

How Teachers Gain Wisdom from Students

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Education in the United States is a vast undertaking, and arguably the only institution that directly affects all members of our society. If media reports and anecdotal evidence are correct, this institution is currently focused on measurable outcomes (i.e., test results) to assess its success, rather than more complex evaluations of overall student development. The focus on test results, along with education's longstanding bias that teachers pass learning down to students, creates a unidirectional focus, starting with the information dispensed from teachers and ending with student scores. This emphasis means we are not able to make full use of the positive power of the bidirectional nature of the teacher-student relationship in which student and teacher can both gain neurobiological and relational benefits. GAINS Advisory Board member Lou Cozolino has a lot to offer teachers with his cogent argument for the way children and caregivers of all sorts influence the development of each other's brains.

Lou's book, *The Healthy Aging Brain* (2008), begins: "From conception to death we impact and are impacted by the biology and behavior of those around us, and depend on the scaffolding of others for our survival and sustained well being. In essence human beings are social animals and the human brain is a social organ" (p. 13).

At the outset of his second chapter he goes on to state,

The neural circuits of the social brain are referred to as *experience-dependent*, because they are shaped by the child's interaction with caretakers. These same social brain networks remain plastic (i.e., flexible) throughout life and are the very ones that adults rely upon to nurture one another, be

good caretakers, and keep their brains alive. *Because of this, when we nurture our children, we not only build their brains but we rebuild our own as well. Playing together triggers neural plasticity and neurogenesis in both brains... we need children as much as they need us.* (p. 35, italics mine)

The positive power of the teacher-student relationship on student achievement, behavior, and emotions is clear from a wealth of educational research. Jeffery Cornelius-White's (2007) meta-analysis of over 1,000 articles summarizing 119 studies dating from 1948 to 2004 on the student-teacher relationship revealed two parallel views. The first is the classic view of the relationship from psychology and Carl Rogers (1969) who stated, "Certain attitudinal qualities which exist in the personal relationship between the facilitator and the learner yield significant learning" (p. 106). Back in 1969, Rogers hinted at the possibility of bidirectionality in the relationship when he stated, "Facilitation requires at least an initial genuine trust in learners by the facilitator, followed by the creation of an acceptant and empathic climate" (p. 109). However, even with Rogers' respect for the power of empathy, he doesn't talk directly about the impact on the teacher. In all fairness, until the discoveries of the new neuroscience helped us explore the impact on both brains in relationship, it would have been difficult to fully appreciate the magnitude of the mutual impact.

The second and more contemporary view from the field of education is the "learner-centered model," which combines a concern for the teacher's relationship with the student with a focus on learning itself. It is rooted in the American Psychological Association's (1997) 14 learner-centered principles. However, these studies remain

in the unidirectional tradition of education, so the Cornelius-White meta-analysis focuses on teacher relational variables and treats student and learning variables as merely outcomes. The relational practices include teachers honoring of students' voices, adapting to individual and cultural differences, encouraging learning and thinking, and having learner-centered beliefs. In other words, what is the outcome for the student when the teacher focuses on creating a positive teacher-student relationship? Quoting the conclusions:

Overall, learner-centered teacher variables have above-average associations with positive student outcomes. ...*Positive relationships, nondirectivity [student initiated and directed activities], empathy, warmth [unconditional positive regard], and encouraging thinking and learning [as opposed to memory-focused tasks]* are the specific teacher variables that are above average compared with other educational innovations. Correlations [with student] participation, critical thinking, satisfaction, math achievement, drop out prevention, self-esteem, verbal achievement, positive motivation, social connection, IQ, grades, reduction in disruptive behavior, attendance, and perceived achievement are all above average and are presented in decreasing order. (p. 134)

Let's look again at the list of teacher variables that this meta-analysis shows have a positive impact on student learning, and briefly consider these variables to see what IPNB and *The Healthy Aging Brain* might add from a bidirectional point of view.

Positive [student-teacher] relationships: In *The Healthy Aging Brain*, Lou describes the neurobiologically beneficial impact on the brains of both people in a positive relationship (i.e., a

relationship promoting secure attachment). This impact specifically affects the strength of synaptic connections in the orbitomedial prefrontal cortex (OMPFC) and between the OMPFC and the limbic regions of both the adult and the child. In other words, teachers as much as students benefit neurobiologically from a positive relationship.

Nondirectivity [student initiated and directed activities]: While it is not feasible for school to be completely nondirective, research on the benefits of play suggests that including elements of student-led exploration may improve learning and build brains that are tuned for self-regulation, sustained curiosity, and perseverance in pursuit of a goal (Sunderland, 2007). Lou talks about how parents and grandparents know that the most brain- and relationship-building kind of play is when the child directs the activity and the adult joins the child in his or her imaginary world, be it being a guest at a

tea party, or an assistant in the construction of a Lego castle. In the spirit of bidirectionality, we also know that child-directed play improves the functioning of the OMPFC in the adult while strengthening security of attachment between the two.

Empathy: Lou notes that complex processes like empathy activate many cortical and subcortical regions, including the anterior cingulate, insula, and the OMPFC, in conjunction with the temporal and frontal systems required for cognitive and semantic processing. His point is that complex activation, such as that required for empathy, leads to the development and integration of brain systems that allow for the possibility of wisdom in the older adult. (For a heart-warming explanation of empathy by way of a story, I refer the reader to *The Healthy Aging Brain*, pages 258 - 262.)

Warmth [unconditional positive regard]: Warmth and empathy go hand in hand, and create an environment conducive to contingent communication – one key ingredient in relationships that promote secure attachment. Lou



notes that to sustain a stance of unconditional positive regard, which involves the capacity to be aware of judgments without acting on them, the individual cannot simply react rashly to the primitive drives of the limbic region, nor can he or she ignore these drives. The teacher must attend to and organize them in order to attune to and resonate with the student. This involves integration of many circuits. The temporal lobes may contribute an analysis of the perceptual and functional aspects of the situation while the networks of the social brain (OMPFC, cingulate, amygdala, insula) become activated when the teacher maintains the capacity to observe judgments and then act in compassionate way. As Lou says, "To act wisely, we have to simultaneously be aware of our own biases, inhibit impulses that would make us act rashly, and be empathic and caring toward others, all the while applying our intellectual abilities to complex situations" (p. 172). So like empathy, warmth helps the teacher develop the brain circuits that can help maintain healthy cognitive and emotional functioning as he or she ages.

Encouraging thinking and learning: While this is important at any age, it is particularly salient when the students are teenagers. Lou notes that when an adolescent meets a new attractive idea, he or she tries it on and it often feels like the final and best idea. The adolescent then defends this new idea against all challenges. In their search for absolute truths, adolescents hold themselves and others (especially teachers and parents) to high standards based on their newest and best abstract ideal. Many

will use their identification with the ideal to remain free from blame, avoid disagreements, and place responsibility on others. A teacher who maintains a positive relationship with an adolescent student understands this normal developmental process and encourages it for learning and thinking. In addition, the brains of those teaching adolescents certainly get plenty of exercise in controlling internal primitive drives (i.e., using the OMPFC to calm the amygdala).



As we stand back and look at the big picture, we can see that all these bidirectional processes build and sustain the integrative circuitry of teacher and student brains. When the relationship between these regions of the brain is well developed, we experience increases in empathy, intuition,

attuned communication, regulation of the body and emotions, morality, flexible responses, self-awareness, and a decrease in fear (Siegel, 2007). On this last point, Steve Porges (2007) teaches us that in an atmosphere that we perceive to be safe, our nervous systems allow us to connect with others and we are available for new learning. The beauty of all this is that there is benefit for everyone – one hallmark of a brain-nurturing interpersonal system. As awareness of these neurobiological truths takes root in society, the culture of education may gradually be able to change to one where teachers see themselves as mentoring the development of their students' lifelong capacity for learning and relationships, side by side with sustaining their own brain health and capacity for nurturance and wisdom.

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