the potential clinical utility of therapeutic techniques based on eidetic imagery... *Heliyon*. 2020;6(10):e05115. doi:10.1016/j.heliyon.2020.e05115
29. Syed AA, Neelofur S. The theory and practice of the Eidetic Model of Growth... *Med Res Arch*. 2025;13(9). doi:10.18103/mra.v13i9.6836
30. Dijkstra N, Bosch SE, van Gerven MAJ. Shared neural mechanisms of visual perception and imagery. *Trends Cogn Sci*. 2019; 23(5):423-434. doi:10.1016/j.tics.2019.02.004
31. Wilson-Mendenhall CD, Henriques A, Barsalou LW, Barrett LF. Primary interoceptive cortex activity during simulated experiences of the body. *J Cogn Neurosci*. 2019;31(2):221-235. doi:10.1162/jocn_a_01346
32. Sambuco N, Bradley MM, Lang PJ. Narrative imagery: Emotional modulation in the default mode network. *Neuropsychologia*. 2022;164:108087. doi:10.1016/j.neuropsychologia.2021.108087
33. Shepard RN, Metzler J. Mental rotation of three-dimensional objects. *Science*. 1971;171(3972):701-703.
34. Kosslyn SM. *Image and Mind*. Cambridge, MA: Harvard University Press; 1980.
35. Kosslyn SM. *Image and Brain*. Cambridge, MA: MIT Press; 1996.
36. Ganis G, Thompson WL, Kosslyn SM. Brain areas underlying visual mental imagery... *Cogn Brain Res*. 2004;20(2):226-241. doi:10.1016/j.cogbrainres.2004.02.012
37. Ganis G, Schendan HE. Visual mental imagery and perception... *NeuroImage*. 2008;42(4):1714-1727. doi:10.1016/j.neuroimage.2008.07.004
38. Slotnick SD, Thompson WL, Kosslyn SM. Visual mental imagery induces retinotopically organized activation... *Cereb Cortex*. 2005;15(10):1570-1583. doi:10.1093/cercor/bhi035

39. Keogh R, Bergmann J, Pearson J. Cortical excitability controls the strength of mental imagery. *eLife*. 2020;9:e50232. doi:10.7554/eLife.50232
40. Pearson J, Clifford CWG, Tong F. The functional impact of mental imagery... *Curr Biol*. 2008;18(13):982-986.
41. Pearson J, Naselaris T, Holmes EA, Kosslyn SM. Mental imagery... *Trends Cogn Sci*. 2015; 19(10):590-602. doi:10.1016/j.tics.2015.08.003
42. Keogh R, Pearson J. The blind mind: No sensory visual imagery in aphantasia. *Cortex*. 2018;105:53-60. doi:10.1016/j.cortex.2017.10.012
43. Zeman A, Dewar M, Della Sala S. Reflections on aphantasia. *Cortex*. 2020;130:1-4. doi:10.1016/j.cortex.2020.04.003
44. Holmes EA, Mathews A. Mental imagery in emotion and emotional disorders. *Clin Psychol Rev*. 2010; 30(3):349-362. doi:10.1016/j.cpr.2010.01.001
45. Holmes EA, Arntz A, Smucker MR. Imagery rescripting... *J Behav Ther Exp Psychiatry*. 2007; 38(4):297-305. doi:10.1016/j.jbtep.2007.10.007
46. Boccaccio FM, Pennisi A, Guerrera CS, et al. Mental imagery between cognition and emotion: A narrative review. *Psychiatry Int*. 2024;5(4):697-717.
47. Arntz A. Imagery rescripting... *J Exp Psychopathol*. 2012; 3(2):189-208. doi:10.5127/jep.024211
48. Brewin CR, Wheatley J, Patel T, et al. Imagery rescripting as a brief stand-alone treatment... *Behav Res Ther*. 2009;47(7):565-570.
49. Ahsen A. Eidetics: An overview. *J Ment Imagery*. 1977;1(Spring):5-38.
50. Ahsen A. *Psyceye: Self-Analytic Consciousness*. New York, NY: Brandon House; 1977.
51. Ahsen A. *The New Structuralism: Images in Dramatic Interlock*. New York, NY: Brandon House; 1986.
52. Curtis R. The use of imagery in psychoanalysis and psychotherapy. *Psychoanal Inq*. 2016;36(7): 593-602. doi:10.1080/07351690.2016.1226033.
53. Thomas V. *Using Mental Imagery in Counselling and Psychotherapy*. New York, NY: Routledge; 2016.
54. Jaensch ER. *Eidetic Imagery*. Oeser O, translator. London, UK: Routledge; 1930. Reprinted 1999.
55. Allport GW. Eidetic imagery: A critical review. *Psychol Bull*. 1924;21(6):359-372.
56. Syed AA. A way to grow: Eidetic model of growth in people with intellectual disability. *J Ment Imagery*. 2012;36(3-4):1-32.
57. Syed AA, Neelofur S, Moran A, O'Reilly G. Exploring the vividness of mental imagery and eidetic imagery in people with intellectual disability (ID) in comparison with typically developing (TD) individuals. *Heliyon*. 2020;6(11):e05429. doi:10.1016/j.heliyon.2020.e05429
58. Hochman J. *The Image Psychology of Akhter Ahsen*. Lahore, Pakistan: Dastavez; 1995. Originally published in: *J Ment Imagery*. 1994;18:1-118.
59. Kosslyn SM, Thompson WL, Ganis G. *The Case for Mental Imagery*. New York, NY: Oxford University Press; 2006.
60. Pearson J. The human imagination: The cognitive neuroscience of visual mental imagery. *Nat Rev Neurosci*. 2019;20(10):624-634. doi:10.1038/s41583-019-0202-9.
61. Holmes EA, Geddes JR, Colom F, Goodwin GM. Mental imagery as an emotional amplifier: Application to bipolar disorder. *Behav Res Ther*. 2008; 46(12):1251-1258. doi:10.1016/j.brat.2008.09.005.
62. Ji JL, Burnett Heyes S, MacLeod C, Holmes EA. Emotional mental imagery as simulation of reality: Fear and beyond. *Behav Ther*. 2016;47(5):702-719. doi:10.1016/j.beth.2015.11.000
63. Kosslyn SM, Ganis G, Thompson WL. Neural foundations of imagery. *Nat Rev Neurosci*. 2001; 2(9):635-642. doi:10.1038/35090055.
64. Dijkstra N, Fleming SM. Subjective signal strength distinguishes reality from imagination. *Nat Commun*. 2023; 14:37322. doi:10.1038/s41467-023-37322-1
65. Clark A. *Surfing Uncertainty: Prediction, Action, and the Embodied Mind*. Oxford, UK: Oxford University Press; 2015.
66. van der Kolk B. *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*. New York, NY: Viking; 2014.
67. Lane RD, Ryan L, Nadel L, Greenberg L. Memory reconsolidation, emotional arousal, and the process of change in psychotherapy: New insights from brain science. *Behav Brain Sci*. 2015; 38:e1. doi:10.1017/S0140525X14000041
68. Varela FJ, Thompson E, Rosch E. *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MA: MIT Press; 1991.
69. Dalal F. *CBT: The Cognitive Behavioural Tsunami—Managerialism, Politics and the Corruptions of Science*. Abingdon, UK: Routledge; 2018.
70. Harrer M, Cuijpers P, Schuurmans LKJ, et al. Evaluation of randomized controlled trials: a primer and tutorial for mental health researchers. *Trials*. 2023; 24:562
71. Zaur AJ. Revisiting randomized controlled trials: reassessing their role as the gold standard for evidence-based treatments. *Psychodynamic Psychiatry*. 2025;53(2):157-161. doi:10.1521/pdps.2025.53.2.157.
72. Ahsen, A. Ahsen's trauma model; Case history section with case history vignettes. *Journal of Mental Imagery. 1980; 4(2),* 149-189
73. Dolan AT. *Imagery Treatment of Phobias, Anxiety States, and Other Symptom Complexes*. New York, NY: Brandon House; 1997.
74. Brewin CR. Episodic memory, perceptual memory, and their interaction: Foundations for a theory of posttraumatic stress disorder. *Psychol Bull*. 2014; 140(1):69-97. doi:10.1037/a0033722
75. Brewin CR, Gregory JD, Lipton M, Burgess N. Intrusive images in psychological disorders: Characteristics, neural mechanisms, and treatment implications. *Psychol Rev*. 2010; 117(1):210-232.
76. Greenberg LS. *Emotion-Focused Therapy*. Washington, DC: American Psychological Association; 2017.
77. Young JE, Klosko JS, Weishaar ME. *Schema Therapy: A Practitioner's Guide*. New York, NY: Guilford Press; 2003.

78. Neimeyer RA, ed. *Meaning Reconstruction and the Experience of Loss*. Washington, DC: American Psychological Association; 2001.
79. Holmes EA, Lang TJ, Shah DM. Developing interpretation bias modification as a "cognitive vaccine" for depressed mood: Imagining positive events makes you feel better than thinking about them verbally. *J Abnorm Psychol*. 2009;118(1): 76-88. doi:10.1037/a0012590
80. Morina N, Lancee J, Arntz A. Imagery rescripting as a clinical intervention for aversive memories: A meta-analysis. *Clin Psychol Rev*. 2017;53:1-13. doi:10.1016/j.cpr.2017.01.001
81. Shapiro F. *Eye Movement Desensitization and Reprocessing: Basic Principles, Protocols, and Procedures*. 2nd ed. New York, NY: Guilford Press; 2001.
82. Shapiro F. *Eye Movement Desensitization and Reprocessing: Basic Principles, Protocols, and Procedures*. New York, NY: Guilford Press; 1995.
83. Leeds AM. *A Guide to the Standard EMDR Therapy Protocols for Clinicians, Supervisors, and Consultants*. 2nd ed. New York, NY: Springer Publishing Company; 2016.
84. Ahsen A. *Learning Ability and Disability: An Image Approach*. New York, NY: Brandon House; 1993.
85. Marks DF. New directions for mental imagery research. *J Ment Imagery*. 1995;19(3-4):153-167.
86. Runge MS, Cheung MWL, D'Angiulli A. Meta-analytic comparison of trial- versus questionnaire-based vividness reportability across behavioral, cognitive, and neural measurements of imagery. *Neurosci Conscious*. 2017;2017(1):1-13. doi:10.1093/nc/nix006
87. Dijkstra N, Bosch SE, van Gerven MAJ. Vividness of visual imagery depends on the neural overlap with perception in visual areas. *J Neurosci*. 2017; 37(5):1367-1373. doi:10.1523/JNEUROSCI.3022-16.2016
88. Ehsan MK, Rowland DL. Possible role for imagery-based therapy in managing PTSD in Pakistani women experiencing domestic abuse: a pilot study using Eidetic Therapy. *Int J Environ Res Public Health*. 2021;18(5):2478. doi:10.3390/ijerph18052478
89. Jalil S, Qureshi Z. Effectiveness of Eidetic Psychotherapy on adults with health anxiety symptoms. *Pak J Soc Clin Psychol*. 2024;22(2):28-35. *(Source lines: "Pakistan Journal of Social and Clinical Psychology 2024, Vol. 22, No. 2, 28-35*
90. Kamran M, Rowland DL. Eidetic therapy in the treatment of depression: an exploratory application of an intervention in an emerging nation population. *Prof Psychol Res Pract*. Published online April 9, 2020. doi:10.1037/pro0000314
91. Neelofur S. *Exploring Psychological Supports and the Potential Role and Contribution of the Eidetic Model of Growth in Providing Psychological Supports to People with Intellectual Disabilities After Deinstitutionalization* [doctoral thesis]. Dublin, Ireland: University College Dublin; 2019.