Medical Research Archives

ESMED
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OPEN ACCESS

Published: February 28, 2023

Citation: John M. A., 2023. Clinical Intuition and Working Memory: Implications for Training and Supervision, Medical Research Archives, [online] 11(2). https://doi.org/10.18103/mra.v11i2.3552

DOI: https://doi.org/10.18103/mra.v11i2.3552

ISSN: 2375-1924

RESEARCH ARTICLE

Clinical Intuition and Working Memory: Implications for Training and Supervision

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Abstract

Competence with emergent intuitive awareness, from fringe-of-consciousness hunches to compelling difference-in-kind realisations, is an imprecise qualitative skill and, on this basis, one generally overlooked in clinical psychology training and supervision. This situation is at marked odds with an expanding literature highlighting that intuitions emerging from unconscious inferential cognition serve as a primary resource in the decision-making of expert practitioners across a dissimilar range of professions. Additionally, (i) over forty years extensive and distinct research into working memory conclusively demonstrates that System 1 autonomous inferential reasoning is the mind's powerhouse, yet moreover (ii) plays a determining role in attention allocation and thereby meta-level reasoning processes (i.e., System 2; cognitive control/metacognition), the very constituents of reflective practice. In short, the case appears overwhelming for clinical intuition competency training. Additionally, a substantial reflective practice training literature which could readily be modified to include clinical intuition considerations sits immediately at hand. One difficulty, however, is that an accommodating model which will seamlessly link, firstly, difference-in-kind S1 emergent awareness, and, secondly, meta-level reflective practice, is yet to be highlighted. Remarkably, coherence-based reasoning sits in plain sight as a potential bridging position. Finally, expanding upon elementary suggestions in the literature, the toolbox skills 'slow-onset speech', 'affective inquiry', and 'therapeutic presence' are put forward as therapy technique functional for enhancing a clinician's intuition sensitivity.

Keywords: Intuition, Difference-In-Kind Awareness, Coherence-Based Reasoning, Working Memory, Reflective Practice

Introduction

A literature useful for practitioners is yet to be developed linking reflective practice with understandings of the reasoning processes – intuitive and deliberative – transacted by working memory (WM) during clinical practice. This appears an anomalous situation given Gruszka & Orzechowski's observation that, since the term was coined in 1951, WM, "… has instigated one of the most vivid and extremely diverse strands of research in psychology and in cognitive neuroscience.[1(1)]" Indeed, those authors estimated the WM database to comprise some 37,000 papers and reviews. These points serve to establish the scope of the problem addressed by this article. To next proceed and provide a context background plus touch upon certain significant controversies, it should be recognised, and notwithstanding an extant diversity of WM perspectives as suggested by the above literature base, Cowan[2] holds the opinion that general agreement is found regarding; (i) WM defines a multi-level function of limited-capacity managing attention allocation, and, in so doing, (ii), WM operates to exclude from consciousness distracting/undesired stimuli, plus deletion of no longer relevant representations. Thereby indicated, the defining characteristic of WM is flexible, conscious manipulation of information processing through volition (e.g., deliberate attention allocation), which also in itself points to, concomitantly and importantly, higher-order life goals, values and attitudes, etc., as volition is effected. Conversely, it should be further recognised, distinct from allusions toward quasi-*homunculus* entities permeating executive thought management, WM research emphasises fluid, bidirectional input/output control of information transaction between unconscious, System 1 (S1) inferential operations and System 2 (S2) meta-level processes; that is, a whole-of-mind standpoint.[3-9] Further, within this perspective it is to be appreciated that a suitable conceptualisation of attention control is pivotal to understand S2 reflective practice with respect to integrated WM functioning. In this regard, coherence-based reasoning is an expansive paradigm examining decision-making equilibrium realised through restructuring beliefs, attitudes, values, emotions, etc., relative to judgement options, while concomitantly, also mitigating the effect of any singular factor in the process. Coherence-based reasoning thus may be distinguished as an adjunctive literature ready-made to link understandings of emergent clinical intuition, attention allocation and conscious deliberations – the concern taken-up herein. Addressing this matter and other issues, however, will require juxtaposing cognitive science formulations into the dissimilar, praxis perspective of a clinician, an elaboration challenge to avoid 'one side of the coin' framings. Notwithstanding the importance of a balanced representation, adhering to a consistent therapist orientation will necessarily focus discussion upon lived-experience *content* issues, rather than objective and impersonal *capacity* questions characteristic of information processing modelling. Thus, at the outset a definitional

understanding of reflective practice will be offered and coupled with a critique of related cognitive behavioural therapy (CBT) training literature which in particular is seen to elide intuitive awareness as a core feature of reflective practice competency. Moreover, this critique will be followed by an examination of S1 reasoning and *metacognitive feelings*. These subjective perceptions (e.g., feelings of insight or knowing, feelings of certainty/uncertainty, feelings of moral rightness, etc.) are conceptualized as heuristic cues which arise automatically via S2 *ex ante* monitoring of inferential reasoning[10]. Significantly in this regard, a 'causality reversal' is apparent whereby autonomous inferential operations constrain thought in terms of attention selection, plus further, equally determine as an ongoing operation the nature and content of all representations presented in consciousness. Bringing a praxis perspective to the key point that emergent intuition is a platform feature of WM serving as a primary resource for reflective practice, a tripartite set of toolbox skills – slow-onset speech, affective inquiry, and therapeutic presence – are suggested in conclusion as content-relevant technique to enhance detection of *difference-in-kind*[11] clinical inferences. The 'deep-listening' mode of mind so engendered in effect seeks to operationalise a phenomenological listening sensibility, for example, as promoted in the training exercises presented by Heidenreich et al..[12]

Reflective Practice

It will prove useful to highlight the cognitive load upon a therapist's WM during routine clinical intervention. This responsibility may be broadly placed into three, on-line overlapping domains; (i) session atmosphere, (ii) emergent inferential awareness, and (iii) meta-level appraisal of session progress. For current purposes only a single encompassing consideration requires illumination regarding session atmosphere. Hence and as an overarching understanding, it is to be appreciated that the fundamental requirement for genuine, person-to-person rapport vis-à-vis a therapeutic alliance is recognised universally as unequivocal, and thus, *ipso facto*, merges into the unique therapeutic milieu co-constructed for effective delivery of all intervention modalities (e.g., psychodynamic, CBT, or family systems theory, etc.). In effect, a clinician is impelled to routinely monitor a client's disposition, thereby to respond with as-required behaviour change – the artful warp-and-weft of therapeutic engagement. Furthermore, intertwined with facilitation of rapport and alliance, ongoing case guidance must also be managed – cognitive load domains two and three. This passing summary is sufficient to characterise contextual atmosphere issues processed by the WM of a therapist. Returning then to domain (ii) (clinical intuitions), the actual source of sometimes impressive insight and unmistakably differentiating a novice from an expert practitioner[13-16], the latter's experiential journey over many hundreds of consultation hours (informed also by accurate and timely feedback) has reliably yielded unique emergent awareness of marked clinical significance[11]. That is, such notions as 'low

self-esteem', 'ruminations', 'unassertiveness', 'mollification', 'tangential thinking', etc., etc., obviously are not tangible entities as such, but simply subjective although curiously compelling realisations which present into the experienced practitioner's mind[17], an inferential difference-in-kind vital for skilled, hands-on case reflection and penetrating intervention. Significantly, while research has consistently demonstrated that compelling feelings of correctness (i.e., metacognitive feelings) are generally a good predictor of judgement accuracy, conversely, the self-confidence inherently so established dissuades further deliberative analysis and checking (i.e., conscious attention redirection).[18-20] For example, anagrams which may be pronounced (e.g., HIWEN) are harder to solve than unpronounceable items (e.g., HNWEI) yet they are judged to be easier.[4] Hence, so revealed is a potential blind spot arising for a skilled practitioner who has become overly bold in their everyday therapy engagements. These points make a strong case that familiarity with emergent awareness should be a fundamental competency within clinical training and supervision. The sticking point appears to be that while emergent appreciations like low self-esteem may be later quantitatively linked to tangible and specific client behaviour (a cold cognition psychometric objectification), the actual hands-on phenomenological cueing of those detections is primarily an affect output – metacognitive feelings accompanying emergent tacit realisations. Succinctly put, clinically important attention allocation in WM is appreciably controlled by hot cognition (i.e., non-rational reasoning), an appreciation which sits uncomfortably with contemporary CBT scientist-practitioner depictions, or, more specifically, one certainly at odds with CBT's overarching and dominant logical positivism philosophy.

Unsurprisingly, reflective practice as transacted by cognitive-control and metacognition rests upon a strong and rich (quantitative and qualitative) multidisciplinary literature base and, allied with declarative knowledge and skill acquisition, is also unequivocally recognised to be a cornerstone requirement within clinical training and for supervision competence.[21-24] Identifying that reflective practice rests upon WM operations draws together all cognitive load processing challenges experienced by a clinician (as above), yet additionally, and so long as the scope of appraisal isn't truncated, moving to examine skilled reflective practice entails also significant considerations regarding how the phenomenon of self, and relatedly, a therapist's values, are best framed within clinical undertakings. A ready entry point into what may at first appear as an extraneous consideration (i.e., a practitioner's selfhood-cum-character) is immediately provided by simply reviewing common assumptions regarding reflective practice in clinical psychology. For example, the analysis of Lewis et al.[25] highlights, firstly, the landmark contribution of Dewey, 1910, and subsequently, the further work in this vein by Schon, 1987, as orientating thinking regarding reflective practice to the high bar of selfhood. That is, the view that reflection should be deep and personal, with Lewis et al.

proposing that the undertaking comprises, "[a] necessary element for *all* growth and development", yet further, and now with respect to the skilled professional, "These practitioners are not described as having *more* professional knowledge than peers, but are described as wise, talented, and intuitive, more aptly, artists.[25(86-7)]" (italics given) Unmistakably, any accurate representation of skilled artistry points in significant part to subjective and idiosyncratic content appreciations, and, thereby, must additionally reach-out to viewing the practitioner as an entire person, complete with personal values. However, as indicated, Lewis et al.'s stance goes to the heart of a substantial controversary-by-omission concerning how clinically relevant emergent awareness is currently regarded, irrespective of whether the therapist's intuition is related to a client's psychopathology, or their own unique life journey. That is, and with respect to a content position on reflective practice, Wood et al. likewise highlights the contribution of Schon, 1987, by way of advocating for a non-reductive stance in CBT training and supervision programs, adopting the common and straightforward position that a conceptual shift across the objective/subjective duality apparent within rationality is readily negotiated via, "different perspectives and epistemologies.[26(17)]" Unfortunately, this simple and obvious approach is not embraced in the majority of influential CBT training and supervision literature. For example, Heidenreich et al.[12] highlight modern (Third Wave) approaches to CBT as receptive to existential therapy understandings, and site within this inclusive perspective the influential Declarative-Procedural-Reflective Model initially provided by Bennett-Levy et al..[21] On the one hand, Bennett-Levy et al. draw heavily upon the contribution of Schon in developing their laudable emphasis upon a supervisee's genuine professional growth; for instance, via usage of reflective journaling and also unguarded sharing in discussion groups, etc.. Yet conversely, on the other hand, it is subsequently explained, "as CBT therapists, our epistemological bias towards empiricism has differed from some of those authors.[21(117)]" That is, including Schon, with the result that their entire treatment of reflective practice, its training and supervision, is undertaken without any direct mention of a clinician's intuition even though the centre piece of their model, it's "engine", is unequivocally an allusion to WM. In similar fashion, while Heidenreich et al.[12] orientate CBT practitioners toward important and useful appreciations regarding phenomenological sensibility, their description of practical phenomenological listening exercises omits any grounded consideration of emergent awareness, let alone discussion of S1 operations. It is suggested that such constriction by a logical-positivist standpoint is no longer helpful to the advancement of clinical psychology training and supervision given the scope and dept of WM research which, thereby, calls for a content treatment of reflective practice incorporating the subjectivity of emergent, difference-in-kind insights emblematic of an expert therapist.

Working Memory: S1 Inferential Processes, Metacognitive Feelings and Volition

If competence with clinical intuition is to play a role in the training and supervision of reflective practice it follows that clinicians will find useful a practical understanding of its occurrence. Further to the conclusions of Miller et al., one consideration in particular cuts across all models of psychotherapy, "the big question of the genesis of volition[7(471)]", which constitutes, moreover, "… the fundamental function by which we break free from reflexive input-output reactions to gain control over our own thoughts.[7(463)]" While clearly pertaining to conscious thought, it is a conceptual misstep on that basis if a clinician assumed that volition as a self-system is predominantly a manifestation of encapsulated, higher-order executive processes. Indeed, Nachev et al. is of the view, "… this suggests volition is dependent less on any hierarchical system of meta-volition control than to the extent to which an extensive network subserving higher volitional powers is competitively dominant over others.[27(1)] " That is, while volition is undeniably an extraordinary and predominant feature of WM, also unmistakably, likewise this self-system is dependent upon S1 inferential operations and associated subsystem networks and relationships which, consequently, become pragmatically instrumental in self-conscious thought. These appreciations immediately extend to models of attention allocation, a further key WM issue. Specifically, whereas attention *per se* is most often regarded as a content-general monotonic function, researchers nonetheless differ significantly in terms of conceptualising how the function is operationalised. Moreover, the current two most influential WM paradigms diverge principally with respect to, (i) attention seen as a resource (i.e, Alan Baddeley's multi-component model), or conversely, (ii) attention viewed as a selection mechanism (Nelson Cowan's embedded-process model).[28,1,6,2] Despite this crucial difference, both positions locate attention allocation control in the central executive system, with the function available to volition and consciousness. Essentially, the multi-component model proposes three structurally separate subsystems (phonological loop, visuo-spatial sketchpad, episodic buffer), whereas alternatively, the embedded-processes model conceptualizes WM dynamically within two primary systems, the central executive and a homogeneous memory system (i.e., no distinct boundary between short-term memory and long-term memory; LTM). Importantly, as highlighted by Oberauer, attention understood as a selection mechanism implies, "… we should consider WM as an instance of attention – specifically, WM is attention to memory representations[29(9)]", but furthermore, this perspective, "… implies the reverse direction of causality, … the main function of WM is to hold representations that control what we think and do, including what we direct our attention to.[29(15)]" In other words, a distinctly bottom-up, yet exquisitely interdependent framing of WM attention allocation is presented; S2 behaviour is, in-effect, constrained by WM's function of holding/manipulating representations at a

meta-level, output controlled by WM S1 inferential processes.

Unsurprisingly, the interlaced whole-of-mind complexity required to understand WM as an operationalization of attention additionally suggests important insights into the nature of consciousness as lived experience. For example, Kolanczyk 30 highlights an 'inner person' may all but be conjured by some cognitive architecture orientations toward deliberative thought engaging controlled attention; "However, is this *homunculus* encompassing executive function, such as the central executive, really necessary? An attempt to understand the significance of a central, or supervisory, system (its *homunculus* nature), so strongly related to attention content management, led me to believe that it is mostly comprised of motivational structure …[30(31)]" That is, regulatory standards, values, and goals, etc.. And similarly, Schwartz & Metcalf comment, "… it is tempting to think of the metacognitive monitor as being a kind of *homunculus*, it is not necessary to do so … the metacognitive monitor need not be more than an accumulator of retrieved information from all sources.[31(741)]" These comments allude to the understanding that a phenomenological stream of consciousness, the very substance of psychotherapy, entails an ongoing transaction between the nucleus of focal attention and subtle fringes of consciousness experiences[32], both of which constantly emanate from within the finely self-organising, bottom-up/top-down processing nature of WM. Unfolding this understanding, Thompson makes the point, "WM engagement is not an all-or-none criterion but varies continuously with the depth of processing engaged[33(254)]", and further, "Of course, representations are multiply determined and may change over time. In some cases, there may be two or more Type 1 processes engaged, which may either converge on a single representation or give rise to competing representations.[33(255)]" In this regard it goes without saying that a person typically is not aware of internal S1 machinations responsible for their attention allocation. Nonetheless, and an adaptive outcome for passage through everyday life, emergent, difference-in-kind intuitions transacted from the fringes of consciousness and the nucleus of attention produce a wide array of very helpful metacognitive affect experiences. For example; feelings of ease of learning, feelings of familiarity, feelings of *déjà vu*, feelings of rationality/ irrationality, feelings of knowing or ignorance, feelings of confidence, feelings of error, feelings of forgetting, and tip-of-the-tongue phenomenon.[34,25] Of course, initial tacit detection of a potentially meaningful structure or *Gestalt* in the environment, while automatically evoking some degree of neural activation, may result only in a modest and inconsequential gut feeling presenting at the fringes of consciousness. As commented by Zander et al., it is only when environmental cues continue activation of relevant mnemonic and semantic LTM networks that, "… the level of patterned activation is sufficient to cross the threshold of consciousness[36(2)]", a dissonance model held also by other authors.[11,37] In other words, two

distinct zones meta-level anticipatory *ex ante* processes are conceptualized; (i) meta-level monitoring of inferential reasoning with inconsequential product, and (ii) meta-level monitoring of inferential reasoning invoking 'diagnosticity' via heuristic cue generated significant metacognitive feelings.[4,19]

From a praxis standpoint, the conceptualisation that oft times compelling representations presented at a meta-level in WM are output controlled by S1 inferential processes raises two important, interrelated questions regarding volition positioned as a form of free will. In what sense is the concept of volition to be understood, and relatedly, in what way are constraints on a person's information processing established through their history of experiences (i.e., as expressed through ongoing S1 reasoning)? To adequately address these matters it will prove useful to consider the basic sequence of operations transacted by analogical reasoning, a prime example of S1 cognition. Gentner advises, "The central idea is that an analogy is an assertion that the *relational structure* that normally applies in one domain can be applied in another domain.[38(156)]" (emphasis added) That is and significantly, target to base matching is hinged upon belief qua knowledge, rather than what is logically possible comparing the objective features of two domains (target and base). Consider in this regard that the analogy 'nuclear family' is unproblematic to most Western persons. However, if the expression is associated with Ukrainian communities surrounding the Zaporizhzhia Nuclear Power Station an entirely different target to base mapping is evoked. Returning to Thompson, it should further be appreciated, "Type 1 processes are not a matter of speed or simplicity, … the outcome of *autonomous processes* automatically become part of the representation of the problem space.[33(254)]" (emphasis added) That is and on the one hand as above, (i) heuristic cues generated by monitoring S1 operations may produce attention controlling metacognitive feelings or conversely quite subtle sensations skirting the fringes of consciousness, however and reciprocally on the other hand, (ii) WM meta-level operations *per se* transact only the end-product or 'represented problem space' of inferential reasoning. These appreciations in turn highlight the realization that the parameters for volition from a whole-of-mind standpoint devolve to inferential reasoning outcomes. Reciprocally, it may equally be suggested that volition thereby as a necessarily bound or constrained capacity itself emanates from within the very reasoning relationships comprising its constraints.[39,40] That is and firstly, recognition that volition, notwithstanding the achievement of agency, does not exercise 'a standpoint from nowhere', but rather is informed by the mind's entire system of relationships, including a person's higher-order beliefs, attitudes, goals, and values, etc., transacted of course relative to an ongoing appraisal of a changing environment. Moreover and secondly, it should also be appreciated these understandings – WM's function of holding/ manipulating representations controlled by S1 inferential processes at an S2 meta-level –

likewise takes for granted the standout consideration that volition is exercised in *conscious thought*. This key point will be returned to shortly. Interestingly, from an ontological perspective this conceptualization of an evolving, integrated and self-conscious mind was explicitly promoted by Hegel[41] who framed learning as a historically contingent (i.e., experiential) process equally defined by logical necessity to the parameters set by its developmental structure.

These appreciations lay groundwork as to how the mind effects a capacity for volition which is distinct from mere epiphenomenon further to elaborate stimulus/response causal chains. Ward et al. provide a hint to the thinking here in commenting on knowledge acquisition, "It encourages researchers to look upon their theories as historically developing entities each with their own developmental career.[17(216)]" Certainly, the adaptive importance of a developmental, whole-of-mind coherence is gestured toward whenever notions of self-narrative vis-à-vis life goals encapsulating one's sense of purpose and meaning are considered. This understanding finds refinement in Gentner's structure-mapping theory, and the whole-of-mind coherence principles of systematicity and structural parallelism.[38,42] Systematicity may be understood as a utility preference in analogy formation such that well established (deep/embedded) higher-order systems of relationships enforce connection preference with most aligned lower-order systems to effect, thereby, a learning history efficiency. Complimentarily, structural parallelism alludes to a preference for maximising direct similarity between corresponding elements of relational structure across one idea or concept and a potential analog, again in deference to higher-order relationship systems. These essentially structural understandings of system coherence enable illumination of a capstone realization problematizing the reductionism of volition-as-epiphenomenon. As may be anticipated, the contentious point centres upon ideation *per se* – phenomenological experience – regarded as a pivotal factor in nuanced bottom-up/top-down S1 and S2 WM operations. Specifically, it is contended by non-rationalists that the subjectivity of thoughts, lived awareness of being aware as an experiential outcome, constitutes, (i) a real-time actualization of whole-of-mind process, (ii) a context instrumental for the manifestation of volition, and (iii) a domain of processing not meaningfully reduced or expressed as an objectification of brain events and/or cognitive architecture functioning. Expressed alternatively, a non-rationalist framing of whole-of-mind regulative constraint culminates in the *sui generis* lived subjectivity of thought and its transformation via volition.

Coherence-based Reasoning

Introduction of a further information-processing model is warranted because considerations involving higher-order selfhood matters (e.g., beliefs, values, identity, meaning, awareness, volition, etc.) outreach the usual theoretical boundaries of WM literature, which primarily have a functional focus regarding S1 and S2

interaction. Moreover, the capstone consideration that mind coherence culminates in emergent thought and the operation of volition establishes a ready framing within which capability differences between an expert and a novice clinician can be considered. (For current purposes other cognitive load considerations in psychotherapy are put aside.) As above, Ward et al.[17] highlight the distinction between emergent ideas (phenomena) and those explanations possible which make sense of arresting intuition. For instance, the ability or otherwise to deftly identify the occurrence of over-valued ideas, unassertiveness, egoism, knight's move thinking, concrete ideation, etc. As also indicated, this distinction may alternatively be portrayed in terms of metacognitive feelings and reciprocally the ongoing confluence between focal attention/ fringes of consciousness ideation. Hence it is apparent, for example, that while a novice practitioner may feel some niggling concern regarding a patient's mental state, due to a lack of experience they will not intuitively recognize a stark clinical reality, the patient is riven with underlying low self-esteem. However, it goes without saying that once insight is achieved the therapist, whether novice or expert, will commence conscious reflective practice. In this latter regard, the 'thought experiment' so effected[43] will naturally also convey characteristics of the practitioner themselves – their beliefs, values, attitudes, goals vis-à-vis their identity, notwithstanding efforts at objectivity.

Coherence-based reasoning is an expansive literature ready-made to link understandings of emergent, inferential reasoning (e.g., arresting clinical insights) with practical appreciations regarding reflective practice. That is, from S1 and S2 process considerations to representations of selfhood. Cushman's[44] rationalisation and representational exchange model is an especially salient formulation for this purpose as it takes for its focus WM operations yet characterizes process outcomes in terms of idea transformation, equally a whole-of-mind occurrence. Hence, diverse cognitive science standpoints are subsumed; in Cushman's purview, "… inverse reinforcement learning, habitization, theory of mind, social learning, thought experiments, and the philosophical pursuit of reflective equilibrium.[44(3)]" Cushman proposes a taxonomy of four operations which span WM S1 and S2 systems (i.e., control, metacontrol, exchange, and exchange control) and underpin a capacity, "to construct new beliefs and desires where none had existed[44(47)]", positing in so saying a wholly integrated system where, "… rationalisation is not always *ex post*, but may often be *ex ante*, or a dynamic process in which coherence is achieved among many sorts of representations at any particular time.[44(47)]" Thus, Cushman's model sets-up a ready platform to frame ideation awareness not only as the culmination of representational exchange, but further, to additionally incorporate volition in the process of thought progression/ideation transformation.

Succinctly put from a phenomenological standpoint, coherence-based reasoning implies that during conscious judgement/decision-making reasoning, as a flow of options and alternatives are examined, information representations themselves are morphed in keeping with an overarching, emerging determination. That is, whether deliberative problem analysis or idle daydreaming, respective attitudes, standards, goals, affect valences, etc., are transformed relative to constraint vectors (e.g., systematicity, structural parallelism) in adherence with option representations. Hence represented is a confluent and holistic information processing push/pull transacted via WM to arrive at 'reflective equilibrium', a balanced or coherent *Gestalt*.[45,46] Explanatory coherence as a cognitive architecture model of reasoning may be traced to the seminal 1989 paper by Paul Thagard which described a facsimile inductive reasoning sequence to derivatively determined scientific and legal judgements. Thagard's[47] algorithmic modelling employed seven constraint factors including the factor 'global system coherence' and was interpreted to mimic neural network excitation/inhibition fluctuations seeking stasis or equilibrium. It may be noted that whereas contemporary modelling of coherence principles may specifically reference anatomical network structure/connectivity settling into a minimum energy-level state[44,48], equally 'communication through coherence' standpoints will also address neuronal spiking characteristics and an interplay of radiation oscillations across discrete neural network groups.[49,7] Unfortunately, and mirroring contemporary eliding of clinical intuition training (as above), the predominant epistemological logical positivism informing the coherence-based reasoning paradigm has meant that scant attention has been given to the subjectivity of thought and its transformation via volition. This is despite Thagard's explicit highlighting that explanatory coherence as a model ultimately is to enfold a self-conscious/self-programming system, offering additionally the far-sighted neuroscience prediction; "… units representing propositions settling into either on or off states is more psychologically plausible and epistemologically appealing than the Bayesian picture that assigns probabilities to propositions.[47(439)]"

Reflective Practice Competency Utilising Clinical Intuition

As highlighted, the extant reflective practice training and supervision literature clearly conveys the view that refection/introspection is a higher-order, selfhood undertaking. Hence, training initiatives in reflective practice may intertwine general self-development opportunities with specific exercises enhancing field-related knowledge and skills.[21] An entwined approach has also been taken with intuition-enhancement programs. For example, Engorov, et al.[50] report ethical intuition training where attendees, (i) initiated a self-awareness moral intuition journal coupled with a personal reading journey, (ii) participated in focused, case example discussions which provoked affective responses, (iii) attended lectures on moral

pluralism centred upon exposure to different cultural/social mores and values with the aim of developing in attendees a non-judgemental, moral curiosity. Impactful exercises of this sort can be anticipated to uplift a trainee's self-narrative in addition to aiding field-related knowledge and skill acquisition. The uncontentious point is that co-facilitating personal and professional growth is generally assumed to best furnish professional development in all areas of interest, and certainly, enhancing a person's capacity to more reflexively appreciate and critically analyse their own intuitions must additionally be viewed as a fundamental, whole-of-life skill. It also goes without saying that a positive, ego-syntonic attitude toward the to-be-learned skill is an optimum attitude for reliable competency acquisition, and certainly no less so if the practitioner embraces an aspiration for professional artistry in application of their competencies and experience.

Unsurprisingly, and in keeping with standard learning and training packages, (i) pragmatic, experiential practice, and (ii) useful and timely feedback, are conjointly recognised as similarly essential to enhancement of sensitivity to a person's emergent intuitions.[13,14,51] Hence, these appreciations likewise inform development of intuition-sensitivity programs[50], as do insights gleaned from an expanding, diverse-field literature (e.g., medical/nursing, military, emergency/ police, corporate, etc.) focused broadly upon consolidating the role played by intuition in the decision-making of specialists.[15,16,50, 52] On the one hand and taken together, the ease and fluidity with which a skilled operative transacts intuition-informed reflective decision-making is captured via the construct of an "adaptive toolbox" spanning S1 and S2 WM operations.[53,54] In a similar line, Scholz et al. allude to coherence-based reasoning when concluding, "Recent research suggests that observed symptoms are interpreted in a way that maximizes coherence for a single likely explanation.[55(1398)]" However, while the inextricable influence of S1 operations at a meta-level are increasingly clarified from a modelling perspective, and intuition-enhancement programs naturally draw upon standard learning and training packages, conversely, on the other hand, little specific guidance has been forthcoming regarding the *mode of mind* complimentary to an intuitive sensibility. That is, the mental state best suited to receptivity and processing of emergent awareness. Indeed, it appears presently assumed that proficiency with intuition is a personal meta-competency; an idiosyncratic, experiential skill which may be subjectively described but not pragmatically defined. For example, pertaining to intuition-informed CBT Brezina has advised, "… the intuitive way of reasoning involves learning how to recognise[56(216)]", and further, "… during Zen meditation practice, one learns to step back and identify one's own mental process, … meditation ability can be considered a metacognitive skill – cognition about one's cognition.[56(217)]" Or, framed esoterically by Trungpa, "It is likewise a mistake, when discursive thoughts are pacified, to overlook the clarity and regard the

mind as completely blank. The experience of true insight is the simultaneous awareness of both stillness and active thoughts.[57(24)]" In this regard, and without available research regarding an intuition-sensitive mode of mind (a meta-competency), the best that may presently be suggested appears to reduce to the overlapping considerations, (i) ongoing emotional regulation/poise, (ii) a mental state receptive to emergent awareness yet concomitantly, (iii) a critical acuity sufficient for confidence with decision-making. It is with reference to these possible fingerposts that the following toolbox skills intended to enhance a therapist's intuition sensitivity are suggested.

Clinical Intuition Toolbox Skills

The concept of clinical toolbox skills may be considered similarly to a 'good practice point' as endorsed by an expert panel.[58] As above, deliberative and responsible reflection during practice is suggested to call upon, (i) emotional regulation/poise, (ii) a mode of mind receptive to emergent awareness yet concomitantly, (iii) a critical acuity sufficient for confidence with decision-making/behaviour. Linking with these mode of mind speculations, a tripartite set of toolbox skills hatched in the author's private practice are proposed; slow-onset speech, affective inquiry, and therapeutic presence. Conceptually therefore, this pilot proposal of useful technique relies upon experiential, practice-based evidence, and, except for lecture presentations and a webinar, the toolbox skills have only been workshopped once (post-graduate training, The University of Queensland). The idea of slow-onset speech emanated from recognition that frequently patients spoke in a constant, line-of-sight manner with little if any pause-time to reflect with depth upon their utterances, and, thereby, determine what might be incisive to say. Similarly, in providing supervision and in conversation with colleagues a constant stream of thoughts often were effused with no appreciation for 'being in the moment'. Consequently, the author has taken to instructively guiding patients in utilising slow-onset speech. Given the skill is what it appears – essentially slowing down speech, and considering above comment concerning positivity for skill acquisition, salient experiential practice, and timely feedback, it would be disingenuous to posit a specific and sequenced learning trajectory for its acquisition. Practitioners are simply encouraged to embrace the gist of the concept, and initiate trialling the skill's application as best suits their personality and therapy practice. Two points warrant noting. Firstly, the author has been encouraged to observe on many instances that the technique affords a most helpful adjunct to tailored cognitive therapy. Secondly however, on numerous occasions, in highlighting to a patient across several sessions non-application of self-regulation, the author has received advice regarding the appreciable challenge the concept presents with respect to the patient's disposition (most notably perfectionism). Affective inquiry reaches back to the early writing of Arron Beck (among others) where attention to emotion displayed particularly in a patient's eyes was

highlighted. More specifically, affective inquiry blends together the steps, (i) steady non-intrusive vigilance of a patient's eyes, facial disposition and general body language, (ii) the therapist's steady preparedness, guided for example by eye variation suggestive of affect and/or memory emergence, to inquire of the patient what new awareness may have presented, and (iii) potential session re-direction into further exploration/deepening of the affective occurrence. A caution is required. Reasonably managed, the author can attest that this process comprises an especially potent psychotherapy manoeuvre which may produce substantial affect-laden memory plus reflections particularly helpful to the intervention process. Therefore, in addition to standard ethical immersion of a patient into the psychotherapy process, it is of course requisite upon a clinician to routinely debrief/demystify the patient's session experiences further to powerful and unexpected revelations.

Viewed together, slow-onset speech and affective inquiry are intended to dispose receptivity in the therapist's mind to emergent awareness. To a certain degree, such receptivity may usefully be likened to a non-judgemental curiosity, and thus clearly is suggestive of a mindfulness mode of mind.[59] However, a mindfulness disposition actively disavows critical analysis or reflective practice. The final tripartite skill, therapeutic presence, reaches to instantiate a composed mental state open to phenomenological experience yet concurrently also sustaining a self-aware consciousness of critical reflection. Common terms for this state include; aplomb, self-assurance, bearing, coolness and equanimity, or the less known word, sangfroid. Perhaps the idea of therapeutic presence is usefully described as, *purposefully inclining your mind into a patient's phenomenological reality*. (Similarly suggested is the Indigenous Australian peoples deep-listening concept and tradition of *Daddri*.) Further to earlier training advice regarding toolbox skill personalisation, it is again suggested that competence with an active therapeutic presence is most reliably achieved through thoughtful and creative practice. Additionally, competency maintaining professional poise, aplomb or bearing is naturally anticipated to likewise extend to the clinician's personal behaviour. A therapist is also reminded to be alert for emergent 'false positives', and consider regularly taking a moment's deliberation, or indeed to pause the session for a short time, thereby to consciously reflect and enable a sense of sufficient coherence to settle. This latter point foregrounds particularly withdrawal to meta-reasoning, a capacity where problem-solving is monitored and regulated in terms of time/effort expended.[4]

Conclusion

This conceptual article has undertaken a pathfinding appraisal of WM, and secondarily, coherence-based reasoning literatures, from a praxis standpoint potentially useful to practitioners seeking confident engagement with their clinical intuition. In this regard, likewise literatures pertaining to reflective

practice, and also reflective practice specifically dealing with emergent awareness, have been considered. While on the one hand a rich and extensive corpus exists relative to WM and coherence-based reasoning studies, conversely practical translation of these literatures into a format appropriate for clinical work is in its infancy. Moreover, it has been identified that the dominant paradigm of logical positivism vis-à-vis its embodiment in much CBT material is a current impediment to explicit research plus also everyday practice with respect to different-in-kind intuitions. As a tentative step in this latter direction, a set of three praxis toolbox skills are suggested for practice-based investigation; these may potentially compliment the professional artistry responsibly shown by expert therapists. The limitations of this article are distinct. Firstly, the author as a practitioner has undertaken an appraisal of an exceptionally diverse and complex research domain to produce a streamlined exposition presenting relevance-to-therapy content appreciations. The limitations of a general exposition are a cost incurred to any selective examination. Furthermore, offered herein are practice-based evidence suggestions. It goes without saying that research is required to further extend competency in intuition training.

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Acknowledgement:
The author acknowledges and thanks Dr. Leander Mitchell, Director, Psychology Clinic, The University of Queensland, for her advice and support regarding presentation of this article, and in workshopping the described clinical intuition toolbox skills.

Data Availability Statement:
No data was generated in the production of this conceptual manuscript.

Ethical Statement:
The author declares that as a private practitioner no ethical approval was sought in the production of this manuscript. The author also declares that he has no conflict of interest in submitting this manuscript, and that the manuscript is solely the author's own work. As the manuscript is a conceptual paper, and no data was generated in its production, no Informed Consent was required.

Conflicts of Interest Statement:
The authors declare no conflict of interests.

Funding:
No external funding has been received for this article.

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