Welsh Psychotherapy Institute

Please complete front sheet

Course- Advanced Diploma in Psychotherapy

Name of Trainee: John Dray

Essay Title: An understanding and awareness of neuroscience and polyvagal theory helps me to understand myself in relation to others better'. Discuss this statement, linking it to the theory and practice of your modality. This essay must also include a discussion of how your approach to trauma work has been influenced by this theory.

Word Count: 3126

Date of Submission: 24 April 2025

Overall Score 77% **Grade Merit**

Date Received

Welsh Psychotherapy Institute

ESSAY MARKING SCHEME Year 2-4 onwards

Trainees Name: John Dray Year: 3

1st Marker: Rosy Wood-Bevan Date Marked: 7.05.2025

Essay Title: Neuroscience and Trauma

Assessment criteria & 1st Marker Comments	**Marks**
This is a fluently written and well-argued essay integrating a range of theory and exploring how you are living this out in therapeutic practice. You demonstrate a careful ethical sensibility, and are mindful of your own needs as a potentially co-regulating Other. I think you could have developed the richness of your arguments by giving some more explicit examples from practice, which you tend to talk about in more general terms. **A very thoughtful, coherent and comprehensive essay however – well done!**	
1.Organisation and Planning There needs to be a structured plan for the work with an introduction, development and conclusion. The work should address the essay title. Very well-structured and focussed throughout, with a clear narrative thread between the various sections and paragraphs.	9/10
2. Argument and Application to Practice Own ideas will be developed and others included and referenced to show application of theory to practice and self-awareness. Where relevant, indicate further ways in which the themes could be developed. You reflect very well on how both Polyvagal theory and Trauma theory (Rothschild in particular) inform your therapeutic practice. This is well understood both in relation to clients and to yourself. I am impressed at how you have resourced yourself to stay present to distress and dysregulation in the therapy room by engaging in other training such as the retreat. I would have liked some more specific examples from your client work to ground some of your more valuable, but rather general accounts. How did your psychoeducational interventions land with your clients, for instance?	21/30
3. Theory and Analysis Theory must be used to support the essay title. It must be critically evaluated and clearly linked to specific areas of application including self-awareness and own process. Theory is very well articulated and you maintain a critical eye whilst demonstrating clearly how you find it useful. You make well thought through links to other bodies of theory and practice e.g. Mindfulness. Theory is well demonstrated in your understanding of your own process and in your client work, although, as above, I would like to have seen some more alive and immediate examples from your practice to 'show' rather than 'tell' the Reader how you work.	22/30
4. Ethical and Anti-oppressive Practice Discussion of Ethical and Anti-oppressive practice and an understanding of the impact of intersectionality must be integral to the written work, reflecting the significance of such practice within psychotherapy. Reference can be made to ethical dilemmas, boundary negotiations, legal matters, personal transferential phenomena and any other issues related to power dynamics. You maintain a considered ethical perspective throughout the essay, being alert to the risks of re-triggering trauma, and discussing how you handle dysregulated clients in the therapy room, well related to your understanding of Polyvagal theory. You are aware of what can be	11/15

n=managed in short term work and the boundaries and limitations of this. You also recognise the importance of your own emotional safety – both for yourself and in order to be a co-regulating Other. You demonstrate careful handling of your own Intersectionality being mindful that this may be experienced as a trauma trigger for some. You could also have considered the cultural dimension to trauma – in terms of the oppression of marginalised groups and the significance of inter-generational trauma.	
5. Research and Referencing All work will be referenced and include a full bibliography. Harvard referencing system to be used throughout. Reference can be made to books, articles, journals and web links. Accurately referenced – just one or two terms need an explanation and reference on first introduction – and a very good bibliography.	9/10
6. Style and Presentation Assignments are to be typed and double spaced with pages numbered and named. Front sheets must be included. Marking will take into account spelling, grammar and adherence to word limit (+/- 10%) unless special dispensation has been agreed. Very well written and correctly presented.	5/ 5
Total **Grade**	**77%** **MERIT**

0 – 39% = fail, 40% - 49% = REFER; 50% - 59% = PASS; 60% - 79% = MERIT; 80 % + = DISTINCTION

2nd Marker Comments: General Comments required if grade agreed.

I agree first markers comments and grade. This is an excellent assignment which demonstrate your understanding of neuroscience. I really appreciate seeing how you support you training with additional supportive workshops. An area that needs more work is relation to you supporting your discussion you could do this by utilising examples from your own clinical practice. Well done

Grade agreed Between Both Markers? **YES**

If NO, the 2 markers will discuss and may alter the mark to agree.

If the markers do not agree then the second marker will grade the essay and average grade will be given.

Average Grade if required	77

See Handbook section 3, Policy 15 if you wish to appeal this.

1st Marker Signature : **Date: 7.05.2025**

2nd Marker Signature: Marian Crowley **Date:10/5/25**

Please use this document to write your essay. Start on the next page.

‘An understanding and awareness of neuroscience and polyvagal theory helps me to understand myself in relation to others better’. Discuss this statement, linking it to the theory and practice of your modality. This essay must also include a discussion of how your approach to trauma work has been influenced by this theory.’

Word limit 3000 +/- 10%

Introduction

Psychotherapy, derived from the Greek roots *psyche* (soul) and *therapeia* (healing), originally implied the healing of the soul[1]. Yet, in the absence of an objective science of the soul, psychotherapy has historically shifted its attention toward the physical body, especially the brain and nervous system. This mind–body dualism has long shaped therapeutic discourse, dating back to Freud's early attempt to reconcile neuroscience with psychological theory in his unfinished *Project for a Scientific Psychology* (Freud, 1895/1950). Freud's project aimed to ground mental processes in neurological structures, but the limitations of contemporary neuroscience at the time led him to pursue a symbolic and interpretive model instead.

Despite this turn toward the unconscious and the symbolic, interest in the biological basis of human emotion and behaviour has persisted. With the rise of modern neuroscience, there is a renewed attempt to integrate physiological and psychological perspectives. This includes the study of neuroplasticity, brain–body feedback systems, and more recently, the autonomic nervous system. Works such as Pert & Chopra (1999) on the endocrine system, and of Porges (1995) on the vagus nerve, and the work of Siegel (2010) on interpersonal neurobiology foregrounds the idea that the body plays a central role in emotion regulation and relational engagement.

Polyvagal Theory, first articulated by Porges and later brought into clinical practice by Deb Dana (D. A. Dana & Porges, 2018), provides a contemporary framework for understanding how our nervous systems respond to safety and threat. It also invites therapists to consider their own physiology as part of the therapeutic process. In this essay, I explore how an understanding of neuroscience and Polyvagal Theory has helped me understand myself in

[1] My use of Greek is based on Koine Greek, other Greek variants may have a different understanding

relation to others more clearly. I draw on my clinical practice, especially trauma work, to show how these theories inform my relational modality and the ethical decisions I make in therapy. Excellent introduction, locating contemporary Neuroscience and Psychotherapy within an historical and philosophical framework.

Understanding Neuroscience: From Fixed to Flexible

In the early twentieth century, neuroscience assumed the brain was largely fixed after childhood (e.g. Ramón y Cajal (1913), Lenneberg (1967, p. 158). The concept of neuroplasticity, the brain's ability to physically change, demonstrates that the brain can continue to change and grow in response to experience Siegel (2010), Draganski et al. (2004). The mechanism of this change was demonstrated by Bliss & Lømo (1973). This has critical implications for psychotherapy. For, if the brain were immutable, our therapeutic efforts would be futile. Instead, the brain's ability to rewire through experience validates the foundational assumptions of relational psychotherapy—that healing relationships can foster growth.

Cases such as the Romanian orphans, who showed profound developmental delays due to neglect, but later improved with nurturing environments, highlight this principle (Sonuga-Barke et al., 2017). Deficits early in life do not mean abilities cannot be developed later; they simply indicate that development may be more difficult. This reinforces the need for a hopeful and compassionate stance in therapy. Good point

Despite advances in neuroimaging, a direct mapping of behaviours to specific brain regions remains elusive. The study of parrot cognition in Gutiérrez-Ibáñez, Iwaniuk, & Wylie (2018) reveals that similar cognitive functions can evolve in different species using different neural architectures. Similarly, synaesthesia and creativity, discussed by Ramachandran in the Reith Lectures (Ramachandran, 2003, lecture 4), illustrate the complexity of individual neuro-development. Neuroscience, then, offers insights but also reminds us to hold our theories lightly. In my practice, this caution translates into using neuroscience as an

explanatory framework, not a prescriptive tool. For instance, a client presents with a diagnosis of ADHD - that does not give me a prescriptive way to work with them, but my knowledge of working with people with similar diagnoses does give hints as to what may and may not be helpful. Ultimately, I have to ask the client, 'Is this helpful?' rather than making assumptions about what they need. Some very good points here.

There is a common assumption that human memory is fixed and immutable, like a book. More recent understandings show that unlike a book or a digital computer that retrieves data without altering it, human memory is rewritten each time it is recalled Siegel (2010); Bliss & Lømo (1973). During trauma, if the amygdala is activated and the hippocampus is impaired can you briefly explain these terms and this process? memories are encoded without context and time, leading to intrusive re-experiencing. This model of memory gives clients an accessible and hopeful explanation of why their past feels so present in the 'here and now'—and how that can change. I have found this to be helpful in working with clients whose abuse happened four or five decades earlier–leading to a reduction in distress. I will delve into this further when I get to trauma work.

Polyvagal Theory and the Relational Nervous System

Polyvagal Theory (PVT), first proposed by Stephen Porges (1995) and translated into therapeutic practice by Deb Dana (D. A. Dana & Porges, 2018), provides a framework for understanding autonomic states. The vagus nerve, which connects the brain to various organs, operates in three modes: ventral vagal (rest and digest/safety and connection), sympathetic (fight or flight), and dorsal vagal (freeze, flop, appease…). These states deeply influence how we relate to others.

Understanding these states has helped me notice when I, or my clients, are dysregulated. I now see how autonomic states affect the therapeutic relationship. For instance, when I feel anxious or triggered, my voice tightens, and I become less attuned. By regulating myself—through breath, posture, or tone—I can co-create safety.

At a 2-day workshop with D. Dana (2024), I learned to track my own nervous system and attune to the state of the client's. This is not merely intellectual knowledge; it is an embodied awareness. Dana's emphasis on the nervous system as a relational organ resonates with my relational modality. It supports the idea that therapy is not just talking—it's a nervous system-to-nervous system encounter. This corresponds to the psychotherapeutic concept of intersubjectivity; the field within the session is not just two individuals but the communication between the many organs of their nervous systems. In the workshop the work we covered was based on Dana's own work, but had many parallels with Levine, Porges, & Phillips (2015). Seeing the theory put into practice by the originator of the work was very special.

I imagine so!

PVT gives me insight into non-verbal communication. Facial expressions, body posture, and body movements (e.g. a foot that appears to tap when the client is stressing a point) all communicate safety, danger or other states of the client's nervous system. (Although I cannot help but draw parallels with the 'noticing' practice of Gestalt therapy, Perls, Hefferline, & Goodman (1951/1972).) Helping clients understand how their body picks up on these cues—often below the level of awareness—can shift the way they interpret interactions. Polyvagal Theory, in this way, becomes a language for understanding both self and other in relationship. For instance, I have talked a client through the various PVT states. I have then asked them to notice, during the session, which state they understand themselves to be in. I make enquiry about what triggered this state, what sensations are they feeling. In this way, the client becomes more attuned to the state of their nervous system. They do not need to understand the workings of individual organs of the nervous system, but become aware of the emergent properties of the organs working in concert. The client also becomes more aware of situations that are likely to trigger a particular state. This is not to avoid one state in favour of another, but to help the client notice what may draw them into a particular state (Levine et al., 2015, p. 38). Similarly, during a session I may find myself drawn to different states. In working with trauma it is important that I can navigate

back to the ventral vagal state - this can help as an anchor for the client who may feel stuck in a sympathetic or dorsal vagal state as they contact trauma memories. Some good points here which would be lent greater weight if you could give some actual content to your examples which are a little general.

There are criticisms of Polyvagal Theory, for example Grossman & Taylor (2007), which suggests that the explanations of PVT are not entirely correct. The question for me is, are the explanations 'good enough' for me as a therapist and my clients? In view of the results I see, which are not scientific, I would suggest that PVT is good enough. The other aspect of this argument is that PVT lends itself to a simple, understandable narrative. To my mind, this is more important in the therapeutic space than an entirely accurate, abstract explanation that the client cannot relate to. This would agree with the sentiments in Levine et al. (2015, p. 22). Valuable point, I think. It is a model and can be considered in terms of its usefulness, whether or not it is entirely scientifically accurate.

Trauma, Memory and Narrative: Implications for Practice

My understanding of trauma has shifted through the lens of Polyvagal Theory and neuroscience. Rothschild (2000); (2011) explains that trauma memories are encoded differently, often bypassing the hippocampus and remaining "timeless." When the amygdala is highly activated, memories cannot be integrated into a coherent narrative. This leaves them in a state when they are recalled so that they feel 'in the here and now', rather than belonging to history. I might use a narrative with a client like this: 'During the laying down of a normal memory, the memory is processed by a librarian called a 'hippocampus'. Like a good librarian, it carefully puts the memory on a shelf and records when the memory was acquired. During a traumatic event the brain's 'alarm system', the amygdala, kicks the librarian off-line. Instead of being carefully indexed, the memory is just thrown on the floor and the brain doesn't know how to properly deal with it. There is no time-code, so when you recall the memory it feels like you are re-living it in the 'here and now'. However, all is not

lost. When a book is read, the contents of the book remain the same. Human conscious recall seems to work in such a way that as it is read it is erased from the 'book'/memory bank to short-term/working memory. After being recalled the memory has to be re-written back to the 'book'/memory bank if it is ever to be accessed again. This gives an opportunity: during the laying down of a traumatic memory the 'alarm-state' of the amygdala effectively took the hippocampus 'off-line'. The recalling of a memory allows for the re-laying of the memory with the aid of the hippocampus, so that it is laid down like a 'normal' memory rather than a trauma memory. Key to this is ensuring that the amygdala is not in an 'alarm-state' (i.e. dorsal vagal or sympathetic) but in a ventral vagal state, thus allowing the hippocampus to apply a 'time-code' to the memory. Future recall of the memory is still possible, but the traumatic nature of the memory - feeling that it is in the 'here and now' - is reduced or eliminated.' While my work on trauma is based on Rothschild, I find that my understanding of PVT gives me more fine-grained information about the state of the client's and my amygdalas and helps me judge whether I am likely to be taking the client into a place of re-traumatisation, or bring myself into danger of vicarious trauma. One of my biggest learning points in working with trauma is that the therapy room has to be not only a safe place for the client, but also for the therapist. I consider myself to have a pretty high resistance to disgust, having worked in both operating theatres and a mortuary, but that is no reason to put myself in harm's way! Useful analogy and well-discussed passage. I wonder how your clients respond to this explanation of their experience. Again, this paragraph would be more grounded if related to some specific, rather than general client work.

In practice, this means I focus on stabilisation before encouraging trauma narratives. I start by ensuring that clients are fully aware of the 'here and now'. This can be enhanced with various "here and now" activities (e.g. name 5 things you can see) or activities focusing on the breath. Clients may want to "get it all out," believing catharsis will help. But 'reliving' a trauma memory, rather than the normal process of recalling a 'normal' memory, can put the

amygdala into an ‘alarm-state’ and re-traumatise, particularly if the nervous system is dysregulated. Important point. Can you reference these techniques?

When talking with clients about neurological process, psychoeducation, I tend to use simple metaphors. For instance I will talk about the hippocampus (Greek for ‘seahorse’) as a “seahorse librarian” and the amygdala (Greek for ‘almond’) as an “almond-shaped alarm”—can help clients understand their reactions without shame. The words with strong visual associations, rather than the abstract scientific terms, give the clients helpful mnemonics for talking about what is going on in them. Again, can you say something about how these terms and explanations have been received by your clients?

I find that talking about the physiology of the nervous system is particularly important with male survivors of sexual abuse. Some may experience physiological responses—erection or ejaculation—during abuse, leading to profound shame. Understanding that these are autonomic responses, not signs of consent or pleasure, is often liberating from shame and guilt. Polyvagal Theory also gives clients an alternative explanation for their freeze (tonic immobility) or appease responses . For instance, when a client says, “I didn’t fight back—I must have wanted it,” I can explain the dorsal vagal response as the body’s automatic strategy to survive an overwhelming event. This narrative can shift self-blame to self-compassion. It’s not simply psychoeducation; it’s a relational intervention grounded in attunement. Very good point Another aspect of the physiological response is that the victim may question their sexuality: “I was turned on, does that mean that I am gay?” My own identity as a gay man complicates this terrain. While I know male-on-male abuse is not about sexuality (Jenny, Roesler, & Poyer, 1994), I am cautious about disclosing this aspect of my identity. Ethical practice requires that self-disclosure only occurs when it serves the client’s needs (*UKCP Code of Ethics and Professional Practice*, 2019). I do not want clients to associate me with their abuser or be distracted by issues of sexuality. (Yet, I hope to be open to discussions of sexuality when this is in the service of the client.) This caution is not unfounded. Institutional conflations of homosexuality and paedophilia—such as the Vatican’s

restrictions on the ordination of gay men (Congregation for Catholic Education, 2005) or outdated psychiatric classifications (American Psychiatric Association (1968); World Health Organization (2022))—have left cultural residues. I must navigate these carefully to avoid activating the client's alarm system and potentially preventing the therapy from working.

Important and carefully, ethically considered.

Stabilisation and Short-Term Therapy

My current placement at New Pathways offers short-term therapy (usually 12 sessions), with a focus on stabilisation. This work requires me to prioritise regulation and grounding over deep trauma processing. Tools from D. Dana (2024), Rothschild (2000), and others have proven invaluable. Key to this is also appropriate supervision when I can consult with someone with far greater experience.

Some clients have come to me with breathing techniques that require holding the breath both when fully exhaled and fully inhaled. Discussions with clients suggest that they can find the 'holds' anxiety provoking. I explain that the root of the word anxiety comes from 'holding ones breath'. In PVT terms, I think it is reminiscent of tonic immobility in the dorsal vagal state. I teach breathing techniques such as 5/3 breathing—inhale for 3, exhale for 5—with no hold, which is gentler for clients with anxiety. According to PVT the in-breath stimulates the sympathetic nervous system (speeding the heart-rate) and the out-breath stimulates the ventral vagal state (slowing the heart-rate). The net result being an emphasis on the ventral vagal state, helping the client to get to 'rest and digest'. Aware that PVT emphases 'two nervous systems in communication', I also deliberately slow my own breathing and speech to model regulation. This subtle co-regulation supports the client's nervous system. Good, can you also mention something about how this somewhat didactic intervention impacts the therapeutic relationship and may be experienced by the client?

When clients begin disclosing traumatic histories, I prepare them for the possibility of being "stopped." I explain that this is not because I cannot handle the content, but because I want

to help them stay within their window of tolerance (Siegel, 2010). I also affirm their right to pause or stop at any time, ensuring that this does not suggest they could have stopped their abuser. This nuance is critical in preventing the client from shaming themselves. Very good point.

A recent client experienced intense flashbacks related to long-term abuse. I introduced a version of Justin Havens' dream completion technique (Havens, 2019). This links the neuroscience of how trauma memories are laid down with a creative way of creating our own endings to the dreams. In this way the client offers their brain constructed endings to the dream that the brain can use to time-code and complete the memories. We co-created vivid, alternative endings to the flashbacks. Initially, the client found this scary. Within a week, they were able to bring the flashbacks to quicker conclusions, with less intensity. Just as importantly, they reported a renewed sense of control. Good specific example

When time is limited, the goal becomes helping clients find tools they can take with them. Psychoeducation, grounding, boundary-setting, and nervous system literacy become essential. These strategies empower clients to continue healing after therapy ends. The contract within New Pathways forbids the clinician from working with the client in the future, so much of the therapy is offering the client a taster of what a more long-term therapy could offer and giving them pointers and resources to use. Good, ethical and boundaried awareness.

Embodied Presence and Mindful Practice

From what has preceded, I hope it has become clear that the therapist's ability to self-regulate is at the heart of working with PVT. For me, mindfulness plays a central role in my self-regulation. I have attended several MBSR courses (Kabat-Zinn, 2003, 2013), which emphasise awareness of sensation, thought, and emotion. These have helped me cultivate "choice-full awareness"—the ability to notice reactivity and choose a response. They have

also helped me to notice what is ‘in the room’ for me, the client and in the intersubjective space.

More recently, I attended a 10-day silent Vipassana retreat (Hart, 1987/2011). Unlike MBSR, Vipassana discourages engagement with thoughts or emotions, focusing solely on bodily sensation. This discipline has deepened my capacity to sit with discomfort, an important skill in the therapy room. During a recent psychotherapy residential exploring climate crisis, I experienced overwhelming despair. Using a metaphor, I imagined my awareness as a stylus on a record. I could choose how much pressure to apply—or lift the stylus entirely and thereby choose how much this sensation affected me. This helped me realise the despair was not mine alone but part of a collective feeling. I was able to observe without becoming confluent. This distinction between empathy and over-identification is essential in trauma work. very important point. Blair (2005) outlines different neural systems for cognitive, emotional, and motor empathy. For me, both practices are about learning resonate without confluence, in other words, empathise. Neuroscience affirms that empathy is not just a feeling—it is a physiological process that can be developed and refined. Some excellent points here and you are clearly being pro-active in finding additional training to resource yourself in this work

Conclusion

I hope that I have demonstrated that my understanding of neuroscience underpins both my work with trauma and, more fundamentally, my understanding of the neurological underpinnings of the therapeutic relationship. Dana (D. A. Dana & Porges, 2018) reminds us that the therapist’s own nervous system is a regulatory instrument. The more grounded and present I am, the more likely the client is to feel safe enough to explore. Ultimately, my ability to be fully “with” the client remains my most powerful tool. At the same time, understanding what is going on for me is my most powerful tool for personal psychological safety.

Understanding neuroscience and Polyvagal Theory has helped me understand myself in relation to others—not just intellectually, but physiologically. I now recognise how my autonomic state shapes my capacity to relate, and how I can use my own regulation to support clients. These insights have transformed my trauma work, especially in short-term therapy, where stabilisation is the priority.

Neither neuroscience nor Polyvagal Theory replaces the therapeutic relationship. They are tools that underly the human presence of the therapist, the empathic attunement, and the co-created safety that fosters healing. These tools can enhance the therapist's understanding of the two nervous systems in communication (D. Dana, 2024). In that sense, the science supports the soul. Through this integration, I am more able to meet my clients where they are and offer them hope, compassion, and the possibility of change.

Excellent conclusion, really beautifully expressed.

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