

MODULE 1

Trauma and Second Language Acquisition: A Triple Network Intervention (3,951 words)

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PART 1: CRITICAL EVALUATION

Background

It is estimated that 60% of children are exposed to traumatic events, while 30% experience multiple traumatic events (Copeland et al., 2018), and 10% of those, according to Koch et al. (2016), go on to develop post-traumatic stress disorder (PTSD). However, trauma exposure is a predictor not just of PTSD, but of many, if not nearly all psychopathologies (McLaughlin et al., 2020). Consequently, understanding the impact of trauma exposure is now increasingly viewed as critical in diagnosing and treating mental disorders. These insights offer possibilities for simplifying research and interventions (Copeland et al., 2018). As an English language teacher with C-PTSD, my goal is to understand how trauma impacts SLA to inform interventions.

Study Design

This study connects recent research on synaptic plasticity and signatures for trauma and resilience to tackle trauma's impact on SLA. Drawing on insights from different domains, I advocate an innovative approach connecting theoretical frameworks with practical strategies. This offers fresh possibilities for SLA teachers facing challenges related to trauma-exposed students.

What is trauma?

Understanding the essence of trauma is fundamental to understanding its impacts on cognitive processes, including SLA.

Trauma, as defined by the American Psychiatric Association (APA) in 2018, is “any disturbing experience that results in significant fear, helplessness, dissociation, confusion, or other disruptive feelings sufficiently intense to have a long-lasting negative effect on a person’s attitudes, behavior, and other aspects of functioning.” According to the APA's Diagnostic and Statistical Manual of Mental Illnesses (DSM-5) from 2013, a trauma response involves enduring “actual or threatened death, serious injury, or sexual violence.” These definitions are based on psychiatric diagnoses; however, developments in neuroimaging technology facilitate an examination of trauma from a neurobiological perspective (Ancelin et al., 2020; Harnett et al., 2020; Hinojosa et al., 2024).

The Triple Network

In this section, I outline the triple network (TN). By examining the development and functions of the TN, I can subsequently explore trauma's impact on the brain during SLA.

Building on the idea of interconnected brain regions, the TN theory, proposed by Menon V (2011), suggests that it is a model for studying patterns of psychopathologies. The three brain networks are: Default Mode Network (DMN), Central Executive (CEN), and Salience Network (SN):

Default Mode Network

The DMN is typically active during cognitive leisure or when not attending to external stimuli. It is associated with internal thought processes such as fantasising, wandering thoughts, memory retrieval, planning ahead, reflecting, and ruminating on events (Menon V, 2023).

Central Executive Network

Also known as the fronto-parietal network (FPN), the CEN is crucial for cognitive skills such as task choice, executive function, data processing, focus management, short-term memory, decision-making, purpose-driven behavior, and methodical issue-solving. It correlates negatively with the DMN, meaning that when one is active, the other is deactivated (Schimmelpfennig et al., 2023).

Salience Network

The SN acts as a dynamic switch between the DMN and CEN (Figure 1) based on internal (body) and external (environmental) cues. It identifies, links, and responds to pertinent thoughts, emotions, and external events, guiding attention and behavior. The SN plays a part in emotional and cognitive empathy, mediates between internal and external stimuli, and participates in processing reward, motivating action, regulating emotion, and perceiving pain (Schimmelpfennig et al., 2023).

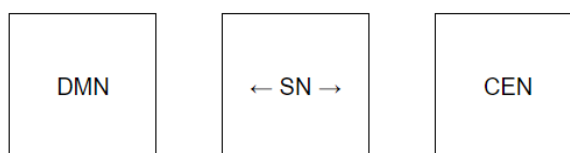


Figure 1: The TN with the SN switching between the other networks

All three networks are considered key neurocognitive hubs involved in cognitive tasks such as language learning (Wu et al., 2016).

Second Language Acquisition (SLA)

In this segment, I outline how the TN theory enhances our understanding of how neural networks process language, especially in connection with the Embodied Semantics theory, aiding the assessment of trauma's effect on SLA.

Embodied Semantics suggests that language acquisition is rooted in sensorimotor, and emotional interactions, and not abstract processes (Monaco et al., 2019). However, this perspective has faced resistance from dominant amodal perspectives, which posit that language is learned abstractly, without direct sensorimotor experiences (Bechtold et al., 2023; Michel, 2020).

To address critiques and potential confirmation bias related to C-PTSD, recognising the complex literature landscape could pave the way for targeted educational interventions for trauma-exposed language students. Understanding the cognitive and neural impacts of trauma on SLA can help teachers refine their methods to better support these students, involving specific practices, additional resources, and a supportive educational environment tailored to trauma survivors' needs.

Meteyard et al. (2012) found it useful to publish a taxonomy of studies on a spectrum from 'completely unembodied' to 'strongly embodied'. While embodiment research tends to examine concrete language, we find less attention paid to abstract language (Kühne and Gianelli, 2019). The evidence for abstract linguistic processing has not confirmed the embodiment theory, and so hybrid perspectives (Louwerse, 2018; Michel, 2020) have been advanced. These, in turn, are juxtaposed by Michel (2020), for example, who argues that language is learned both modally and amodally.

Also, within embodiment, nuanced concepts exist, such as embodied, embedded, extended, enacted, grounded, and situated. Reggin et al. (2023) convincingly contend that embodiment proponents ignore that it is also context-dependent or 'situated'. This situated component complements student-centred learning (there is a gap in the literature), which advocates student agency, while revealing how trauma survivors struggle with SLA as context includes classroom triggers.

This situated view can explain why the native language domain (L1) is more widely researched and better understood than second language (L2) acquisition - typically learned explicitly and in classrooms with a narrower range of sensory experiences - especially in relation to 'late bilinguals'. (Kühne and Gianelli, 2019; Monaco et al., 2019).

Thus far, the literature points to L2 acquisition and processing being significantly embodied (Monaco et al., 2019), but how much is not settled.

Having established the embodiment theory as substantial in language learning, I can explore how the TN facilitates the SLA process and subsequently investigate how trauma impacts SLA and the TN.

SLA and the Triple Network

At this juncture, I demonstrate how Embodied Semantics integrates with the TN framework, aiding coherent interventions for trauma survivors.

Expanding on the idea of grounded understanding, Embodied Semantics suggests that words and concepts gain meaning through sensorimotor experiences. Therefore, when using words relating to sensory experiences (e.g., "warm" or "sour"), similar brain areas are activated as if experiencing them. This emphasises the need for further research into trauma's impact on SLA, particularly in respect of embodied semantics, to better understand the combined cognitive and neural aspects of SLA in trauma survivors.

TN theory must, to attain global approval, map the neural topology of embodied semantics; however, at this time, there is a research chasm. Here I touch on Embodied Semantics through the lens of the TN theory:

Default Mode Network

The DMN is implicated in retrieving and processing personal experiences related to words and concepts. Extending this notion of memory activation, when one thinks of, for instance, the word "banana," the DMN will activate memories of the taste, texture, and smell of a banana.

Salience Network

The SN is tasked with identifying the sensorimotor aspects of words and concepts that are currently salient. For instance, when one sees a picture of a hot mug of tea, the SN facilitates focus on the warmth and aromatic sensory elements associated with tea.

Central Executive Network

The CEN incorporates sensorimotor data with cognitive processes. For instance, if one is asked to describe the flavour of a soup, the CEN would retrieve and organise appropriate sensory data while tuning out non-relevant data.

This integration of Embodied Semantics and the TN theory can form a holistic framework to understand SLA. With this lens, it becomes possible to construct an intervention strategy that targets the cognitive and neural aspects of SLA in trauma survivors.

Trauma and the Brain

At this point, I discuss recent research on neural plasticity related to a breakthrough study identifying trauma exposure and resilience TN signatures. These signatures can inform trauma-related SLA impairment interventions.

Highlighting that neurons communicate through synapsis (paths or junctions), Agnes and Vogels's (2024) research found that some neurons (inhibitory) are responsible for regulating others (excitatory). We know that as trauma is experienced, stress hormones such as adrenaline and cortisol are released. Cortisol, Agnes and Vogels (2024) assert, depletes the role of 'inhibitory' neurons, and so 'excitatory' neuron function can become unpredictable and heightened. Also, each excitatory neuron can influence others, causing heightened cluster activity.

Note here that, at the time of writing, their study exhibits potential methodological limitations involving 'math processing errors' notices, raising doubts regarding the accuracy and reliability of the results. It is not clear if this will impact the general findings I rely on here. Future revisions and further research should address these methodological issues to validate the findings.

These neural responses are protective during a trauma event; however they - in the context of re-experiencing and exaggerated fear perceptions - can lead to, as Oberle et al. (2021) explain, dysregulation connected to short-term memory, focus, and other learning skills.

The research shows how synaptic plasticity functions in neural networks connect and operate together (Bassi et al., 2019). According to Agnes and Vogels (2024), signals across synapsis are crucial to understanding plasticity. Should this adaptive activity of neurons become chronic, this will result in cluster realignments within and between major neural networks, impacting functional

connectedness (Corr et al., 2022). These atypical developments within the brain networks form what Zhu et al. (2022) call 'trauma signatures'.

Zhu et al. (2022) identify TN signatures (phenotypes) for trauma-exposed individuals and a distinct signature in those resilient to trauma, meaning they did not progress to develop psychopathologies. The study claims to be the first longitudinal experiment assessing neural as well as behavioral markers relating to threat generalization and discrimination. These neural functions are pivotal in evaluating future threats and measuring responses to novel circumstances. An inaccurate threat assessment paired with trauma exposure can lead to a dysregulation cascade, consuming cognitive resources that could otherwise be used for learning.

Zhu et al. (2022) showed that trauma-exposed subjects had lower activity reduction in the SN and CEN over two temporal stages of threat generalisation learning. They also demonstrated a lower ability to discriminate between a previous trauma-exposure and a current situation with similar characteristics. The SN is responsible for generalising fear and assessing the resemblance of a stimulus to traumatic memory characteristics. Consequently, the SN serves as a trigger mechanism for trauma signatures.

Interestingly, by subdividing the trauma-exposed cohort into those who had and had not gone on to develop psychopathology, the researchers were then able to compare both subgroups and healthy controls to reveal a trauma resilience signature relating to functional differences in the CEN over the two periods.

This insight is crucial for classroom interventions, as building trauma resilience through plasticity is key to addressing SLA underperformance in trauma survivors. Also, this process will help in targeting interventions that improve the classroom environment and facilitate a better integration of approaches, such as with mindfulness meditation. Further research could integrate these concepts to improve best practices. However, implementing these strategies may require educators to follow guidelines and allocate additional resources for a supportive educational environment.

One limitation of Zhu et al.'s (2022) study is the relatively small sample size, which may restrict the generalisability of their findings. Future research should seek to replicate these results using larger cohorts to enhance the robustness of the conclusions.

In short, neural plasticity can be harnessed to build a pathway towards a resilience signature destination. In so doing, interventions can be better designed and integrated within the literature related to trauma and SLA.

Trauma and its impact on Second Language Acquisition (SLA)

I turn now to the impact of trauma-exposure on SLA and how it can be assessed. In so doing, I propose repurposing a ground-breaking model that assesses the effect of ‘mental disturbances’ on SLA, in order to test the aforementioned neural signatures.

Expanding on the idea of symptom acuteness, Sondergaard and Theorell (2004) demonstrated a negative correlation between the severity of PTSD symptoms and SLA success among refugee students with high traumatic experiences. Iversen et al. (2014) and Kartal et al. (2019) further supported this, highlighting how trauma and mental distress impair SLA motivation. Currently, however, there is insufficient research on how exposure to trauma or PTSD impacts language acquisition, particularly L2 learning, highlighting the need for further research to fill this gap and develop more effective interventions for trauma survivors.

It is useful then to consider what evidence the more general phenomenon of ‘mental disturbance’, defined as “a harmful failure of some internal mechanism to perform a naturally selected function” (Wakefield, 2007), has on SLA.

Zhang and Zhang (2022) used ‘Network Theory’ to research how ‘mental disturbance’ impacts psychological properties of L2 learning: L2 anxiety, L2 self-efficacy, and L2 autonomy.

L2 anxiety has been defined as “the feeling of tension and apprehension specifically associated with second language contexts” (MacIntyre & Gardner, 1994); L2 self-efficacy has been considered as embodying the belief in how well individuals organise and perform actions to improve (Bandura, 1997) in the L2 context; L2 autonomy has been explained as a combination of individual characteristics in L2 learning, including being highly motivated, having a sense of agency, and exhibiting positive attitudes (Benson, 1997; Oxford, 2003).

Applying correlation and structural equation modeling analyses, the Zhang and Zhang (2022) study built a pathway between psychopathology and SLAs (Figure 2). Their findings confirmed a strong positive correlation between mental disturbances and L2 anxiety, and a significant negative correlation with L2 autonomy and L2 self-efficacy.

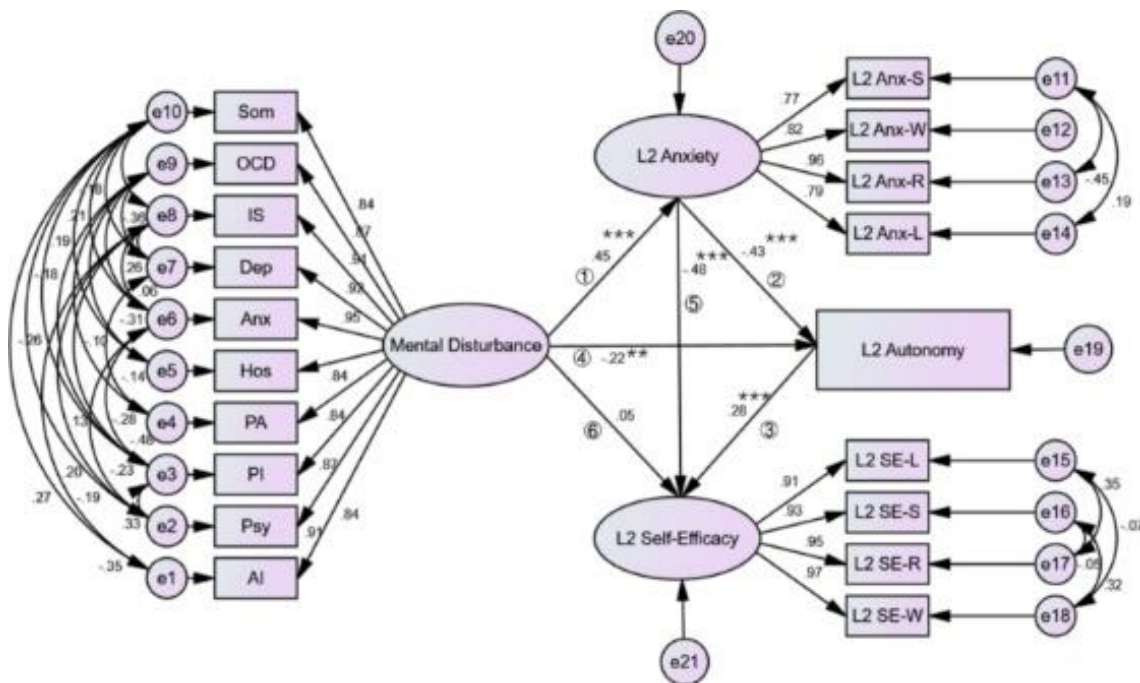


Figure 2: Structural Equation Model showing how mental disturbance can impact on SLA

Drawing on the Triple Network (TN) theory to understand trauma in educational settings, I propose a novel approach that integrates research on neural signatures for trauma and resilience. By reconfiguring the network model above, we can arrive at a more comprehensive and accurate measurement of trauma's impact on SLA from both cognitive and neural perspectives.

Classroom Strategy: Pathway to Resilience

In developing a strategy, I considered potentially fearful areas that contain triggers in the learning environment as the starting point for dysregulation in trauma-exposed SLA students (see Table 1).

Noise	Loud or sudden noises
Overstimulation	Crowded or chaotic classrooms
Transitions	Changes in routine or transitions between activities
Social interactions	Interactions with peers, such as conflicts or social rejection
Academic pressure	High academic expectations or perceived failure
Unpredictability	Lack of structure or clear expectations

Table 1: Typical classroom situations that may contain traumatic triggers

To provide a new perspective on integrating metacognitive skills into the SLA classroom, this strategy repurposes the DEBRIEF reflective practice model as an SLA activity (see Appendix II).

By repurposing DEBRIEF to have students consider the learning problems of a fictional peer, the student contemplates affective and metacognitive elements in a safer zone, allowing learning points to be turned inward to achieve enhanced self-awareness. The questions students address in case studies promote recall of events, an evaluation of an individual's role in the events, an emotional review of the impact of events on the individual's wellbeing, a cognitive impact review, and an identification of when the same events happened before (Allan, 2021). Furthermore, by considering what the fictional student could change to improve outcomes and share, the student can improve their own sense of learner autonomy and self-efficacy.

Supporting Research

Research indicates that maladaptive metacognition can mediate trauma exposure and learning problems (Ferraro and Panlilio, 2020). Furthermore, Brown et al. (2021) validated the metacognitive model of PTSD, suggesting that beliefs about thinking, memory, and strategies to control thoughts can perpetuate symptoms, supporting this metacognitive approach. The strategy aligns with the Metacognitive Therapy (MCT) approach, which helps recognise and challenge maladaptive thoughts for improved mental health. Sharma et al. (2022) reviewed studies on MCT for PTSD, demonstrating promising symptom improvements. Simons and Kursawe (2019) first investigated the effects of MCT for PTSD in youths, revealing significant effects on symptoms in almost all participants, although the findings are limited in sample size and the study was uncontrolled. Future studies should consider larger and more diverse cohorts for robust insights, including in language acquisition.

Rationale

The rationale for targeting the CEN with emotional and metacognitive tasks is grounded in the TN model, aiming to enhance the SN's function by improving connectivity between the CEN and SN via synaptic plasticity. This enhancement is expected to improve the SN's ability to identify relevant triggers, leading to better emotional and cognitive regulation, crucial for SLA. Teachers are encouraged to create new case studies based on trigger areas from Table 1 and administer the intervention regularly to track changes over time. They can also develop similar materials, such as having students write their own fictional case studies.

Ethical Considerations

Privacy and confidentiality The use of fictional case studies helps protect student privacy and confidentiality. Students should be encouraged to keep their written responses private to maintain confidentiality.

Informed Consent Students should be informed that the case study is fictional to avoid any concerns over informed consent. It should be made clear that participation is voluntary.

Vulnerable Students An assessment should be conducted to determine the suitability of vulnerable students participating in an activity exploring reactions to classroom situations. Special care should be taken to ensure that their participation is beneficial and not harmful.

Preparation and reflection Teachers should prepare the class to approach the activity with an open mind and encourage critical reflection on individual differences of opinion. This approach can help create a safe and respectful learning environment.

Equitable Learning While some students may benefit more directly from the activity, it can be considered more educationally equitable as it provides a unique learning opportunity for those who may struggle with regular educational experiences.

Managing Distress Teachers should be aware that, despite the fictional nature of the case study, students may personalise the content and find it distressing. In such cases, the activity should be abandoned immediately to prevent any emotional harm.

Balancing Learning Benefits and Emotional Harm It is important for teachers to weigh the learning benefits of the activity against the potential emotional harm it may cause to some students. This consideration should inform the decision to undertake the activity.

Outcomes

The strategy forecasts improved classroom dynamics and intrapersonal skills, leading to enhanced attention, memory, and processing speed. Measuring improvement could involve SLA testing before, during, and after the intervention period, combined with a Likart Scale questionnaire (mindful of ethical considerations) designed to make psychometric evaluations of improvements in metacognitive skills, such as beliefs about thinking, memory, and strategies to

control thoughts. It is important to note that the results of an uncontrolled classroom study should not be generalised to the wider population due to the lack of identification or measurement of trauma-exposed, trauma-resilient, and typical individuals.

Envisioning Future Studies

Future research could leverage interdisciplinary partnerships and institutional funding to assess the intervention's efficacy. An experimental study could observe students with trauma signatures, but without resilience signatures evaluating any movement towards a resilience signature and improving academic performance over the test period. Combining neuroimaging with SLA testing will establish baseline neural patterns and academic proficiency. To analyse results, fMRI could track changes in neural structure, while longitudinal data systems (LDS) could monitor academic and behavioral patterns. This approach may challenge current orthodoxies in the areas of trauma-informed education and SLA.

Conclusion

This study offers innovative approaches to improving educational outcomes for students with SLA impairments due to trauma. Integrating insights from cognitive science, neurobiology, psychology, and education, it develops a nuanced understanding of trauma in both cognitive and neural terms. The study connects recent research on neural plasticity with the development of signatures related to traumatic experiences and resilience within the TN. It integrates Embodied Semantics into the Triple Network's neural delivery mechanisms, providing a novel intervention framework. Additionally, it proposes reconfiguring a statistical model to better examine, analyze, and measure the relationships between trauma exposure and psychopathologies impacting SLA. Grounded in evidence from MCT, this study proposes a unique holistic strategy to meet the needs of trauma-exposed language students, contributing to the discussion on trauma-informed education and SLA.

PART 2: CRITICAL REFLECTION

To reflect on my study, I used the DEBRIEF critical reflection (CR) model (Appendix I). Initially, I chose DEBRIEF as my research paper would be written by and for trauma-exposed individuals, aligning with a tool designed for medical education. Who developed the model is not clear, although it has been advocated by Hayley Allan.

My aim was to enhance the sourcing of high-quality peer-reviewed research by developing a process to identify potential information or issues that needed conscious attention. This was crucial due to the complex nature of my topic and the fact that cross-disciplinary research material often contains dense technical language requiring deciphering.

Allan's critique of DEBRIEF caught my attention, suggesting that it goes beyond typical reflective models like Kolb's (1984) cycle of reflective practice. Allan highlights DEBRIEF's ability to help learners progress through Kolb's learning points (Figure 1) by making conscious the "behavioral, psychological, and cognitive elements of the practice.

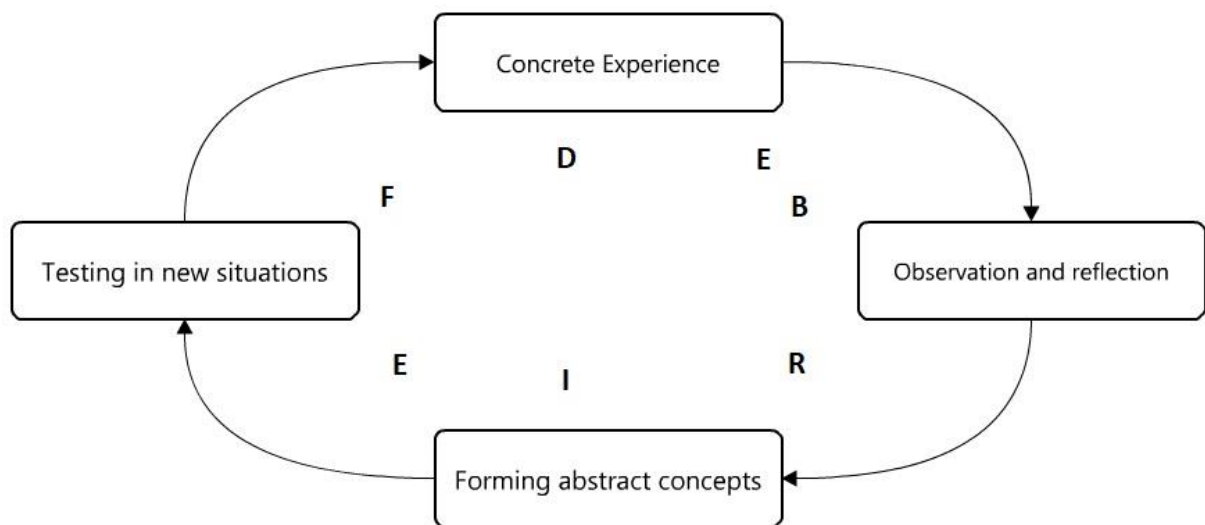


Figure 1. Kolb's cycle of reflective practice with DEBRIEF overlaid within

DEBRIEF promotes recall of events, evaluation of the practitioner's role, emotional and cognitive review, and drawing parallels with previous similar events. This structured approach is crucial for gaining insights into my research process, especially when writing about trauma, where dysregulation is inevitable. Emotions, which can inhibit cognitive development, are amplified in

trauma-exposed individuals, serving as signposts to triggers, causality, and strategies in my paper. DEBRIEF also sharpened my focus on ethical considerations.

Initially doubting the validity of CR, following the DEBRIEF process produced notable results. I began reflecting on seminal C-PTSD books and my healing history, realising my 'unconscious incompetence'. Consciously understanding difficult feelings led to incisive therapeutic benefits.

Needs, knowledge gaps, and ineffective practice lead to what Allan calls 'unconscious incompetence' where teachers do not know what they do not know. Without an effective reflective process, this has led me to 'single-loop' practice, causing frustration and often predicting a breakdown in the relationship with students who look to their teacher for clarity and leadership. Moving from 'single-loop' to 'double-loop' learning (Argyris and Schön, 1978) is essential for a practitioner with C-PTSD, where experience-based action adjustment is critical for stability.

Recognizing that something is wrong and becoming aware of it develops 'conscious incompetence', whereby the teacher develops solutions, leading to 'conscious competence'. These realizations gravitated me toward using the DEBRIEF process for intermittent journaling about my academic experience.

For a teacher with C-PTSD, teaching-related triggers can lead to professional problems and dysregulation cycles. Furthermore, frustrated, unpredictable, or angry reactions are the opposite of what students with trauma-exposure problems need from their teacher. Here, I found DEBRIEF indispensable, as it involves acknowledging problems in practice and evaluating responses, keeping me grounded and student-focused.

Reflecting on student behaviour, I understood that a practitioner with C-PTSD who seeks to support trauma-surviving students cannot afford to be metacognitively 'blind' about symptoms. Looking deeper, when consciously competent solutions become embedded and lead to 'unconscious competence', I have experienced lapses in classroom management that can undermine a teacher's community standing. Clearly, the ability of 'reflecting-in-action' (Schön, 1983) honed by regular 'reflecting-on-action' facilitated by DEBRIEF will be a valuable contingency tool.

Novel research assignment processes are also problematic for someone with C-PTSD. An increase in new data points resulted in a combinatorial explosion, inhibiting evaluation with confusion and a lack of focus. To deal with this, I aimed to find research software, but finally gave up, leading to integrity issues in my evaluations.

During reflection, it occurred to me that repurposing the DEBRIEF model (Appendix II), would allow students to also gain conscious insights into their learning problems, thereby arriving at effective strategies and gaining agency through following the emotional and metacognitive steps therein.

Using DEBRIEF to support the CR of my study, I made realisations that informed my research process, conclusions and strategy. It also helped me to make conscious academic areas of 'unconscious incompetence', a process that has also informed my Personal Development Plan (Appendix III).

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APPENDIX 1

DEBRIEF MODEL of practitioner reflection with example questions related to health education sector below:

Describe
Evaluate
Bring out
Review
Identify
Establish
Feedback

EXAMPLE QUESTIONS (RELATED TO HEALTH EDUCATION SECTOR)

- How well do you feel you dealt with the incident? (Evaluation)
- What would you want to do differently next time?
- How did you feel about the patient while he was deferring the test? (Bring out emotions etc.)
- How do you feel about him after the event? (Bring out emotions etc.)
- Has this kind of thing happened before? (Review)
- Have you learned things from patients before? (Review)
- Have you learned things from patients before, or seen their experiences from their perspectives like this before? (Review)
- What learning points arose from this case? (Identify)
- What follow up actions are you going to take? (Establish action)
- How will you gather feedback and evidence those actions? (Feedback)

APPENDIX II

FICTIONAL CASE STUDY: DEBRIEF STRATEGY

Step 1 Elicit problems that can make learning difficult. A box in the handout is provided for students to write down their own and discussed ideas.

Step 2 Students read a fictional case study that involves a student who has experienced learning difficulties and includes symptoms of conditions such as anxiety or depression that may be leading to or arising from these problems. The study includes the feelings aroused in the process and the efficacy of the strategies the student as undertaken to achieve resolution.

Step 3 Students write down answers to questions that are informed by DEBRIEF's 7 steps. The teacher elicits answers, and prompts and generates class discussion question by question.

We all have some problems learning. Here are some below. Can you think of any more?

Difficult Concentrating, Memory Problems, Test Anxiety, Low Motivation, Time Management, Planning, Organisation, Problem Solving, Social Skills, Slow Understanding, Changing Activities,...

Sarah's School Story

Sara is a 17-year-old student who usually does very well in school. Lately, she's been having a hard time with math. She used to be really good at it and liked solving hard problems, but now she feels stressed and worried whenever she has to do math homework or take a test.

Sara has trouble paying attention in math class and often feels like she can't think of the right answers. She also has a hard time remembering things she's learned in math and forgets important ideas soon after she learns them. Even though she's been studying a lot and asking her teacher for help, Sara's grades keep going down, which makes her feel even more stressed and frustrated.

Sara's parents and teachers have noticed that she's been acting differently lately. She's become more quiet and easily annoyed, and she avoids talking about math or school. She used to feel sure of herself in school, but now she's worried that she'll never be as good at math as she used to be.

Answer the first question and then discuss with the class. Continue the same way with the other questions -

1. What happened to the Sarah in math class? How did she try to fix the problems?
2. What did and didn't work and what might she try next time?
3. What made it difficult for her to learn? Why did Sarah's attempts to fix her problems not work so well? How do you think she felt when the strategies didn't work?
4. This has happened regularly to Sarah. Do you think she learned from the experience? Could she have benefited from knowing what someone else might do in this situation?
5. What do you think Sarah needs to learn from the experience?
6. What actions should the student take now? What changes will this achieve?
7. How will she know if the new strategies are working? Could the student share the results with someone else? If so, who?

APPENDIX III

Personal Development Plan

- 1. Activity** Return to Mindfulness Meditation practice and deepen it

Objective Develop MM skills with a view to developing deeper and better informed pedagogical strategies related to C-PTSD.

Action Undertake a 10 day Vipassana which can lead to regular mindfulness practices.

Timescale July 2024
- 2. Activity** Identify a suitable research software application

Objective Organise notes, annotations, citations and store research papers in a manageable way that facilitates better academic writing.

Action Approach researchers and tutors for suggestions, research and test applications for robustness and efficacy.

Timescale May 2024
- 3. Activity** Learn about singing topics on the MA course

Objective To improve my singing journey and to use my new skills and knowledge to research and write in that domain.

Action Watch course video lectures, join courses provided by VSC.

Timescale From May 2024 onwards
- 4. Activity** Start a singing project

Objective Apply my vocal lessons to practice and incorporate new knowledge and skills to the practice

Action Meet musicians, go to live events, network with singers

Timescale Summer 2024 onwards

5. Activity Learn about research methods and technology

Objective To be understand the processes involved in research in order to better analyse data and evaluate results

Action Find some courses on the MA programme about research methodology and read online about brain scanning technology

Timescale From May 2024 onwards