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Significance of Repetitive Learning Exhaustion Among Students

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***Abstract*: Repetitive practice is foundational to skill acquisition in professional training within higher education. However, sustained engagement in unvaried, institutionally imposed repetition may produce Repetitive Learning Exhaustion (RLE), a multidimensional state of cognitive, emotional, and vocational depletion. Using constructivist grounded theory (Charmaz, 2014) and reflexive thematic analysis (Braun & Clarke, 2006), this study examined the lived experiences of eight higher education students (N = 8) at the final stage of a postgraduate professional training programme. Analysis generated seven superordinate themes and a provisional six-stage grounded model of RLE. The study introduces several novel constructs, with 'maladaptive automaticity' the paradox through which over-rehearsal of relational professional acts produces scripted performance that displaces authentic engagement as its central theoretical contribution. The discipline-motivation dissociation, semantic satiation of professional communication, and the locus-of-initiation moderator are also introduced, collectively constituting a fundamental critique of deliberate practice frameworks as applied to relational professional training in higher education.**

***Keywords*: Repetitive Learning Exhaustion, maladaptive automaticity, deliberate practice, higher education, trainee well-being, cognitive fatigue, vocational identity, grounded theory.**

1. Introduction

Repetitive practice has long been identified as the primary mechanism through which expert performance is developed in professional training contexts [1]-[3]. Within skill acquisition models, the progression from effortful practice to fluent, automated execution has been treated as a developmental telos—the definitive marker of professional competence. Yet for higher education students in training-intensive programmes, the cumulative experience of repetitive practice does not uniformly converge on mastery. For many, it generates a qualitatively different outcome: a state of cognitive, emotional, and vocational depletion that this study theorises as Repetitive Learning Exhaustion (RLE).

The present study is motivated by a theoretical and practical gap. Neuroscientific investigations of repetition have documented passive neural habituation [4] and cognitive fatigue [6], but have not been translated into educational training contexts. Cognitive load theory [5] has not been systematically applied to relational professional skill development. The trainee depletion literature [7] has identified exhaustion cycles without theorising their neurological and cognitive substrates. No integrated theoretical construct had previously examined these dimensions as a coherent whole in higher education professional training.

The central argument advanced here is that the deliberate practice framework, as currently applied to institutional training, requires fundamental revision for relational professions. In professions where the quality of performance is constitutively inseparable from the practitioner's authentic attentional presence, excessive automaticity is not a developmental achievement but a clinical risk. This study provides grounded theoretical evidence for this position.

2. Literature Review

A. Repetition, Skill Acquisition, and the Automaticity Hypothesis

The theoretical justification for repetition-heavy professional training rests on three converging frameworks. Ericsson, Krampe, and Tesch-Römer [1] demonstrated that deliberate, feedback-informed repetitive practice is the most reliable predictor of expert-level competence across domains—a finding that has substantially shaped professional training curricula. Fitts and Posner's [2] three-stage model describes skill acquisition as progressing from a cognitively demanding cognitive phase through an associative phase to an autonomous phase characterised by effortless, automatised execution. Grill-Spector, Henson, and Martin [4] provided the neurological substrate: repetition suppression increases processing efficiency over repeated exposures. Applied to professional training by Rousmaniere [3], this architecture has made automaticity the definitive developmental goal of repetitive training.

B. Neural and Cognitive Costs of Repetition

Thompson and Spencer's [14] classical habituation model demonstrated that neural response to repeated stimulation diminishes progressively with stimulus frequency, duration, and consistency. Rankin et al. [15] confirmed the universality of habituation across neural systems. Wessel et al. [6] provided experimental evidence that prolonged passive repetitive stimulus exposure systematically reduces functioning in task-relevant cognitive networks and produces measurable subjective exhaustion. Pilkar et al. [17] demonstrated

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progressive central nervous system fatigue accumulation through sustained repetitive activity. Van der Linden et al. [16] documented impairments in perseveration, planning, and cognitive flexibility following prolonged mental effort, capacities central to reflective professional practice. Sweller's [5] cognitive load theory predicts that training activities without progressive challenge generate high extraneous cognitive load without commensurate germane load.

C. Motivation, Burnout, and Trainee Depletion

Self-determination theory (SDT; Deci & Ryan [9]; Ryan & Deci [10]) proposes that intrinsic motivation is sustained through satisfaction of autonomy, competence, and relatedness needs. Training structures that frustrate these needs through prescriptive, unexplained repetitive exercises predict amotivation and disengagement. Bandura's [11] self-efficacy theory specifies that sustained engagement requires mastery experiences calibrated to challenge level. Maslach et al. [8] characterised burnout as comprising emotional exhaustion, depersonalisation, and reduced personal accomplishment. Schaufeli et al. [21] identified academic burnout as a distinct syndrome in higher education. Skovholt and Rønnestad [7] documented qualitative depletion cycles among trainees, identifying insufficient variation and disconnection from professional purpose as structural contributors. Hobfoll's [13] Conservation of Resources theory predicts disengagement as a resource-conservation response under depletion.

D. The Automaticity Paradox in Relational Professions

A critical gap in the existing literature is the absence of any account of what happens to automaticity when the domain is fundamentally relational. The skill acquisition literature [1][2]—developed principally in perceptual-motor, musical, and chess contexts, assumes that automaticity frees cognitive resources for higher-order tasks. This assumption rests on a domain-specific premise: that the quality of automatised performance is independent of the attentional resources allocated to it. For professionals whose primary therapeutic instrument is attuned, empathic, present-moment responsiveness to another person, this premise fails structurally.

Therapeutic opening sequences such as establishing rapport, explaining confidentiality, inviting the client's narratives are not perceptual-motor routines. They are relational acts whose clinical effectiveness is constitutively dependent on the counsellor's responsiveness to the specific client's experience in the specific moment. Karl and Fischer [27] provide the closest existing analogy: repetitive practices lose their positive effects when enacted mechanically without mindful intentionality. The present study examines the specific consequences of this dynamic within higher education professional training.

3. Methodology

A. Research Design

This study employed constructivist grounded theory [18] as its primary methodological framework, supplemented by reflexive thematic analysis [19]. Grounded theory was selected because RLE constitutes a novel theoretical construct whose dimensions are insufficiently understood to permit quantitative operationalisation, and because the study's aim of generating a conceptual model from participant data aligns directly with grounded theory's inductively generative purpose. Braun and Clarke's [19] six-phase analytical process was conducted iteratively alongside data collection through constant comparison [20].

B. Participants and Sampling

Participants were eight higher education students (N = 8) at the final stage of a postgraduate professional training programme. Theoretical saturation was achieved at N = 8, consistent with constructivist grounded theory conventions [18]. Purposive sampling was initially employed, supplemented by theoretical sampling guided by the emerging analysis. Inclusion criteria required at least one full semester of supervised practical training and willingness to discuss repetitive practice experiences at length. All participants are coded P1–P8.

C. Data Collection and Analysis

Individual semi-structured interviews of approximately 30–45 minutes were conducted, audio-recorded with informed consent, and transcribed verbatim. Transcripts were returned for member checking. The interview guide covered six dimensions: experience of repetition; cognitive dimension; emotional dimension; vocational meaning; progression and process; and coping and impact. Analysis proceeded through five iterative stages: open coding, focused coding, axial coding, selective coding, and theoretical memo-writing. Trustworthiness was established through Lincoln and Guba's [28] four criteria of credibility, transferability, dependability, and confirmability.

D. Reflexivity

The researcher occupied the dual position of postgraduate student and investigator, generating both analytical proximity to the phenomenon and presupposition risk. This was managed through rigorous memo-writing, reflexive bracketing, and member-checking. Charmaz's [18] constructivist framework accommodates researcher subjectivity as an analytical resource, provided it is subjected to systematic reflexive scrutiny.

4. Findings

A. Overview

Analysis generated seven superordinate themes constituting a grounded account of RLE as a lived phenomenon in higher education professional training. Table 1 provides a structural overview of the themes. The following sub-sections elaborate each, with sustained attention to the theoretically novel constructs introduced by the data.

B. The Dual Nature of Repetition

Participants consistently distinguished productive from depleting repetition. Productive repetition involved genuine procedural complexity, visible competence development, and

Table 1
Superordinate themes and sub-themes generated from thematic analysis

No.	Superordinate Theme	Sub-themes/Key Constructs
1	The Dual Nature of Repetition	Productive vs. depleting conditions; pedagogical rationale; peer-partner fixity
2	Cognitive Erosion	Deliberate withdrawal; maladaptive automaticity; reflective decline; somatic signals
3	Emotional Dimensions of RLE	Frustration; infantilisation; discipline-motivation dissociation
4	Vocational & Existential Disconnection	Disconnection from purpose; active alienation; meaning as buffer
5	Developmental Trajectory of RLE	Individual thresholds; gradual build/sudden recognition; life-domain spillover
6	Coping, Adaptation & Recovery	Avoidance; self-generated novelty; embodied restoration; structural variation
7	Professional Identity & Commitment	Confidence erosion; sustained commitment despite RLE; participant definitions

perceived connection to authentic professional practice:

"*I've done it three times at this point and I remember in my exam, I was able to actually do it — do it like I knew the steps. Doing the same thing again and again does build a level of mastery. [P2]*"

Depleting repetition was generated by three structural conditions: fixed peer partnerships without rotation (identified by six of eight participants as the primary driver); theory presented without progressive depth; and compulsory repetition without pedagogical rationale. Absence of explanation was a particularly potent trigger for threat appraisal [12]:

"*What tends to trigger that feeling is if I feel like it was pointless — if they have asked us to do something again but have not explained to us why we are doing it again.* [P2]"

C. Cognitive Erosion and Maladaptive Automaticity

The second theme documented the cognitive consequences of RLE. Its most theoretically significant sub-theme—maladaptive automaticity—has no equivalent in the skill acquisition literature and constitutes a direct challenge to the deliberate practice framework.

Maladaptive Automaticity: Central Finding

The data introduce a distinction absent from the existing literature: the difference between adaptive automaticity (which frees cognitive resources for higher-order tasks) and maladaptive automaticity (in which automatised relational acts displace the present-moment attunement that constitutes their therapeutic value). This applies wherever professional quality is constitutively inseparable from the practitioner's authentic attentional responsiveness.

The mechanism was documented with clinical precision. The confidentiality explanation—a communicative act designed to establish client safety—was described as having become a cognitive routine that forecloses the relational attunement it is designed to create:

"*When we have to tell them the confidentiality and I go in that flow — I tend to not listen to that person, like they might have some concerns, and I tend to not listen to them. I take them for granted. [P7]*"

A participant's own definition of RLE encapsulates the paradox precisely:

"*It makes me become more perfect at things, but also very robotic — it is not very feeling or humane. [P7]*"

This description—'more perfect, but robotic'—captures technical fluency achieved at the cost of relational authenticity. The deliberate practice literature provides no account of this failure mode. Deliberate cognitive withdrawal—framed as agentive rather than passive—was also documented:

"*I'm very consciously checked out, not unconsciously. I'm like, okay, this is not worth my time. I'm not going to pay attention to this. [P2]*"

Participants further reported progressive decline in reflective capacity [16] and characteristic somatic early-warning signals (chest pressure, headaches, restlessness) preceding conscious cognitive recognition of RLE.

D. Emotional Dimensions

The emotional landscape of RLE was characterised by a felt sense of institutional injustice and the discipline-motivation dissociation being the most analytically significant emotional finding. Two participants independently generated identical infantilisation metaphors:

"*I start to feel like a child because I start to feel like I don't have agency or control — I am asked to do something and I don't know why I am asked to do it, but I have to do it. [P2]*"

The discipline-motivation dissociation describes behavioural compliance persisting after intrinsic motivation has collapsed:

"*I hate it. I don't like doing it. It's like I have to do it just because I should have the discipline to do it. But I am not motivated. I will just do it for the sake of it. [P5]*"

From an external observer using attendance or performance metrics, such a student is indistinguishable from one genuinely engaged in deliberate practice, yet the developmental yield is categorically different.

E. Vocational Disconnection

Higher education students in professional training programmes enter motivated by strong vocational purpose [30]. RLE generated progressive disconnection from this foundation, with near-universal reports of training becoming uncoupled from professional meaning. In severe cases, persistent exit ideation emerged:

"*I feel like it's senseless. I feel like there is no point in this… I feel like I don't want to do this anymore. This is getting me out of here somehow. [P5]*"

Protective factors included sustained vocational calling and personal therapy, identified as aspirational vocational reconnection through witnessing competent professional practice—a pathway not previously documented in the trainee depletion literature [7].

F. Developmental Trajectory, Coping, and Identity

The threshold at which repetition tips from productive to depleting is individually variable (ranging from second exposure to a qualitative locus-of-initiation criterion). RLE builds gradually but is recognised suddenly, with direct implications for welfare monitoring. Resource depletion cascaded across personal and relational domains, consistent with Hobfoll [13]. The modal coping response (all 8 participants) was avoidance. A minority employed self-generated novelty being the deliberate internal creation of challenge within structurally unchallenging exercises representing a teachable metacognitive RLE-prevention strategy. Despite extensive RLE, most participants maintained professional commitment through deep vocational anchoring.

5. Discussion

A. The Automaticity Paradox as Theoretical Revision

The study's central contribution is the identification of maladaptive automaticity as a domain-specific risk in relational professional training. The skill acquisition literature [1]-[3], developed in music, chess, and athletics—consistently conceptualises automaticity as an unambiguous developmental achievement. This framework assumes that automated execution is domain-neutral with respect to attentional allocation: a pianist's automatised technique does not depend on present-moment responsiveness to a specific listener. The assumption structurally fails for relational professions.

In therapeutic practice, the opening sequences of professional engagement are relational acts whose clinical effectiveness is constitutively inseparable from the practitioner's responsiveness to the specific client's experience. When these acts are automatised through excessive repetition, the rehearsed script may be executed fluently while simultaneously displacing the attentional responsiveness that gives the act its therapeutic value. The conceptual distinction between adaptive automaticity (domain-neutral, genuinely resource-freeing) and maladaptive automaticity (relational-displacement generating) is absent from the existing literature and represents the study's primary theoretical contribution.

Karl and Fischer [27] provide the closest analogy: ritualised practices lose, and may reverse, their positive effects when enacted without mindful intentionality. The present finding extends this to the specifically relational dimension: in professions constituted by authentic attentional presence, the automatisation of relational acts represents not a loss of mindfulness but a degradation of core professional competency itself.

B. Deliberate Practice: A Critical Revision

The discipline-motivation dissociation exposes a measurement validity problem at the heart of deliberate practice research. Ericsson et al.'s [1] original framework defined deliberate practice by its motivational quality: effortful, focused engagement oriented toward specific improvement. The present findings document conditions under which training participation continues with attendance maintained, exercises completed, performance technically adequate, while the motivational quality constitutive of deliberate practice has collapsed. Studies that operationalise deliberate practice through participation rates or session counts systematically fail to detect this dissociation. A programme that increases repetitive practice volume without addressing structural conditions generating RLE may accelerate the dissociation rather than produce competence gains.

C. Extensions to the Burnout Literature

Maslach et al.'s [8] burnout model conceptualises depletion as producing manifest emotional withdrawal and reduced performance. The discipline-motivation dissociation documents a structurally different state: motivational and emotional withdrawal masked by continued behavioural compliance, diagnostically invisible to attendance records, assessment grades, or supervisory observation. The present study also antedates Skovholt and Rønnestad's [7] depletion cycle from the professional practice phase to the training phase itself, suggesting that the conditions producing practitioner depletion are initiated during preparation for practice.

D. Semantic Satiation of Professional Communication

A further novel construct such as semantic satiation of therapeutic communication extends Karl and Fischer's [27] ritual analysis to relational professional language. Repeated performance of communicative acts whose clinical significance depends on felt authenticity depletes their meaning, even as technical execution remains intact:

"*We were explaining confidentiality. These are all extremely meaningful things, but the fact that we did it so many times just took away all the meaning from it. And now I'm sure even when we see clients, we're just going to say it because we learned it. But for that client, it's their first time hearing all of this. [P2]*"

6. Practical Implications

A. Training Design

Three modifications are directly supported by the data. First, peer rotation in practical training sessions would restore authentic relational uncertainty, the most consistently cited structural driver of RLE is fixed peer partnerships. Second, case type variation, diverse presenting concerns, cultural backgrounds, complexity levels, would address theory-without-progressive-depth. Third, explicit communication of pedagogical rationale for repetitive exercises would transform threat appraisal into challenge appraisal [12], preserving the

motivational conditions constitutive of deliberate practice [1].

B. Maladaptive Automaticity as Training Welfare Concern

Maladaptive automaticity requires recognition as a training welfare concern rather than a developmental achievement. Supervisors should be equipped to identify markers of scripted relational performance, described by participants as 'robotic' or 'going through the motions' that distinguish technically adequate but attentionally hollow performance from genuine therapeutic presence. Assessment frameworks evaluating relational quality (attuned responsiveness, present-moment engagement) rather than procedural completion would provide more valid competence measures.

C. Welfare Monitoring

The gradual-accumulation/sudden-recognition pattern of RLE, combined with the diagnostic invisibility of the discipline-motivation dissociation, indicates that standard welfare monitoring is inadequate. Structured reflective check-ins addressing motivational engagement, somatic well-being, and vocational connectedness would enable proactive identification. The teachability of self-generated novelty as a coping strategy suggests its explicit incorporation into training curricula as an RLE-prevention intervention.

7. Conclusion

This study proposed and provided grounded theoretical support for Repetitive Learning Exhaustion as an integrated construct unifying neuroscientific, cognitive, motivational, and vocational accounts of training-related depletion in higher education. The seven-theme structure and provisional six-stage model constitute the first theoretically coherent, participant-grounded account of this phenomenon.

The study's central theoretical contribution and maladaptive automaticity as a domain-specific clinical risk in relational professional training, represents a fundamental revision of the deliberate practice framework. In domains where professional quality is constitutively inseparable from the practitioner's attentional presence, the automatisation of relational acts produces not mastery but its relational counterfeit: technically fluent, attentionally hollow performance.

As one participant defined RLE: "In a period where you should be inspired, you are simply enduring." [P1]. The institutional responsibility to transform that endurance back into inspiration may be the most significant implication of this study. Future research should develop validated RLE measurement instruments, test the training design modifications identified here in experimental designs, and replicate the investigation across training contexts to assess generalisability.

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