Unlock the genius within; neurobiological trauma, teaching, and transformative learning

(Book Review)

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Introduction

There has been a great expansion over the last decade of neurobiology through the use of progressively more sophisticated imaging technology. With these imaging techniques clearer links are being drawn between our physical, rational, and emotional functioning and specific and/or multiple brain locales. This book surveys some of this recent research, draws together insights from the author's medical and educational experience, and outlines a foundational learning theory. Because of this breadth of scope, the book is both exciting and frustrating to read, not to mention review.

The author sets out a daunting set of goals. Specifically he states that this book is;

- an exploration of the principles underlying exceptional, effective, traumatic learning;
- a sketch of neurobiological theory that makes sense of it all;
- a description of hypothetical deductions which with attendant research should refine the theory and method; and
- the development of a framework within which basic principles of effective, non-traumatic learning may be successfully applied. (Janik, 10)

This tantalizing set of goals should attract educators interested in theoretical discussions, language teachers because of the English as a second language (ESL) context, and teachers searching for process and technique to help their classes.

Content

'Unlock the genius within' has, after the preparatory sections, ten chapters with a number of binding threads which run them. The chapters are devisable into three major groupings; supporting material, theory, and promotion.

The supporting material is in the first seven chapters. This covers discussions of the need for 'Yet another teaching theory' (a chapter title), the author's idea that 'It all begins with traumatic learning,' the significance of 'What the body tells us,' the importance of 'What machines are saying about us,' the integrative approach of 'The neurobiological way,' and the value of a neurobiological theory basis for learning that is non-traumatic, non-violational, and is direct (scientific) and founded on physical (neurobiological). The author weaves an integrated philosophical and physical net to contain his neurobiological theory of learning. This reviewer found these chapters full of intriguing details of brain functioning, insights into trauma cases from the author's medical experience, and contrarian views of traditional education. The technical jargon and the lack of clear definitions may be a hurdle for some readers. While much of the material is not new, the comments on education and the suppositions on the physicality of learning are intriguing and fascinating.

It is in this supporting group of chapters that four main threads or themes become evident. First, right from the beginning the author pleads for a return to the Socratic method of teaching or the use of a mentorship approach in learning. This method contrasts with the Platonic approach which is ideational and currently the mainstay of our schools. The author pleads that this is unfortunate for our students because while it is effective it is traumatic! The author's disdain for traditional teachers and teaching seems overly harsh and not likely to engender a second look.

Second, the author draws numerous links between the physical workings of the brain viewed through imaging technology and learning. Much of this is reported in the literature but some seem like leaps of faith. For instance, literature links myelination and the thickness of myelin with intelligence but not specifically with learning. What direct learning techniques would be most beneficial during the periodic process of myelination and/or the types of myelin present? Do these periods commence at the same time for everyone? Practical examples and some definitions would have been useful here. Another instance concerns birth. One might agree that the birth event is a traumatic experience but what is actually learned by the infant and how do we know, as the author suggests, that the thalamic gateway is active in learning at that moment? In a later chapter the author states that '…learning after birth is driven first and foremost by the raw power and form of the traumatic birth event' (p 141) but doesn't elaborate what this power and form are. Some of the difficulty here may be a result of semantics. The author does not define learning or thalamic learning or explain how one might evaluate or understand what is learned or what is occurring. As a result the reader might be at a loss as to what is actually being suggested.

Third, the main premise of the author is that understanding trauma and its significance to learning is essential if we are to break with our traditional traumatic teaching approach. The author makes it clear that traumatic events produce learning that results in triggers and associations that can be destructive to the individual. The strength with which the author calls for a change to this traditional traumatic teaching seems overdone and counterproductive. The author suggests that teachers are not sufficiently learned in the workings of the brain to make this trauma-teaching association but if they were they would cease and desist from their approach.

Fourth, the author talks about mentorship as a viable alternative to today's teaching environment. His view might be encapsulated in the desire to move from a sage-on-the-stage approach in which teachers simply dump the structured information into their students (the empty vessels they are!) to a guide-on-the-side in which the mentor lets them find their own way but is there to provide assistance when asked.

The first seven chapters can be seen as an attempt to provide background information in traumatic learning and, to promote imaging technology as a useful tool in understanding the development of the brain with its particular responses to learning situations, and to foster the author's practical, physical view of effective learning.

The second unit in this book consists of the eighth chapter, 'Neurobiological learning' and contains the kernel of the author's view. The author defines two key terms and sets out seven tenets or laws. First, neurobiological learning (NL) is at the core of the author's thesis and '…occurs in discrete steps, phases or levels, beginning with object-data and proceeding through association, symbolism, interpretation, and cognition to metacognition and possibly beyond.'(p141). Second, transformative learning (TL) is learning that is 'volitional, curiosity-based, discovery-driven, and mentor-assisted' (p144). The author maintains that 'The physical evidence speaks strongly in favor of the existence of a single unifying theory of neurobiological learning that in its application follows two pathways – traumatic and transformative learning' (p 146). We are to avoid traumatic learning with all is negative triggers and associations, and strive for TL. These are not particularly new ideas. In essence, we need to understand what learning is with NL being another tool helping us approach learning.

The author then provides a set of seven tenets which together provide the 'natural laws' of neurobiological theory and method and transformative learning. Many of these would be recognized and understood by good teachers anywhere. First, we must assist learning by demonstrating curiosity, discovery, and self-discovery and not just explaining how to learn. Second, using TL techniques creates self-sustaining success and interest in learning within the student. Third, effective learning is not localized in classrooms as schooling at home or distance learning can show and so we need to think in broader terms about learning. Fourth, effective learning results when students noticing something of interest bring it into central focus where they can discovery and reflect on it. The mentor's role is to provide a resource rich environment and the occasional guidance for the student as he or she progresses through the levels of NL as (noted above). Fifth, building upon such tools as listening, language, and visualization the use of rhythm (music) and rhythmic patterns (stages in TL and/or cycles of brain development) can promote structure and success in learning. Sixth, mentors are at the core of the

tenets. This tenet links closely with the others in emphasizing the resources richness of the learning environment and the laissez-faire approach of TL. At the same time there is a need for mentors (teachers don't seem to have this ability!) to be aware of and assist the learners to sense their feelings, be aware of their cyclic rhythms and internal time consciousness. Seventh, this last states that 'neurobiological method underlies all teaching and learning methodologies' and 'reasons, rules, meanings, sense, and truth are defined by the learner.' Here again is a call to understand brain development cycles and merge this with TL techniques to allow, as constructivism suggests, for the individual to build his or her knowledge.

This chapter is the summation of the exploring, sketching, and describing as well as the development of a framework within which to work. The two definitions and the seven tenets integrate many concepts and processes with which some traditional teachers are already familiar but the integration of neurobiological components with learning should prove new and insightful to many more.

The third and last group of chapters, chapter nine and ten, consists of the author's assessment of the success of his approach in teaching ESL at his college and an invitation to further discussion. The chapters might be called promotional because of the laudatory nature of the comments about the college and the enthusiasm being built for NL and TL training and certification through the ESL college. There is some description of the use of the author's method at the college but insufficient for any real understanding of techniques and how they might apply to other situations.

Concluding comment

The author alludes to the need for further work in solidifying the links between learning and brain imaging and in firming up his tenets. These refinements are essential to help explain how NL and the TL techniques introduced can be used by others. How might one determine the rhythmic patterns of students and once this was done determine what strategies, tactics, and data-objects might be appropriate? How this might be done for many students as opposed to those one or two mentored learners would be most useful. Resource richness is always a concern of teachers but in the case of TL mentors what resources need be in place? These are issues that the author needs to spend a great deal of time detailing. He has the odd example but much more needs doing. The author's next book which deals with the application of NL/TL to distance education needs to focus more on tactics and concrete illustrations.

The overall result of all this material in these few pages is a very choppy writing style with the focus jumping back and forth over the major themes all the while loading on more and more information some as factual material and other as supposition. There are many terms that need definition and/or concrete illustrations. The index is overly complex and not without error. There is some summary and direction at the ends of chapters but the reader would have benefited from a variety of graphics and/or summarizing lists as guides. While the information is rich the visual component is not!

There is a sense that the natural laws of NL/TL, as drawn from the author's experience of trauma cases and ESL and his outlining the links between brain activities and learning language, are universal and can be applied broadly. Is this approach tenable? The extrapolation from trauma cases with their negative learning triggers and associations through brain imaging with its views of learning and from traditional education to the application of NL/TL in ESL are fascinating and worth discussion. However, can we rely, as the author does, on these as essential links and applicable to learning in general? Is trauma in our education system as negative and pervasive as the author details? Is the work on ESL applicable to other types of learning? Are the tenets proposed within NL/TL sufficiently robust to be the basis of a learning theory that makes sense of it all?