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Essay

Embodied CLA: The Role of Polyvagal Theory in Futures Methodology – A Conversation with Sohail Inayatullah and Debra Em Wilson

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Abstract

This essay/interview explores the connections between Polyvagal Theory and CLA through a conversation between educator Debra Em Wilson and futurist Sohail Inayatullah. The interaction suggests that CLA, especially when used for individual narrative change, can become embodied and help create regulated nervous systems.

Keywords

Causal Layered Analysis, Polyvagal Theory, autonomic nervous system, preferred future, collaboration, mindsets

Introduction

Completing a doctoral dissertation becomes a milestone for the researcher. Years spent focusing on the research topic yields a 300-page dissertation that inevitably sits on a bookshelf collecting dust. What happens when the researcher continues to evolve, blows the dust of the dissertation, and views the conclusions through a fresh, new lens?

Wilson's doctoral thesis, utilizing Causal Layered Analysis (CLA), uncovered attributes of successful collaboration between occupational therapists and general education teachers working together in USA classrooms (Wilson, 2015). Since dissertation completion, Wilson continues to use CLA as an integral part of staff development trainings. In addition, Wilson has authored two books on Polyvagal Theory (PVT) in the classroom (Wilson, 2023; Wilson, in press). Within these books, the author introduces CLA as a process for understanding the bidirectional link between the mind and the autonomic nervous system (ANS).

In this article, Sohail Inayatullah and Debra Em Wilson discuss, for the first time, the concept of viewing the CLA process as an embodied experience for participants in workshops, students in classrooms, and educational staff collaborating with one another.

Revisiting Wilson's dissertation and viewing the layered responses of research participants through a polyvagal lens brings new insights to the study results. These insights are shared in the conclusion of this article.

Overview of Polyvagal Theory

Dr. Stephen Porges, a professor of psychiatry, developed the Polyvagal Theory and presented his first paper to the Society for Psychophysiological Research in the mid 90s. His complex, scientific theory became translated for practitioners by Deb Dana, a licensed clinical social worker. Dana applied key principles during sessions with her clients. Witnessing improved clinical outcomes, especially for those who experienced trauma, Dana continued to

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develop the language and tools to make PVT accessible to clinicians and their clients (Dana, 2018; Dana, 2021). Through Porges' research and Dana's translation, we come to a new understanding of the autonomic nervous system.

The sympathetic and parasympathetic nervous systems comprise the autonomic nervous system. The phrase "fight-flight-freeze" is commonly used in everyday conversations when describing someone's sympathetic response to a threatening situation. After the threat is passed, the perception is that the parasympathetic nervous system returns the body back to homeostasis—even keel if you will. The parasympathetic nervous system is often thought of as producing a state of rest and digestion.

Polyvagal Theory updates this model by explaining the autonomic nervous system differently than it's been taught for centuries. The name *Polyvagal Theory* comes from *poly*, the ancient Greek meaning for more than one or many and *vagal* roughly translating in Latin to mean "wandering." The vagus nerve with its sympathetic and parasympathetic branches wanders throughout the body and is the longest nerve in the body—connecting to the brain, face, and organs in the body. The vagus nerve makes up most of the parasympathetic nervous system with 80% of its nerve fibers receiving sensory information (Dana, 2018). These two parasympathetic pathways are responsible for different responses in the body.

- The ventral vagus pathway sends messages of safety to the brain making it possible to connect and engage with others. The ventral vagal state is one of safety and connection.
- The dorsal vagus pathway is responsible for shutting down our systems when the threat of danger is too great to fight or flee. In the case that the sympathetic fight-or-flight response failed to get us out of danger, the dorsal vagal shutdown response is initiated to keep us safe.

Viewing nervous system responses through a polyvagal lens of safety is an effective way to understand the nervous system and its subconscious monitoring of cues of safety and danger through *neuroception*, a term Porges' coined to explain the importance of feeling safe.

The ANS includes three main states—ventral vagal, sympathetic, and dorsal vagal. The responses within the three states are hierarchal, meaning that we move in and out of states in a predictable manner (Dana, 2018). When feelings of safety are not maintained in ventral vagal and signals of danger begin to enter the system through the process of neuroception, this may trigger a sympathetic fight-or-flight response (Porges, 2017). If a sympathetic response doesn't reduce the cues of danger, and the situation feels life-threatening or extremely dangerous (emotionally or physically), this sense of impending danger may cause the ANS to activate a dorsal vagal response of collapse, disconnection, or shutdown altogether.

Table 1: The Three States of the Autonomic Nervous System (Porges, 2017)

Ventral Vagal	A state of safety, connection, social engagement system online
Sympathetic	A protective fight-or-flight response
Dorsal Vagal	A protective response of freeze, collapse, disconnect, shutdown

In the ventral vagal state, there is a felt sense of safety and connection within the group and between one another in relationships. The social engagement system including the tone of voice, gestures, body language, eye gaze, and smile are registered by others as a cue of safety (Dana, 2018). The ability to communicate, discuss challenges, and consider alternative futures is possible in the ventral vagal state. Together we can imagine, design, and build preferred futures. The essence of collaboration, cooperation, and "we" is available.

In a sympathetic state, the nervous system registers signals of danger and elicits a response of protection—fight or flight. Stress chemicals flood the system and the bidirectional loop between the mind and body merges to send the message, "I am not safe here!" In this state of protection, we decide to stay and fight (verbally or physically) or leave the situation altogether. This state is one of mobilization and energy. In a sympathetic state, the main concern is getting out of danger and feeling safer. In this state, there is disconnection and limited capacity for collaboration or cooperation. In this myopic state of self-preservation, "I" takes precedence over "we."

If a sympathetic response does not increase feelings of safety, a dorsal vagal response may be required for protection and to feel safe. In the dorsal vagal state, there is immobilization and low energy. The mind-body system feels safest disconnecting completely by being alone and isolating from others. In this protective state the world is not welcoming and there is a sense of limited or no support from others. These feelings may be expressed as apathy,

giving up, or thinking that nothing will ever change so why bother. One cannot see an alternative or preferred future while in a dorsal vagal state.

Table 2: The ANS States, Worldviews, and Associated Emotions

ANS State	Worldview	Associated Emotions
Ventral Vagal	Supported, connected to others, options, capacity to handle daily challenges	Confident, eager, engaged, safe to take risks, hopeful, compassionate
Sympathetic	Unsupported, people are my enemies, the world is threatening	Frustrated, irritated, fearful, anxious, angry, worried, stressed
Dorsal Vagal	Invisible, lonely, nothing I do matters, the world is unwelcoming and scary	Helpless, hopeless, shutdown, ashamed, foggy, disengaged, low energy

The mind creates stories to align with nervous system states. Using CLA provides a way to explain the bidirectional link between the ANS and the mind—deepening our understanding of how myths, metaphors, and stories shift with ANS states.

Overview of CLA

Causal Layered Analysis or CLA was invented in the late 1980s (Inayatullah, Mercer, Milojević, Sweeney, 2022). It serves as a way to map reality as well as to transform our views of external and inner realities. We quote extensively from earlier work on CLA (Inayatullah, 2017, p. 3).

Causal layered analysis consists of four levels: the litany, social/systemic causes, discourse/worldview, and myth/metaphor. The first level is the litany— the official unquestioned future. The second level is the social, technological, economic, environmental, and political causation level—the systemic perspective. At this second level, the data of the litany is explained, questioned, mapped, and analyzed. The third level is the discourse/worldview level. Deeper, unconsciously held ideological and discursive assumptions are unpacked at this level. As well, how different stakeholders construct the litany and system is explored. The fourth level is the myth/metaphor—the unconscious emotive dimensions of the issue.

The user's challenge is to conduct research and praxis that move up and down these layers of analysis to ensure that different ways of knowing are included. Different perspectives (including those of stakeholders, ideologies, and epistemes) are in particular brought in the third and fourth levels—at the levels of worldview and myth. This allows for breadth. These differences are then used to reconstruct the more visible levels, social policy, and litany. Thus, in the transformed future, the system that supports and the litanies that quantitatively measure the new reality are transformed.

CLA as well can be applied not just to the external world but to the inner world of meanings—the litany of self-representation, the system of identities, the discourses of the architecture of the mind, and foundational myths and metaphors that define the construction of identity—of being and becoming. CLA explores current stories that we tell ourselves and seeks to create new narratives for individuals that more effectively represent their desired futures.

CLA is used to understand the present and explore alternative futures. It is unique in that the alternatives are framed at the four different levels—how we measure reality, the systems that underlie our litanies, the deep cultures and worldviews, and the underlying myths and metaphors. CLA, used well, also assists in the practitioner of social change being aware of their own narrative biases. They enter the room aware of their story and aware that the room already has multiple worldviews circulating. CLA is about inner and outer transformation. It focuses on creating new stories that are linked to new behavioral changes and accompanying measurements of the preferred new reality. This is done so as to ensure "culture does not eat strategy for breakfast" (Inayatullah, 2016).

This conversation between Sohail and Debra focuses on understanding the confluence of Polyvagal Theory and CLA. What role does the autonomic nervous system play in our capacity to adopt hopeful metaphors and embody preferred or alternative futures?

Preferred Futures, ANS States, and Evolving Mindsets

DW: In your futures work, you talk about alternative or preferred futures. You refer to used futures and ask us if we want to keep with the used future, or do we want the better, alternative future? What I've learned through my research on Polyvagal Theory is that we can't see alternative or preferred futures unless we're in a ventral vagal state.

SI: Understanding Polyvagal Theory and the language you use, ventral is the kind of blissed out, many choices phase, right?

DW: In a ventral vagal state, we aren't having bodily responses to a threat of danger. The ventral vagus branch of the parasympathetic nervous system is sending signals of safety to the brain. Everything may not be blissful, but we're in a good enough place that we can handle what is coming our way and see alternatives. We can problem solve, be compassionate towards others, and experience a general sense of well-being in the ventral vagal state.

SI: And the fight-or-flight response is called what?

DW: *Sympathetic*.

SI: Why do they call it sympathetic when it's fight or flight? That doesn't make sense.

DW: Yes, this name is confusing. Think of it another way. Your body is being sympathetic to your plight and activating a fight-or-flight response. You're not able to be sympathetic to others, that's true, however, your body is being sympathetic to your plight in hopes to get you out of the perceived threat or danger.

Sympathetic is a place of opportunity because we have a lot of energy, but it's chaotic and disorganized. If you have the regulating resources, you're able to shift your state and find your way back to ventral vagal. Sohail, your regulated nervous system and the CLA process help workshop attendees return to a ventral vagal state if they begin to exhibit signs of a sympathetic response.

SI: We have a sympathetic response and then there is another response that feels like the world is ending. Let's hide underground.

DW: Yes. If sympathetic doesn't get us out of trouble, the ANS may choose the second pathway of the parasympathetic nervous system. This is the oldest pathway and is used as a last resort to keep us safe. This state is called *dorsal vagal*. You can remember this state by thinking about shutting the door. You can hear the word "door" in the name. You're shutting the door to the world because it feels too dangerous to be in at the time. You're hiding from the world. It takes more time and gentle care to move people out of dorsal vagal. It's a very vulnerable place and in this state, the world and the people in it, don't feel safe. In this state of hopelessness, there's a sense that nothing you do matters so why bother. In this state, we give up, shutdown, and try to escape the world.

SI: What happens when you're in a state of bliss, calmness, and quiet?

DW: Bliss is a blended state of ventral vagal and dorsal vagal. You have ventral resources and you're able to be quietly still. It's called a quietly still response.

SI: When I'm giving speeches, I actually feel that. I feel totally like I'm in a state of bliss. I'm with a community. We're all flowing together.

DW: You are in a blended state where you brought in that quieting energy of dorsal, but you don't shutdown. That's a very difficult state to get into, especially if you're in front of a group of people. You understand your nervous system and how to stay regulated.

SI: It's really nice. In futures work, we want to empower people. A number of people in workshops begin to cry or say, "Oh my God, this is the first time I have been asked about my preferred future. I never knew we were allowed to have a preferred future." And then some people respond with, "there are actually alternatives?" So those two are huge jumps for many people. For others, it's not as big of a jump. We always think of alternatives, but if you're in a constricted world where there's no choices, suddenly the notion that there's choices becomes quite empowering.

DW: It's a perfect segue to schools and what I'm trying to do by integrating PVT with futures literacy. You use that

term in your book about the end of the cow and other emerging issues (Inayatullah & Milojević, 2022). I think futures literacy is missing for our students. They don't realize that they can have a preferred future or an alternative future. So how do we teach this? Everything is about growth mindset. If somebody's in a fixed mindset, is there something between that black and white duality of growth and fixed mindsets? I use the term *evolving mindset* (Wilson, 2023). When students have an evolving mindset. they begin to realize through CLA, that there are options and a preferred future. This helps move them from a fixed or evolving mindset into a growth mindset. "Wait, you know, I think I can learn this." All students can learn if they have the right support—the special education teacher or the occupational therapist, for example. We have to teach students to ask themselves what resources they have in their orbits that they can bring in at the systemic level to support their new preferred future vision.

SI: They feel empowered. When I try to frame this as a theory of power, phase one is, it's not fair. They have bread. I don't have bread. And then futures in that phase becomes, well, how do I create my own bread? Find my own bread. Then we go to opportunities and emerging issues analysis—how do we protect the bread we have and how do we create more bread? The next phase is: how to think about the changing world and the need for more? To start to do that then of course I need scenarios. What are the futures of bread? How do I have futures of food? How do I empower myself? Then we move to vision. Here's what it looks like where I'm satisfied and happy. Finally, they go to their supportive story. What's a new story that gets me there? For students, they're often in the lowest part in a way, right? I don't have my bread. I'm in a hierarchical system where I feel disempowered. The best students in class, get all the attention. But I'm not getting attention. That's where they go to a fight-or-fight sympathetic response or they go into dorsal vagal. Let me shut the door. This is all too much for me. Let me just escape into whatever the escape is for the moment.

DW: I call that response *quietly failing*.

SI: Ah, so that's different, so one response is shutting out and the second response is quietly failing.

DW: Right, students can elicit either response when feeling overwhelmed. The first response of dorsal vagal is where there is a lot of danger, and the student just wants to hide away from the world. If the danger is severe enough, it can also be a freeze response. The freeze response may be a pure dorsal vagal response of total shutdown, or it may be a blend of sympathetic and dorsal vagal. Students in the blended response of freeze are often described as stubborn or defiant. In actuality, the nervous system is on overload and momentarily can't decide whether to activate a fight-or-flight response or shutdown, so they freeze. This is a common response for students with sensory issues who become overloaded by sensory stimuli or students who can't keep up with the fast pace of the classroom.

Quietly failing students don't cause trouble. They may look like they're paying attention but often times they are just sitting there quietly failing. At the story level, the bidirectional loop sends the message that they don't have what it takes to succeed. They have absorbed the message of failure and accepted it. To cope, they tune out and retreat.

SI: I've seen that in organizations. I remember one workshop I ran, it was two different organizations combined by the minister. Two of the groups were fantastic. One group started out very passive, and then as we got into the futures part, they suddenly became more active.

But their activity went to what you were saying about angry, chaotic mobilized energy. I said, "So what's your story here?" They said, "Oh, we're sardines in a smoothie maker. We're a piece of dust. Every new minister dusts us away and throws us away." That was their experience—that of not being valued. Their division kept being sent to another organization. No one wanted them. When I gave them an opportunity to do futures work, everyone else said, "Okay, great. Here's a way to empower myself. Here's a way to a brighter future. This is great stuff." But this other group actually went to extreme anger. Then it was very puzzling, and I was like, wow, I don't want to be here. I looked at the CO and I just said, "I'd rather go home. This is an aggravated group. This is really not much fun for me." When we did the CLA with them, it became very clear that they were in suffering and they went from, as you say, quietly failing, to oh, is there a chance? Let me pick up my stick.

The Hierarchy of the Nervous System and Embodied CLA Experiences

DW: Deb Dana uses a ladder analogy to explain the hierarchy of the ANS (Dana, 2018). When moving down the ladder from ventral vagal into sympathetic or further down into dorsal vagal, you have to climb the rungs to get back to ventral vagal. You have to go through sympathetic. Then from sympathetic, if you have the resources available, you move back up the ladder into ventral vagal. You were their resource, so they had a ventral resource available for them. You were in ventral vagal and stayed in ventral vagal despite their sympathetic nervous system responses. You managed your nervous system. You said, "What's going on here? Let's, check into this." From there they climbed a few more rungs up the ladder, and they returned to ventral vagal with the availability of regulating resources.

What you do is create a relationship with your attendees. You become a person who sees them, who wants to understand more, and now you are in relationship, so it's supportive. Now they can move back up their ANS ladders, back into ventral, where they can see options. From the ventral vagal state, they are better able to describe and embody their preferred futures.

That's what we're trying to do in schools. Students and staff need to know what their nervous systems need when they become dysregulated. This starts with being able to name their ANS states and then know how to access interactive resources from inside themselves, outside in the environment, and between others in relationship (Dana, 2018).

SI: This actually makes a difference because it embodies CLA.

DW: I talk about embodied learning and embodied movement. What does embodied CLA mean to you, Sohail?

SI: Well, for me there are two levels. One is people can use metaphor in exclusive ways, right? To shut people out. So that's one issue, how to create more inclusive story. The second part is if there's a conflict between stories, what we've found is that you can tell a better story, but then people are still getting lost at the story level. Then we have systemic changes, legislative changes, legal changes, taxation changes, rules in the UN system, right? The global regulatory system. What I learned from you, is people are getting lost at the story level because they are in either sympathetic fight or flight or dorsal vagal shutdown. Covid has made that even worse. We're shutting down or in fight or flight and there's this disruption in the global regulatory system, from the global body. What I got from you is, okay, so do this CLA, but if in a room full of people and the resistance is at the nervous system level, then it's a different strategy. What's the resource? Is it breathing? Is it a hug? Is it moving? That's what I thought was very powerful. It explains why sometimes the better metaphor in CLA may not work because their regulatory system hasn't accepted it.

DW: Yes, it's important to notice when nervous system's shift into a fight-or-flight response or people begin to shutdown. Bringing ventral resources into the session helps. Your regulated nervous system is a good place to start.

SI: What I understand from you is there is a sharing of nervous systems, so it's collective. And then if we push forward, if we see Gaia, what Lovelock says is a global regulatory nervous system, then we see it's in crisis as well (Lovelock, 2006). This is where your language pushes it because it's embodied in the personal body, our shared body, and in the global body. This is what I think you're adding to CLA.

I have a colleague and CLA worked well with her because in the business world there's endless emails back and forth, and she's a reflective, thoughtful person. She was trying to figure out, what to do with a project that was making it hard to stay in ventral vagal. The project included endless emails and nonstop requests. I asked her, "What does it feel like at the metaphor level?" She said, "Aha. They're on a jet plane flying very quickly. I'm on a train. The train is reflective, thoughtful, step-by-step. It makes my nervous system calm." But then she said that she didn't want to be disturbed by their jet plane world. So then once she had her story, she's the train. That's okay. They can be the jet plane, but she's the train. And I said, "Well, what's the systemic strategy that keeps you in train world?" She said, "Well, I'm not going to respond to their emails every day." They can send them, but train has to be the train. And she's comfortable with being the train. If it was another colleague, that person may say, well actually, I want to enter the jet world, but that's a different process. This person was quite clear and understood she preferred the train world over the jet plane world. She was able to listen to her nervous system, feel the discomfort, create a

better metaphor, and calm her nervous system as a result. A part of CLA is figuring out what metaphor works best for you. I understand that the ANS is part of the storytelling process, providing information from the body that help us know if the metaphor is one that feels good to the nervous system.

Stories, Metaphors, and Nourishing the Nervous System

DW: We learn by stories. We learn by metaphor. McGilchrist's book (2019), *The Master and his Emissary: The Divided Brain and the Making of the Western World*, discusses in depth how we come to see the world. He wrote a 588-page book focusing on the divided brain and at the very end, the last sentence before 100 pages of research references, McGilchrist's states, "I have a high regard for metaphor. It is how we come to understand the world" (McGilchrist, 2019, p. 462). Through the application of Polyvagal Theory, when we create new metaphors, we begin to check-in with ourselves to see if that metaphor resonates with our nervous system. We can ask ourselves if the nervous system feels nourished by this new metaphor. Does it move us toward a growth mindset? A place of possibility? A place of hope and optimism?

SI: I think adding your work at the personal level is very profound. You're also going to the next level to say, okay, well that's true, but let's view the vagus nerve system as a collective nervous system. If someone is in a war situation, they're in trauma, right? If they're in trauma, storytelling will help, and it does help, but the trauma remembers the violence, the war, the terror, etcetera. How do we undo that at the collective level? That's why it's quite interesting to me. Are there collective meridians? What's the vagus nerve system at a collective level? I think those are some aspects that would be really interesting to pursue. I don't quite know how to do that, but I can see in my own life, because I've been traveling so much, you're wired and tired after. What I do when I'm wired and tired, like yesterday, I gave my keynote on the future of sports in New Zealand, so I made sure to walk an extra hour, make sure not to go to the dinner program, and made sure to get a massage. How do I calm the nervous system down? I think that's the link. Storytelling metaphors are a critical part, and I think you're adding the next ingredient to the soup. That's my take on it. I don't know if that makes sense to you, Debra.

DW: Yes, that does. When I was doing this work and doing research for the books, I found this gap in the mind and the storytelling and where does that fit in with Polyvagal Theory? The polyvagal researchers and practitioners really understand the nervous system. Dr. Porges states that there is a bidirectional link between our mind and our body (Porges, 2017). CLA explains the mind portion of the bidirectional loop. Addressing how we create our stories is often left out of articles and books focusing on PVT. I found this gap while doing my research. CLA filled the gap for me.

Embodied Metaphors and Backpacks of Ventral Resources

SI: The best pedagogy, at any level, is understanding each person's metaphor, and they're embodied experience in that moment and working with them to transform it if they want to. And the new metaphor helps us figure out what we need to do, and there's a moment of relief. Aha. Here's what I was doing before. Here's a better way. The metaphor has to be embodied. I could have a new story for myself, but if the body doesn't believe the story, then we go back to the old trauma. This is where inner body work, tapping, or massage to figure out how to get the autonomic nervous system to understand my new story.

DW: I think that's our challenge in classrooms and in what you're doing as well. We have to be able to observe nervous system states and observe when they start shifting and becoming dysregulated. Do we have the resources available to bring ourselves, our students, and our attendees back into ventral vagal? Throughout the day, we move in and out of different states. This is natural. The key is not getting stuck for too long in a defensive state of disconnection from others around you.

SI: But with your students, do you call them on it? Because for me, because they're adults, if I see someone sitting with arms crossed and cross-legged then I say, "It appears you are in a resistance mode. Can you please tell me what's going on?" And once I state that, they straightaway feel better. What I learned from you is they feel heard

and thus they can start to calm down. With your students, is that what you do? With younger people, you make them do kinetic learning to express that disconnect.

DW: I give them resources. The resources are available. The very first thing is to listen and link.

I teach the students (and staff) to listen to where they are in their nervous systems and then link to their nervous system states. Once they understand they're in fight or flight or shutdown, I guide them toward their ventral resources. We have global resources in the classroom, but we also have individual resources.

As much as possible, I want them to be what Deb Dana calls *active operators of their nervous systems* (Dana, 2018). Imagine if all students left the schooling environment and went into the world having this knowledge about their nervous systems. Think about how this information increases their capacity to maintain regulation in an ever-changing world. I want students to leave my room with a metaphorical backpack of ventral resources they can use outside my classroom—in life.

SI: That's beautiful.

DW: In my first book, we're on the ventral path and learning how to befriend our nervous systems and learning how to create polyvagal-guided classrooms (Wilson, 2023). At the end of book one, I introduce the ventral backpack and carry that theme into book 2 where teachers, support staff, and students engage in activities that create a befriending school culture. They learn how to pack their backpacks for their life's journey in and out of the school environment. The backpack essentials are going to change depending on where they are, what they're doing, and their objectives. I have different supplies in my backpack depending on where I'm going and who I'm with on the journey.

SI: That's fantastic. What do you do then in class to keep your nervous system in ventral?

DW: That's principle one of the seven principles I developed for books 1 and 2. Befriend your nervous system. I tell this story in book one (Wilson, 2023). It's the true story about having a really bad day out on the tarmac in the snow during morning duty, and I was miserable. I was up all night with my kids. They were sick, and I was tired. Every student who walked in my classroom couldn't do anything right. I was in such a foul mood. A little voice from the back of the room said, "Ms. Wilson, I think you need to do your dots and squeezes." These regulating moves are part of a calming activity I teach all my students and workshop attendees. Isn't it empowering when a student observes dysregulation in others and supports them in becoming more regulated? How often does this happen in a normal school day?

Together, students and staff know where to find regulating resources. For instance, I'm able to sit down with somebody I trust who can co-regulate with me. The thing about PVT that I love is the notion that we can loan our regulated nervous systems to others who are dysregulated. When you are working with your groups and you are able to maintain your ventral state, others are able to borrow your nervous system. You can loan them regulation until they are able to find regulation for themselves. You support them moving into a ventral vagal state because your nervous system and their nervous system are talking to each other.

SI: Eckhart Tolle has this idea of the pain body (Tolle, 2016). If I'm in pain, I really don't want a solution. I want to suck everyone into my pain body. I want to suck everyone into my disconnected nervous system, so everyone feels bad.

DW: Absolutely.

SI: Our goal, you're suggesting, is the opposite. If I go to a place where my nervous system is calm and regulated, they enter that space. It's not the pain body, it's the blissful body.

DW: Yes. We have a lot of students exhibiting fight-or-flight sympathetic responses. This is a state of mobilized energy. It's chaotic. It's mobilized. What students need is a way to organize their energy. We have to get the mobilization going in the direction of ventral vagal. This begins with our own regulated nervous system. I do rhythmic activities during academic lessons to help organize and focus the students. I do the activities *with* them to nourish *my* nervous system, as well. I'm an important part of the regulation equation for my students.

While movement organizes their bodies, I use CLA to organize their minds. I show them how to create more helpful

metaphors and scenarios. The magic happens when the bidirectional link between the mind and the nervous system become harmonious—therein lies the power to come to learning with curiosity and believing in the ability to create preferred futures.

When staff and students unpack their perceptions, worldviews, myths, and metaphors, something in the room shifts. Through the CLA process, now they've been seen, heard, and valued. From there we can begin discussing alternative futures. It's all about safety and connection. That's what nourishes the nervous system.

The Blended State of Play: The Optimal Learning Zone

SI: I've run quite a few CLA workshops with ministries, and they start out from their metaphors: the factory, the castle, or the jazz orchestra riffing off each other. One country said, 'No, it's too late for the orchestra." They said that the school system is the wrecking ball. We just have to destroy it.

DW: In your book, you said that the factory transforms into the playground where learning becomes fun (Inayatullah & Milojević, 2022). Play is a blending of ventral vagal and sympathetic states. It's mobilized energy. It's active and directed. So that is what learning should be. It should be play.

SI: What about the school principal? Because when I run this with teachers, they all want play. Students want play. The principal says, "No, keep off the grass." The principals tell me they are more comfortable being in control. Their nervous systems feel better when everything is controlled. Play is too far for them. But I'm learning from you right now is that it's not too far because they're command control factory leaders. It's too far because their nervous system feels uncomfortable in play.

DW: Think of open or closed loops. The left hemisphere is a closed loop system. The principal, superintendent, or school board feel most comfortable in the closed loop system of their left hemispheres. They want to know the stats, analyze bell-shaped curves, define objectives, and evaluate outcomes. They need to see the whole path forward toward their goals.

Play is an open loop system, and it doesn't feel safe to an administrator in charge of student safety and achievement. What I do in S'cool Moves workshops is provide the theory behind movement and its role in learning. I don't call it play. I describe play as organized movement. From birth, we learn through play and movement. This explanation feels safer to the principal because I've provided research to underpin the movement approach. The activities are specific and controlled, while providing the playful movement experience the nervous system needs to organize sympathetic mobilization and optimize learning.

SI: I understand. Then the administrators are okay with it.

DW: Yes, but just to say we need to play, well, that doesn't feel safe. I think that most teachers wouldn't feel safe either because all they see is chaos. There are times out at recess for free play where there's no objective. There's no direction. They're exploring. And then in the classroom it becomes organized play, where you've given them an objective. Even if they're trying to figure out a science experiment, it's play that's organized, and there's an objective at the end of the play.

SI: We've been in a ventral vagal state throughout this conversation. In this state, we're able to stay curious, explore possibilities, and share the concept of embodied CLA. Let's keep the conversation going.

DW: It's been a wonderful experience to meet and talk with you. CLA is an essential tool in my toolbox. With embodied CLA, we now have a process for creating transformative space for change in our educational system through the symbiotic relationship between CLA and PVT.

Fresh Insights Through a Polyvagal Lens

Returning to Wilson's dissertation and reviewing the results using a polyvagal lens, there is an opportunity to deepen our understanding of the embodied CLA concept. The research reveals that within the deepest layer of the CLA

process, participant responses emerged that aligned with a ventral vagal nervous system state. Below is a sampling of metaphors used by pairs who deemed their collaboration successful:

- two minds connecting with speech bubbles with smiles in them
- like a rollercoaster ride with all of us on the train working together with our hands up saying, "Woo-hoo!"
- sharks swimming with the pilot fish following and working together to get food
- two oxen deep in the trenches with each one pulling their share, focusing on the same agenda to be effective
- hot fudge sundae with different ingredients that when blended together tastes better than each individually
- coffee cake to go with a perfect cup of coffee
- different colored human beings holding hands
- apple cut in half and then put back together to get the whole thing.

Through a polyvagal lens, these metaphors come from pairs in a ventral vagal state where they valued sharing skillsets, supported one another, and developed deep friendships. The shift from a pull-out model to working in classrooms came about by valuing the "we" and "together" in their relationships rather than "I" and "aloneness" of sympathetic and dorsal vagal states.

Revisiting this research with an understanding of Polyvagal Theory provides a new lens to understand the role of the pairs' nervous system states in their ability to embody their metaphors and embrace a hopeful and optimistic future that positively impacted their relationships with one another and the students' success in their classrooms.

For deep change to happen, we need to move beyond a cognitive understanding of CLA to experiencing CLA as an embodied experience where the mind and the autonomic nervous system align and accept the new metaphor and preferred future from a ventral vagal state of curiosity and possibility.

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