TIE Capstone Overview – Michelle Withers

The trauma-informed concept that resonated most with me and thus became the focus of my capstone project was the Survival Brain/Learner Brain concept. This depiction powerfully synthesized so much of what's known about the impact and outcomes of trauma on our students' brains and their learning and behavior in learning environments. As a neuroscientist and educator, I appreciate how this concept beautifully married Maslow's Hierarchy of the needs we must meet to become our best, most actualized selves with our modern understanding of the physiology of stress and the stress response. The more our nervous systems are required to attend to hunger, exhaustion, pain, fear, alienation, loneliness, self-doubt, or hostility, for example, the less it can attend to growth, play, learning and creating.

For me, this depiction serves as an invaluable unifying concept that makes sense of so much of the work done on the impact of various social factors on student learning. A multitude of studies have investigated the impact of maximizing the social aspects of learning on students' learning. These studies have experimented with myriad levers or lenses for improving the social side of learning, such as belonging, trust, community, interpersonal connection, positive classroom environment, and cultural awareness, to name a few. While I'm not trying to say that there are no nuanced differences in the impacts of these different approaches, I think a significant part of their positive benefits on student learning come from the fact that they would all tend to shift students more into the learning brain space and out of the survival brain space.

When I first learned about this concept during our class, it had a similar impact on me to the first time I learned about natural selection or backward design. In all three cases, I had this epiphany moment where the clarity with which the concept made sense of other information within its domain felt like a light bulb being turned on. In all three cases, my second thought was, "how have I not always just known this." When I have these types of experiences, my immediate motivation is to share it with as many people as possible, so that they can experience the same epiphany. Therefore, as a professional developer, my capstone plan is to include this in three of my professional development endeavors. I have already included instruction on this concept in my DEI in Higher Education course for upper-level undergraduate and graduate students and my Evidence-Based Teaching Institute for current and future faculty at Binghamton University during this spring semester. Additionally, I will include instruction on this concept in the Inclusion/Equity workshop for my international pedagogy workshop, the Mobile Summer Institutes on Scientific Teaching (MoSI).

In the two instances where I have already taught the concept (and I plan to do the same for the in the MoSI pedagogy workshop), I created an activity that I added to my Inclusivity/Equity session. The activity comes at the end of the sections that focus on building a positive classroom climate and developing empathy for students. These sections were informed by approaches in

Inclusive Teaching (Dewsbury and Brame, 2019). The new activity on Learner Brain vs Survival Brain included the following elements in this order:

- A *thumb poll* asking whether participants/students perceived us as "thinking machines who feel" or "feeling machines who think". After participants responded to the poll, I asked for volunteers to share the rationale for their choices. Even participants who chose, "thinking machines who feel", acknowledged the importance of feeling. I note this here because I refer to it in the next step.
- Following the thumb poll, I shared a slide with António R. Damásio's quote, "*We are not thinking machines that feel, we are feeling machines that think*." Using this slide, I made the point, that while I don't know of any studies that prove one or the other of these claims, thinking and feeling are absolutely intertwined and it's when we, as educators, think that we should try to separate them, i.e. having "only thinking" in the classroom, that we hurt student learning. We lose out on the benefits of positive emotions like excitement, motivation, interest, joy and we are blindsided by negative emotions that interfere with student learning.
- Next, I played Dr. Jacob Ham's YouTube video, *Understanding Trauma: Learning Brain vs Survival Brain. After the video, I facilitated a whole-class discussion using the following prompts:*
    - *Based on the descriptions of student behaviors/attitudes toward learning that exemplify learner and survival brain modes, which mode do you think you (when you were a student) or your students are in more often?* (The desired outcome of this prompt is to get educators to realize that while they may think that trauma is only experienced by a small subset of their students, the behaviors/attitudes associated with survival brain are likely more common among our students.)
    - What are the benefits that you see to framing learning in this way for you as an educator and for your students?
- Following the whole-class discussion, I presented images of both Maslow's Hierarchy and the Hypothalamus-Pituitary-Adrenal Axis for the Stress Response under the heading "Unifying Concept". I briefly shared how the Survival/Learning brain concept married these two important concepts and how it helped me synthesize the findings from research on the benefits of improving the social aspects of learning on student learning (similar to my description earlier in this overview).

I was gratified in both instances by the length and richness of the discussion that resulted from this activity. The students/participants seemed to have a positive response to the concept similar to my own. I plan to further gauge the perceived impact of this activity on my end-of-class reflection with specific prompts about this activity.