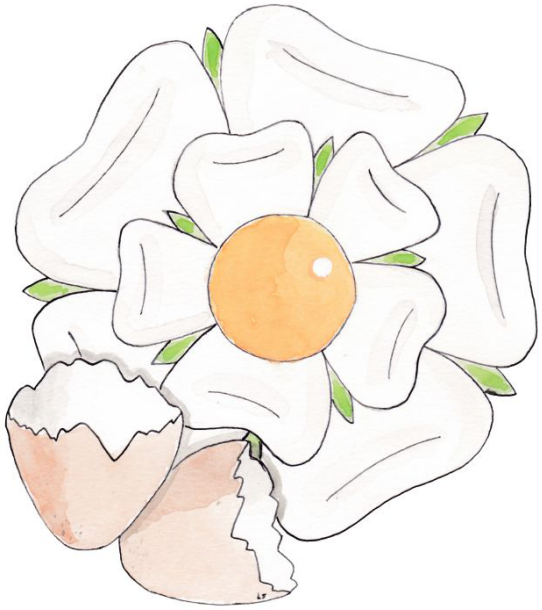

36th IAPCT Conference

7–10 October 2026 · York, UK & Online

Abstract Book

Hybrid conference · in-person and remote

Running Order

NOTES

Wednesday 7 October

Theory & Foundational Questions

Cybernetic Mimesis: A Study in Computational Anthropology *Earnest Kota Carr*	*Talk, Remote*
What is Fringe Consciousness and Why Might It Be Important? *Warren Mansell*	*Talk, Remote*
Training 4Ds for Dealing with Distress in Person *Louise Mansell*	*Talk, Remote*
Personal Goals and Mental Health among Japanese International Students: A Perceptual Control Theory Approach *Masaru Kanetsuki, Warren Mansell, Takeshi Hamamura, Aimee Wrightson-Hester & Tomomi Kanetsuki*	*Flash talk, Remote*
Emotional recalcitrance and the hierarchical mind *Tom Cochrane*	*Talk, Local*
Identifying collectively controlled variables *Bruce Nevin*	*Talk, Local*
Control as the Carbon of Behavior *Brian Taylor Fleming*	*Talk, Local*
From Individual Experience to Organisational Excellence: The Control of Quality (CoPoQ) as a Framework for Understanding Consciousness and Collective Behaviour *Rupert Young*	*Talk, Local*
Getting It Wrong About PCT: When (and Why) It Matters? *Richard S. Marken*	*Flash talk, Remote*
The extinction burst: Evidence of behavioral intensification against two plausible confounding factors *Valeria Pérez-Treviño, Marlon Palomino, María Cisneros-Plazola, Any Dubón, Gabriela E. López-Tolsa & Rodrigo Sosa*	*Talk, Remote*
Toward a control-theoretic account of the extinction burst *Rodrigo Sosa*	*Talk, Local*

Thursday 8 October

Clinical Applications & Mental Health

Control, Explore, Notice, Sustain (CENS) — facilitating effective reorganisation *Eva de Hullu & Warren Mansell*	*Workshop, Hybrid*

EMDR Therapy through the Lens of Perceptual Control Theory *Kuba Grzegrzolka*	*Talk, Local*
'Dead Ends' in Clinical Conversations: Can MOL Goals Hold? *Matias Salgado*	*Flash talk, Local*
"I Want to Be Real": Pinocchio, Perceptual Control Theory, and the Architecture of a Distressed Self *Susan McCormack*	*Talk, Local*
Reflection as a process supporting reorganisation: the Two-Direction Reflection Model *Eelke de Vries*	*Talk, Remote*
ADHD Hyperfocus explained through PCT *Rosalie H. van der Meer*	*Flash talk, Remote*
Recovery, Risk and Public Protection: Control as a Unifying Theory for Forensic Mental Health Practice *Tom Merrill*	*Talk, Local*
Could Cognitive Dissonance be Understood through the Lens of Perceptual Control Theory? A Reorganization Perspective on Dissonance-Induced Change in Eating Disorders Prevention Interventions *Livia Sacchi, PhD*	*Flash talk, Local*
Reorganising reorganisation *Eva de Hullu*	*Workshop, Local*

Friday 9 October

Education, Design & AI

Visual analogies illustrating PCT's hierarchical architecture + PCT unpacked: a website for educators *John Kirkland, Mike Saywell & others*	*Talk, Local*
Decision-Making as Control: Rethinking Neuroeconomics through PCT *Jyrki Suomala*	*Talk, Local*
Interactive discussion: PCT & AI *Chaired by Bruce Nevin*	*Discussion, Local*
Integrating Com-B, Perceptual Control Theory, SCARF and B-Map *Bob Ballings*	*Talk, Remote*
Intelligent Agent Interaction Modelling and Simulation *Philip S. E. Farrell & Suren Vahidi*	*Talk + demo, Local*
State Management: Programming for Skill Acquisition *Douglas Townsend*	*Talk, Local*

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Clara (AI) demonstration (PCT architecture in AI) *Workshop, Hybrid*

Richard Dobson & team

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Cybernetic Mimesis: A Study in Computational Anthropology

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In PCT, conflict arises when two control systems drive the same controlled variable (CEV) toward incompatible references. Their outputs collide; gains amplify as energy is expended to no avail. It is tempting to treat the contested object as happenstance: two suitors, horns locked over the same beloved, their rivalry comprehended as a tragedy, bad luck. But this is precisely the coincidence Girard teaches us to distrust. The love triangle is not accidental. The rival is a model; the desire was borrowed from him; and the conflict was latent in that borrowing from the start. Desire is often mediated, social animals can be hopelessly imitative, and much of what they come to want, they want because others want it.

Cybernetic Mimesis brings that insight inside the control loop. I take the functional role of the mirror neuron system, read through PCT, to be the import of another agent's reference signal: observing what someone is controlling for raises the activation of that goal in the observer. What is imitated is the controlled perception, or reference signal, rather than the behavior that realizes it. This is goal-level imitation. References become socially mobile, and convergence of goals becomes a caused phenomenon rather than an accident of a shared CEV.

I demonstrate this in an agent-based model where imitation acts only on goal selection. Imitation can manufacture its own scarcity: when agents converge on the same goal, a shared resource is drawn down faster than it can regenerate, producing an imitation driven tragedy of the commons. Rivalry follows. Yet the same convergence can also be productive. Agents who share a goal often share its obstacles: the same disturbances stand between them and the desired outcome. When an obstacle is one no individual can counter alone, imitation, by pulling agents onto the same reference, assembles the joint goal-directed action needed to overcome it. The same mechanism that depletes a commons can build a coalition.

Read this way, McClelland's collective control describes the mechanics of controllers already in conflict, while Cybernetic Mimesis supplies a reason they tend to end up there: why references converge closely enough that discrepancies between them produce conflict, coordination, or both.

The first half of the talk develops Cybernetic Mimesis and its collective dynamics, presenting them as a case study in a broader emerging field: Computational Anthropology. The second half traces the questions the project forced open: the control loop as the unit of cognition; prediction versus control (Ideomotor); questions of causation in the loop; whether the reference signal is physical or relational and unit-free; and whether hierarchical control is best understood functionally or structurally, especially in relation to reorganization. Together, with the Computational Anthropology agent based model framing, these mechanistic

questions offer a broad overview of PCT, and a hopeful look toward its future.

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What is Fringe Consciousness and Why Might It Be Important?

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Most people can report what feeling, thought or other perceptions they are consciously focusing on. Fringe consciousness refers to the unclear, vague aspects of our experience that exist in the background of this, and it is likely to include an 'unclear felt sense,' in person-centered therapies and focusing, fleeting thoughts in CBT, the 'periphery of awareness' in Gestalt therapy, and of course background thoughts in Method of Levels. Yet, there is no systematic research on the properties and role of fringe consciousness from the perspective of the lived experience of clients. We developed a semi-structured interview to explore the experience of fringe consciousness in past counseling or therapy, nature engagement, diary keeping in everyday life, and expressive writing. The participants were readily able to describe the properties, content, and the various potential benefits and problems of fringe consciousness. I will put forward some ways to consider the form and function of fringe consciousness from the perspective of PCT, regarding it as a cluster of 'family resemblances' whereby a perception is classified as fringe if it tends to have these properties: involuntary, unclear, low focality, low intensity.

Training 4Ds for Dealing with Distress in Person

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4Ds for Dealing with Distress is a stress management programme developed for a 90-minute online video conferencing session, utilising metaphors, experiential exercises and interactive chat. It is based on PCT, bringing everyday coping approaches and existing techniques under a PCT umbrella, explaining how they work through the control of perception over different timescales. For example, slow breathing is recast as a short-term way of regaining voluntary control over a process of partly disconnected, automatically controlled fast and shallow breathing. Slow breathing works through paying close attention to the perceptual experiences of the breath and specifying reference values for the rate. As the attendees go up the 4Ds triangle, the nature of the control becomes more long-term, with Discovery Talk at the pinnacle. Discovery Talk involves training people to deliver the components of Method of Levels in an accessible way, starting with active listening and curiosity. In this talk, I will share a variety of ways that 4Ds has been adapted and delivered in person to groups without psychotherapy training, in an accessible, engaging and reflective manner, including fidgets, post-its, round-robin practice, and scrapbooking.

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Personal Goals and Mental Health among Japanese International Students: A Perceptual Control Theory Approach

Masaru Kanetsuki, Warren Mansell, Takeshi Hamamura, Aimee Wrightson-Hester & Tomomi Kanetsuki

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Studying abroad provides opportunities to gain knowledge and experiences that may not be available in one's home country. However, because it also involves major environmental changes, the mental health of international students is an important issue. The present study examined the mental health of international students from the perspectives of sociocultural adaptation and wellbeing, focusing on its relationship with personal goals. Perceptual Control Theory proposes that personal goals are hierarchically organised and related to behaviour (Powers, 1973). In addition, internal conflicts between personal goals have been shown to be associated with mental health problems (e.g., Mansell et al., 2016). This study investigated the hypothesis that the personal goals of Japanese international students are associated with sociocultural adaptation and wellbeing.

Participants were 25 Japanese international students studying in Western Australia, including students enrolled in universities, graduate schools, language schools, and vocational schools. Semi-structured interviews were conducted online to explore the participants' personal goals in their daily lives. Specifically, participants were asked about the content of their personal goals, as well as the importance of each goal, the extent to which it had been achieved, and its relevance to their study abroad experience. In addition, by repeatedly asking participants why a particular goal was important, the interview aimed to identify more abstract higher-level goals. During the interviews, the software "E-grid" (Onoue et al., 2016) was used to visualise the relationships between goals and to record their hierarchical structure. Participants were also asked whether achieving one goal interfered with achieving another goal, indicating the presence of goal conflict. Prior to the interviews, participants completed the Goal-level Awareness Questionnaire (Kay, 2021), the Japanese version of the Sociocultural Adaptation Scale (Numata et al., 2022), and the Japanese version of the Psychological Wellbeing Scale (Sasaki et al., 2023).

Because each participant identified multiple personal goals, mean scores were calculated for the importance, achievement, and study abroad relevance of the goals (all measured on 11-point scales ranging from 0 to 10). The hierarchical structures of the participants' goals and detailed statistical analyses will be presented at the conference. Overall, the findings indicated a strong positive correlation between sociocultural adaptation and wellbeing. In addition, the importance and achievement of higher-level goals showed moderate positive correlations with sociocultural adaptation. These findings suggest that focusing on personal goals may be important for understanding the mental health of international students. However, because this study was based on cross-sectional interview data collected at a single time point, causal relationships between personal goals and mental health remain unclear. Future longitudinal research is needed to further examine these relationships.

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Emotional recalcitrance and the hierarchical mind

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Emotional recalcitrance is when an emotion persists despite the individual judging it to be unjustified. Examples include some phobic fears, disgust towards something one believes to be harmless, and anger towards someone one believes to be blameless. Traditionally such cases have been deployed against theories treating emotions as a kind of evaluative judgment. This is because effectively holding two directly contradictory judgements at the same time would be a deeper kind of irrationality than we would expect to be common. Instead, recalcitrant emotions have been offered as evidence for the view the emotions operate at a non-cognitive perceptual level which allows them to be impenetrable to reasoning in the same way as perceptual illusions. Yet perceptual views have recently been criticised for not respecting the sense in which recalcitrant emotions are still somewhat irrational. In this paper I argue that recalcitrance is best explained as a consequence of the broadly hierarchical nature of our minds. Control theory tells us that reference values being controlled at one level in the hierarchy can be represented as errors or not errors at another level in the hierarchy. Thus an emotion at one level of our minds could be aiming to minimise what it takes to be an error while at another (more contextually sensitive) level we recognize that there is no error. I suggest that by drawing on the resources of control theory, we can also explain a reversal of emotional recalcitrance - emotional numbness - where we do not experience an emotion despite judging that we ought to.

Identifying collectively controlled variables

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No abstract required — this is an interactive discussion, not a submitted talk.

Control as the Carbon of Behavior

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The doctrine of the 4 elements, earth, water, air & fire dominated our philosophy of science for over 2000 years. Empirical evidence showed fire could deconstruct a log into more fundamental components: earth (ash), water (sap bubbling out), and air (smoke). Yet fire could not deconstruct Gold, and air & water were eventually shown to be comprised of more elemental parts such as Oxygen. People often hold their philosophy of elements dear to their heart, and these discoveries disturbed a great many. As knowers of PCT, we have probably had a long held worldview or two shattered before our eyes. Being used to this, I discuss two directions for a pursuit

of "Elements of Behavior". The first rooted in Powers' 1979 "A Cybernetic Model for Research in Human Development", the second coming from a Neo-Powers perspective shared in the book "The Mind in the Wheel" by SlimeMoldTimeMold. Both approach estimating the irreducible aspects of behavior from different but non-exclusive directions, and are both worth some discussion. All life as we know it is carbon-based, but we are not made of pure carbon. If all behavior is control-based, it begs the question what other elements bond with control to sustain life.

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From Individual Experience to Organisational Excellence: The Control of Quality (CoPoQ) as a Framework for Understanding Consciousness and Collective Behaviour

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The Control of the Perception of Quality (CoPoQ) proposes that consciousness is the process by which living systems control perceived quality. Building upon the foundations of Perceptual Control Theory (PCT), CoPoQ argues that conscious experience corresponds to the perception and control of deviations from an organism's optimum state of existence. Positive and negative valence arise naturally from the degree to which perceived conditions support or threaten that optimum state, providing a unified account of subjective experience, motivation, learning, and adaptation.

This presentation will provide an overview of the CoPoQ framework, including its theoretical foundations, relationship to hierarchical perceptual control, and implications for understanding consciousness as an adaptive control process. Particular attention will be given to the proposition that consciousness is not a passive observer of behaviour but an active mechanism for enhancing the quality of interaction between an organism and its environment. As control becomes more effective through learning and reorganisation, conscious awareness of many activities diminishes, helping to explain phenomena such as skill acquisition, habituation, and flow states.

The second part of the presentation extends these principles beyond the individual to organisations. Organisations can be viewed as networks of interacting control systems in which employees, managers, customers, and stakeholders each pursue their own controlled perceptions and goals. Organisational quality emerges from the degree to which these interacting control processes remain aligned and capable of responding effectively to disturbances. From a CoPoQ perspective, quality is not merely compliance with predefined standards but the successful maintenance of conditions that support the goals of all relevant participants.

Examples from customer support, management, and service delivery will illustrate how understanding organisations as systems engaged in the collective control of quality can provide practical insights into communication, conflict resolution, resource allocation, organisational learning, and continuous improvement. The presentation concludes by exploring how CoPoQ may offer a common conceptual framework linking consciousness, behaviour, quality management, and

organisational effectiveness, while suggesting new directions for PCT research and application.

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Getting It Wrong About PCT: When (and Why) It Matters?

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2026 marks the 48th year of my involvement with Perceptual Control Theory (PCT). I have spent much of that time trying to teach PCT to anyone who seemed to have an interest in learning it. That teaching too often descended into long arguments about what might have seemed like esoteric aspects of PCT (such as "Is there information about the disturbance in perception?" or "Is the power law of movement an illusion?"). These arguments typically ended with me still believing that I was right and my "students" certain that I was wrong. I have now reached a point in my career where I wonder how important it is to be right or wrong about details of PCT. In this talk I will briefly discuss five arguments about PCT that I have been involved in, opinion about whether being right or wrong about them matters and, if so, why. I hope to get vigorous audience participation in response to this brief talk.

The extinction burst: Evidence of behavioral intensification against two plausible confounding factors

Valeria Pérez-Treviño, Marlon Palomino, María Cisneros-Plazola, Any Dubón, Gabriela E. López-Tolsa & Rodrigo Sosa
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It seems common sense that animals usually try harder the first time their actions stop working. However, even obvious and relatable notions require scientific scrutiny. Termed in the behaviorist tradition as the extinction burst, the intensification-upon-ineffectiveness notion has been recently challenged. Concretely, two confounding factors have been put forward to explain intensification as a measurement artifact rather than a true increase in goal-directed behavior. First, action frequency might just increase because when an action becomes ineffective, the activity that follows no longer competes with the target action; hence, this wouldn't be a real intensification but a mere frequency increase attributable to release from competition. Second, increased variation without a net intensification might lead to apparent activity peaks; for instance, force may vary slightly when the response is effective, but once the response becomes ineffective it might vary more—producing peaks, but also equivalent downward swings, so that average force remains unchanged.

The aim of our study was to test whether we could detect a reliable behavioral intensification in an effective-to-ineffective transition while ruling out release-from-competition and sheer-variation confounds. Anticipating skepticism, we preregistered our methodological and analytical approach. We prioritized

response force, rather than frequency, as our variable of interest because increases in force can hardly be explained by release from competition. Our behavioral task required human participants to squeeze a hand dynamometer. We used a symbolic reward that does not involve consummatory activities that compete with the target squeezing behavior, further ruling out that observed increases could be explained by release from competition. When reward was withheld and thus actions became ineffective, we observed an increase in force. The averaged force trajectory across normalized time showed a clear rise-and-fall pattern consistent with bursting, ruling out that the observed increase was just an artifact of higher variability.

Altogether, our results support the intensification-upon-ineffectiveness notion beyond extant confounds. From a control-theoretic perspective, this phenomenon could reflect intensified pursuit of a controlled perceptual quantity, driven by the error signal that arises when an expected and desired goal is not encountered.

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Toward a control-theoretic account of the extinction burst

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When transitioning from a situation in which an action is effective in producing the desired perceptual state to one in which it becomes ineffective, agents often intensify their output before disengaging. This phenomenon is termed "the extinction burst" and its study has been dominated by Skinnerian and Hullian (Amsel's frustration theory) behaviorist traditions. Frustration accounts of the extinction burst are formally underspecified. Skinnerian accounts have oddly evolved to negate mechanisms explaining behavioral intensification and have instead proposed the extinction burst occurs solely from release from competition with consummatory activities with which the target behavior alternates. In this latter view, the burst is an increase in frequency without a genuine intensification of the target goal-directed behavior itself, but rather a mere occupation of the gap left by its competitor. Our research group refuted the release-from-competition account by demonstrating grip force intensifies when responding becomes ineffective for producing symbolic rewards; here, release from competition is extremely unlikely because symbolic rewards do not entertain competing consummatory activities. This leaves an open theoretical slot, which I argue is best filled by feedback control. Extending earlier closed-loop framings of operant behavior, I propose a hierarchical control architecture in which reward omission generates higher-level error that propagates to response output. The logic inverts the reciprocal value-drive relationship implicit in drive reduction theory, where rewarding a response increases the value of performing that response but decreases the drive to perform it. If we let reward omission work the opposite way, then reward omission would decrease the value of performing the response and increase the drive to respond. And whenever the drive increases more rapidly than the value decreases, we'd see a bump-like trajectory in performance. I consider three candidate controlled quantities—primary drive, reward rate, and local perceptual proxies. Primary drive can be set aside on plausibility grounds. The remaining two each yield unique but complementary, testable predictions. A computational implementation is still in

development.

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Control, Explore, Notice, Sustain (CENS) — facilitating effective reorganisation

Eva de Hullu & Warren Mansell
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The Method of Levels Feedback Instrument (MOLFI) organises the practice of Method of Levels (MOL) therapy around four dimensions: Control, Explore, Notice, and Sustain (CENS). These dimensions were derived from a community Delphi study and reflect what therapists must facilitate to support effective reorganisation, as described in Perceptual Control Theory. This workshop introduces the CENS framework experientially. For each dimension, participants first discuss in small groups what that principle means to them in their own experience – as a client, therapist, or person. Groups then share key insights, followed by a brief explanation of the PCT-based rationale behind each dimension. The session aims to ground the scientific framework in lived experience, foster connection among participants, and offer a practical entry point into the MOLFI as a tool for Method of Levels self-evaluation and training.

EMDR Therapy through the Lens of Perceptual Control Theory

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Eye Movement Desensitisation and Reprocessing (EMDR) is recognised as an effective treatment for trauma and a range of other emotional difficulties. Despite a substantial evidence base supporting its effectiveness, questions remain about the mechanisms through which therapeutic change occurs. This presentation explores EMDR through the lens of Perceptual Control Theory (PCT) and examines similarities and differences between EMDR and Method of Levels (MOL) in search for a shared mechanism of change. Particular attention will be given to the role of bilateral stimulation (eye movement), dual attention, working memory, fringe consciousness, exposure to emotionally significant material, and sustained awareness on different levels of the perceptual control hierarchy, and how these processes may facilitate reorganisation.

This presentation will be relevant to therapists, supervisors, and researchers interested in the processes that underpin psychological change.

'Dead Ends' in Clinical Conversations: Can MOL Goals Hold?

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When applying Method of Levels (MOL), therapists can encounter moments that feel like conversational "dead ends": clients who have nothing to discuss, declare their problem impossible to solve, request direct advice, or misattribute negative intentions to the therapist's questions. These situations can pull therapists away from MOL goals, seemingly calling for a therapist-led approach — as if "something else" is needed. Whether that call needs to be acted upon is an empirical question this study put to the test.

Using an embedded clinical research design, a single MOL therapist prospectively documented 215 sessions across 43 patients over four months (January–April 2026). Each session was coded for four phenomena: 1) "nothing-to-discuss" statements, 2) "impossible problem" declarations, 3) advice requests, and 4) client misattributions of therapist intentions and meaning — including where in the session they occurred and whether the two MOL goals were maintained.

The four phenomena appeared in 45.1% of sessions and across 81.4% of patients — suggesting these moments are not exceptional events in MOL conversations. Timing followed a discernible pattern: nothing-to-discuss statements clustered at session openings, client misattributions at mid-session, and advice requests across the middle and end of sessions. Impossible problem declarations were broadly distributed across patients, whereas advice requests and nothing-to-discuss statements showed greater clustering.

The primary finding: MOL goals were maintained in 97.7% of all sessions, and in 94.8% of sessions where at least one phenomenon occurred. For nothing-to-discuss statements and impossible problem declarations, the maintenance rate was 100%. When goals were not maintained — five sessions in total, all involving advice requests or client misattributions — a brief one- or two-sentence clarification was sufficient before returning to exploration.

These results suggest that MOL goals can be sustained in the midst of seemingly conversational dead ends. When a dead end occurred, the therapist did not treat it as an obstacle requiring resolution. Instead, whatever was on the client's mind at that time became the focus of exploration. From this perspective, moments that therapists may experience as dead ends need not signal a departure from MOL. Rather, they may represent additional material for exploration within the MOL conversation, providing further opportunities to explore perceptions relevant to the client's conflict.

"I Want to Be Real": Pinocchio, Perceptual Control Theory, and the Architecture of a Distressed Self

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The talk presents Pinocchio — Carlo Collodi's wooden puppet, animated by longing yet governed by forces external to the self — as a theoretically generative metaphor

for understanding the psychological sequelae of early adversity, chronic distress, and the conditions under which authentic recovery becomes structurally possible. Offering a phenomenological account of a self-formed under conditions of institutional control, disrupted developmental experience, and of the reorganisation through which such a self may, in time, become genuinely its own.

Psychological distress, within this framework, is understood not as symptomatic response to discrete external events, but as chronic error: the persistent and exhausting gap between what the organism perceives and what it is organised, at its deepest levels, to experience. The child does not learn who they are, but what is required of them in order to remain. Pinocchio does not become real because he has obeyed. He becomes real because, for the first time, he has genuinely chosen. This paper situates the PCT analysis of Pinocchio's development within the wider empirical and theoretical literature on childhood adversity, attachment disruption, neurobiological development, and recovery. Within the PCT framework, recovery is not correction or compliance with a therapeutic norm; it is a process through which reference values are reconstructed from within.

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Reflection as a process supporting reorganisation: the Two-Direction Reflection Model

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Professionals inevitably encounter tensions in their work, but how do you deal with a tension that persists despite effort and good intentions? Reflection can help, but what if repeated reflection changes nothing? They adjust their behavior, try a different approach, and yet the tension remains. As a former healthcare professional and lecturer in the social domain, I recognize this pattern, in myself during my own transition from healthcare to education, and in the part-time students I supervise who are already working in the field. Existing reflection models describe what professionals do when they reflect, but do not explain why it sometimes leads to change and sometimes does not. Perceptual Control Theory (PCT; Powers, 1973/2005) offers a functional explanatory framework here.

From a PCT perspective, professional functioning can be understood through a hierarchical control system. Within this framework, reflection is more than looking back on experiences and making meaning of them, it is the directing of attention toward perceptual signals, reference signals, and the error signal, creating the conditions for reorganisation. Conflict arises when two reference signals at the same level are simultaneously active, but cannot both be realized. Awareness makes reorganisation possible, as Powers (1998) states: "reorganisation follows awareness." Reorganisation cannot be forced: as long as one keeps regulating at the same level, no space for reorganisation at a higher level emerges. If values or identity are at stake, reflecting on behavioral goals will not resolve the conflict.

These insights are translated into the Two-Direction Reflection Model (TRM), developed through an integrative literature synthesis and illustrated by an analytical auto-ethnography of my own transition from healthcare professional to lecturer in

the social domain. The TRM integrates PCT's control loop, Korthagen's reflection levels, and De Hullu's reorganisation levels into a self-applicable method. The model works with two directions: exploring bottom-up what you perceive, and exploring top-down what you want. By placing both directions alongside each other — what is the difference between perception and reference? — the conflict becomes visible. The foundational attitude is Staying Present: remaining with the tension without immediately trying to resolve it. This creates the conditions for reorganization, consistent with both Powers' "reorganization follows awareness" and the MoL principle that change emerges from sustained attention, not from control.

The TRM demonstrates how PCT principles can be applied in the educational context as a self-applicable method for professional reflection. It already offers a first functional explanation for what happens when reflection does or does not lead to change, yet further empirical validation is needed to substantiate its claims.

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ADHD Hyperfocus explained through PCT

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As someone with ADHD, I always saw those moments of hyperfocus as my superpower. An intense form of sustained attention in which performance improves and non-task relevant stimuli, including distractions, don't reach awareness. Little research has actually attempted to study or even explain this phenomenon. In my thesis I explore what a hyperfocus-state actually entails, how its mechanisms can be explained through the theory of perceptual control (PCT), and why it seems paradoxically linked to ADHD. I will first try to explain the link between attention and consciousness. While consciousness does not seem a necessary condition to attention, and vice versa, the overlap is where the hyperfocus happens. It is an effortless kind of control, with high accuracy, no inner critic and a pleasant selflessness. While focus is high, something seems to happen to the consciousness. The novel integration rate is proposed as the mechanism to keep a constant stream of consciousness, which seems to do something interesting during the hyperfocus. An increased novel integration rate as the result of a lot of error states can be experienced as "time slowing down". Time flying by is frequently experienced during hyperfocus, thus the opposite might also be true. The motivation-affect system seems to direct attention to the kind of errors that are important, with consciousness as the synthesizer of these errors. During hyperfocus certain errors seem to be ignored, mainly those pertaining the body or the self, like hunger or even light pain. The goal of the thesis is to describe a model in which hyperfocus fits within the perceptual control theory while being written within the neurodiversity paradigm as part of more neuroaffirmative and transdiagnostic research.

Recovery, Risk and Public Protection: Control as a Unifying Theory for Forensic Mental Health Practice

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Forensic mental health services are required to hold two aims that are often experienced as being in tension: supporting personal recovery and rehabilitation while also protecting the public through assessment and management of risk. This presentation argues that Perceptual Control Theory (PCT) offers a coherent framework for understanding and integrating these aims.

From a PCT perspective, recovery can be understood as the restoration, development and flexible reorganisation of control. People using forensic services are not simply recovering from symptoms or offences; they are attempting to regain control over valued aspects of life, including safety, identity, relationships, autonomy, competence, belonging and meaning. Psychological distress, risk behaviour and institutional dependence can be understood as arising when important controlled variables are chronically disturbed, conflicted, or pursued through means that are ineffective or harmful. Recovery-oriented practice therefore involves helping individuals notice what they are controlling, where conflicts exist, and how they might reorganise their means of control in ways that are more flexible, meaningful and socially viable.

PCT also clarifies the role of services in public protection. Risk is not located only in the person as a static property, but in the dynamic relationship between goals, perceptions, environmental disturbances, conflict and available means of control. Services protect the public by reducing conditions in which harmful methods of control become more likely, while increasing opportunities, capabilities and relational contexts that support safer control. This includes formulation, relational security, collaborative care planning, meaningful activity, treatment, risk assessment and environmental structure.

The central argument is that recovery and public protection are not separate agendas but different perspectives on control. A person is safer when they can control important aspects of life without harming others; the public is better protected when services support this process. PCT therefore offers forensic services a unifying theory, linking dignity, agency, rehabilitation and risk management within a single explanatory framework.

Could Cognitive Dissonance be Understood through the Lens of Perceptual Control Theory? A Reorganization Perspective on Dissonance-Induced Change in Eating Disorders Prevention Interventions

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In the context of eating disorders prevention, cognitive dissonance–based interventions such as the Body Project have demonstrated robust efficacy in reducing thin-ideal internalization and eating disorder risk factors among young women (Stice et al., 2019). Traditionally, these effects are explained by the

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assumption that induced counter-attitudinal behaviours generate psychological discomfort, or negative affect, which in turn motivates efforts to restore consistency through attitude change (Devine et al., 2019; Festinger, 1957). However, recent conceptual analyses have questioned whether cognitive dissonance research adequately distinguishes between outcomes of change and the processes that produce them (Vaidis & Bran, 2019). Moreover, in the broader cognitive dissonance literature, large-scale replication work has failed to support discomfort as a mediator of attitude change (Vaidis et al., 2024), while other findings suggest that successful attitude change may be associated with positive emotional experiences and emotional reappraisal rather than with negative affect (Cancino-Montecinos et al., 2018). Together, these findings raise broader questions regarding how inconsistency produces enduring psychological and behavioral change.

This presentation examines cognitive dissonance and cognitive-dissonance induced change through the lens of Perceptual Control Theory (PCT; Powers, 1973), along the lines of proposals made for other psychological techniques (Alsawy et al., 2014; Carey, 2011). First, from a PCT perspective, cognitive dissonance could be conceptualized as a conflict between incompatible higher-level goals, expressed through competing control of lower-level perceptions, with negative affect reflecting an error signal indicating loss of control (Powers, 2007). Second, cognitive-dissonance interventions may exert their effects by increasing the salience of and awareness over such conflicts, and potentially their intensity, thereby creating conditions under which reorganization can occur. Within PCT, reorganization is a trial-and-error learning process that adjusts higher-level reference values until conflict is reduced and stable control is restored, leading to shifts in perspectives, values and attitudes (Carey, 2011). Attitude change would thus not be a direct strategy to reduce discomfort, as formulated in cognitive dissonance theory, but rather an emergent consequence of reorganisation.

The Body Project (Stice et al., 2012) serves as an illustrative example. Although intervention effects are typically conceptualized in terms of reductions in thin-ideal internalization, qualitative accounts frequently describe broader changes involving self-acceptance, social connection, self-compassion, and new perspectives on appearance (Vanderkruik et al., 2020; Verzijl et al., 2021). Such findings raise the possibility that reduced thin-ideal internalization represents one lower-level manifestation of broader shifts in concerns such as self-worth, belonging, and identity (Alsawy & Mansell, 2013; Alsawy et al., 2014). Viewed from this perspective, the durability of Body Project effects may stem from engaging conflicts within higher-level goals and self-concepts rather than solely modifying specific attitudes. A related implication concerns the recent, proposed integration of mindfulness and self-compassion elements within dissonance-based interventions (Sacchi & Carrard, 2026; Toole et al., 2021): rather than attenuating change, these elements may facilitate reorganization when they support sustained awareness of conflict while reducing defensive or avoidant responses.

All in all, reconceptualizing cognitive dissonance and its induction within PCT shifts the focus from discomfort reduction to conflict resolution and reorganization. This perspective may provide a broader account of how inconsistency produces lasting psychological and behavioral change and generate new hypotheses regarding the mechanisms through which dissonance-based interventions exert their effects in

the context of eating disorders prevention and beyond.

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Reorganising reorganisation

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How do we understand the process of reorganisation? Following an introduction of a few different views from the literature, we'll discuss in small groups our own understanding and experience of the process of reorganisation. In a plenary conclusion, we'll explore what we understand well and note questions that need attention in future explorations.

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Visual analogies illustrating PCT's hierarchical architecture + PCT unpacked: a website for educators

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COMBINED SESSION — two submissions merged into one slot.

(1) PCT unpacked: a website for educators —
In conversations with educators seeking a working knowledge of PCT we often struggle to explain how the hierarchical levels are arranged as cumulative elaborations of distinctive operational perceptual control systems. Our attempt to resolve this difficulty spawned an entirely different approach and is the focus of this presentation.
From the outset there were some issues to solve. These included making available a good enough version of basic PCT theory in readable prose, designing complementary illustrative support, and offering age-appropriate suggestions for each of the 11 levels.
Further, we wanted to design an approach where people could choose to engage with what they considered useful, a variation on the drag-and-drop analogy, click-and-mind-drop. We decided to aim content at struggling parents, caregivers and teachers of neuro-diverse and neuro-typical youngsters.
For the targeted educational audience we zeroed in on the need to use an online, DIY platform consisting of several nested pick-and-choose layers. We surveyed several options including Trello and Prezi. None could accommodate our wish list.
An inspired hunch led us to using AI for building a customised website. After all, we argued, why commit to making ongoing payments for software development and implementation on a commercial platform when we could design our own, for free? And we wanted to make this site available at no charge, without attached strings.
In less than a week we produced a working prototype which, unsurprisingly, took a little longer to populate.
In this presentation we will summarise development of this innovative site and illustrate its contents. Additionally, we will present some of the nitty-gritty conundrums encountered and, after discussion, our resolutions.

(2) Visual analogies illustrating PCT's hierarchical architecture —
This report describes two classes of analogy we operationalised for creating visual displays aimed at highlighting the general architecture of PCT's 11-level hierarchy.
An initial challenge for class one was to identify suitable topics for implementing user-controlled screen-presentation range-sliders programmed to display successive Levels.
For one illustration we selected Point Light Displays. Visual data for early PLD studies consisted of recorded movements, where reflected patches (the points) were affixed to body joints and filmed in an otherwise completely darkened studio. As few as 12 points are sufficient for viewers to reliably identify patterns such as

walking, catching and throwing. We imagined decomposing a complete multi-point PLD skeleton down through each Level, from System ("style", L11) to Intensity (random illuminated flashes, L1). We then reversed this thought experiment operationally for reassembling an animated elemental PLD skeleton according to Level. We will present an "original" PLD study as well as our Level-stepping PCT version.

As a second illustration we selected colour theory since associated Level displays may also be managed cleanly and without any cross-Level contamination which we found occurred with other media, such as music. Again, a user-controlled range-slider controls the presentation of a unique display for each Level.

These two illustrations confirm: perception is constructed hierarchically, minimal data yields rich perception; higher-level variables are not in the stimulus, perceptions are inferred, not directly sensed; control operates on perception, not output, the system stabilizes at each level.

(Outputs for both illustrations were created by Steve Andreassend using Google's Gemini.)

Class two analogies also required heavy duty computation, this time using OpenAI's ChatGPT where we sought to identify the underlying dimensional structure accommodating the 11 Levels. In previous research we found almost all examined phenomena (including colour swatches, photos of emotional expression, personality descriptors, and so on) collapse into three major and salient dimensions. As we will illustrate, the 11 hierarchical levels may also be represented in 3D space, along with identifiable dimensions.

For input we selected several synonyms for each single-word level caption (intensity, sensation, configuration, etc.). Replicating our previous research approaches, AI was instructed to create a 3D semantic-like mind map (separately and exclusively for LLM and PCT resources), plot centroids, provide XYZ co-ordinates for each centroid and synonym, identify orthogonal dimensions, and display XY and YZ 2D images (which we will present as power point slides).

Regarding the generated dimensions, in brief: X = concrete -> abstract; Y = sensory/affective -> structural/conceptual; Z = static/object-like -> dynamic/process-like.

In summary: these two sets of demonstrations provide easily understood explicit analogical interpretations of the 11 hierarchically arranged perceptual control levels.

(Since they may be useful for teaching purposes, we will email code for the two slider demonstrations upon request.)

Decision-Making as Control: Rethinking Neuroeconomics through PCT

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Neuroeconomics aims to better understand decision-making by integrating economics, psychology, and neuroscience into a unified behavioural framework. Its long-term goal reflects E. O. Wilson's vision of consilience: the integration of knowledge across disciplines into a biologically grounded science of behaviour.

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Despite these ambitions, most neuroeconomic models continue to rely on fundamentally input–output conceptions of behaviour in which external stimuli are transformed into responses through valuation and choice mechanisms.

This talk argues that such models remain limited because they often lack sufficient ontological contact with organismal behaviour itself. Many prevailing neuroeconomic models conceptualize decision-making as a process in which the brain computes and selects options based on expected utility or value. From the perspective of Perceptual Control Theory (PCT), this reverses the causal organization of behaviour.

PCT proposes that behaviour is the control of perception through closed-loop negative feedback systems. Organisms act to maintain controlled perceptions relative to internally specified reference states. From a PCT perspective, the typical neuroeconomic approach treats decision-making as output selection rather than perceptual control.

The presentation examines several core assumptions in neuroeconomics from this perspective. First, it considers how valuation-centred models encounter difficulties in ecologically realistic and computationally complex environments. Second, it discusses how highly controlled laboratory paradigms may obscure the closed-loop and context-dependent nature of real-world behaviour. Third, it argues that many contemporary neuroeconomic models remain only partially connected to biological implementation, despite explicit aspirations toward mechanistic explanation and neural plausibility. Attention is given to Glimcher's two-stage choice model and Camerer's neural autopilot theory of habit as representative examples of contemporary neuroeconomic theorizing.

Drawing on current work in PCT, the talk suggests that a biologically plausible theory of human behaviour requires a shift from open-loop input–output architectures toward models centred on control, feedback, and organism–environment relations. In this framework, PCT is presented not merely as an alternative psychological theory, but as a potential organizing principle capable of reconnecting decision science with biology.

The broader aim of the presentation is to contribute to ongoing discussions concerning consilience, mechanistic explanation, and the future theoretical foundations of behavioural science, in which decision-making is understood not as an isolated computational process but as part of a broader science of organismal behaviour.

Interactive discussion: PCT & AI

Chaired by Bruce Nevin
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Open discussion session, not a submitted abstract.

Integrating Com-B, Perceptual Control Theory, SCARF and B-Map

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Using AI and it's power to interpret I asked it to combine different models from psychology. Com-b a framework based on other frameworks is interesting but still very broad.
When applying perceptual control theory using AI on com-b both models improve to look at human behaviour.
David Rocks scarf model is added as a social lens. for example someone might have the opportunity to speak at a conference, but when using Scarf the person might be afraid losing status. com-b does not look for this, scarf add this.
The last part is BJ Fogg b-map model where the small prompt is used after com-b pct evaluation to start small behavior.
The combined model is usable for different applications.
At the same time 4 models increases complexity and ai can be used to make interpretation easier.

Intelligent Agent Interaction Modelling and Simulation

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For human-systems design, tasks (or behaviours) can be depicted hierarchically and sequentially. This depiction (or model) describes tasks needed to complete work objectives. Task analyses are used as a front-end tool when designing and employing human systems into operations. We present a Perceptual Control Theory (PCT)-based modelling and simulation application that incorporates Classical Control Theory (CCT) methods thus expanding on current task analyses.

Traditional Task Analysis (TTA) (Phipps, 2005), Hierarchical Goal Analysis (HGA) (Hendy, et al., 2002), and Cognitive Task Analysis (CTA) (Klein, 1995) emphasizes primarily operator behaviours, goals, and sense- and decision-making, respectively. On the other hand, Cognitive Work Analysis (CWA) (Vicente, 1999) emphasizes environmental affordances and constraints on operator behaviours.

TTA or CWA tends to be unidirectional where the operator acts on the environment or the environment shapes operator behaviour, respectively. Meanwhile, HGA is typically a static representation of operator goals. Finally, CTA focusses on attentional demands and cognitive processes associated with behaviours. Thus, feedback is not a prominent feature in these analyses.

Similarly, a PCT-based human-system interaction model can be described as a hierarchical and sequential "tree" network of Elementary Control Units (ECUs) acting on – and receiving feedback from – the Complex Environmental Function (CEF). Given its parallels to CCT, this model is ideal for simulating and analyzing interaction stability, goal achievement, and optimization (Farrell, 2023).

We applied this new PCT-based technique to a soldier-Artificial Intelligence (AI) system scenario where the AI assisted in detection and identification ECUs. A seven-level hierarchy of ECUs was constructed. Lower-level ECUs were connected

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via software to the related CEF and interactions were simulated. The combined ECU completion time is 63.9 and 125.9 seconds with and without AI assistance, respectively. Another insight from this technique is that AI is not a true "team member" and so the interaction architecture is more "master-slave" than "human-autonomy teaming".

In summary, unlike other task analyses, PCT-based models, simulations, and analyses are ideal for investigating multiple intelligent agent interactions such as soldier-AI interactions.

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State Management: Programming for Skill Acquisition

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In the world of martial arts learning, we notice a recurring source of frustration. We learn "moves": linear sequences of actions, and students drill them perfectly with cooperative partners. Yet, often when we step into a live, unpredictable sparring session or a competition, those moves collapse. The connection breaks, the position is lost, and we often find ourselves freezing, feeling like we have somehow "forgotten" everything we practiced.

When it comes to software engineering, relying on massive, rigid webs of "if/else" logic to handle complex, real-time interactions like we do when teaching linear movements is a recipe for system crashes. Instead, developers can use Finite State Machines (FSMs) to map out different states and reliable transitions between them. By looking at physical skill through the lens of Perceptual Control Theory (PCT), we can create a connection between computer science and living control systems.

In this talk, we will explore the idea that a physical "move" is not a static sequence of steps, but rather a program designed to transition the body between discrete, active states. We will define a "state" as an active, continuous control loop where a practitioner maintains a specific reference against external resistance. We will then redefine a "move" as the higher-level logic we use to transition between those states in order to succeed.

To illustrate this, we will use "outside guard passing" in Brazilian Jiu-Jitsu as a primary vehicle for discussion. We will explore how "J-Point Camping" functions as a robust maintenance state within a control hierarchy, allowing us to absorb environmental disturbances and maintain a reference perception while treating the

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passing technique itself as the controlled transition between stable states. By moving away from "if/else" drill patterns and toward a model of active state management, we can help practitioners stop training to be static statues and start programming dynamic, adaptable skills.

This presentation provides a practical mental model for skill acquisition that is as applicable on the mat as it is in the world of programming.

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Clara (AI) demonstration (PCT architecture in AI)

Richard Dobson & team

Demo link: https://chat.claranexus.com/

No written abstract — this is a live demonstration. Demo link: https://chat.claranexus.com/