

ERIC JENSEN • LIESL McCONCHIE

Brain-Based Learning

Third Edition

TEACHING THE WAY
STUDENTS REALLY LEARN



Thank you

FOR YOUR
INTEREST IN
CORWIN

Please enjoy this complimentary excerpt from *Brain-Based Learning, 3rd Edition*, by Eric Jensen and Liesl McConchie. In this chapter, the authors guide teachers through the principles that will support them in sustaining their physical, emotional, and social health so that they can be the teacher they strive to be.

LEARN MORE about this title, including Features, Table of Contents and Reviews.

CORWIN

Getting Your Brain to Work With You, Not Against You: Self-Care

11

It is no secret: Being a teacher is hard work. It can be physically exhausting, emotionally draining, and socially lonely. To make matters worse, the more stress teachers are under, the more it leads to poor student outcomes, such as lower grades and frequent behavior problems. Teachers who are highly stressed have higher rates of sickness, absenteeism, and accelerated signals of aging. All of these difficulties and their consequences can create a vicious circle, and at times you may be tempted to throw in the towel. We've all known teachers who say: "I can't do this any longer. I am out of here at the end of this year."

But it doesn't have to be that way. The work you are doing every day is too meaningful for it to be dragging you down. You have a lot more say in shaping your daily experiences than you think you do. Teaching can be a profession that is invigorating, soul-filling, and full of meaningful connections.

In this chapter, we'll be focusing on some things you can do to make a big difference to your learners. We're not talking about field trips. We're not talking about instruction-related preparations, lesson planning, or research. There are plenty of resources you can turn to for guidance and fresh ideas in these respects. We mean to focus instead

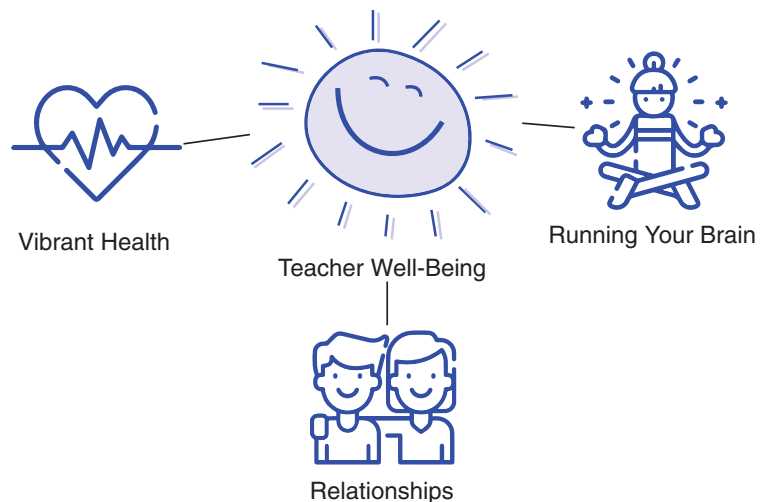
on your underlying ability to keep up with the demands and the frantic pace of teaching, which all comes down to the habits you form in caring for your brain and your body. Everything you do impacts your brain and its ability to function at its best. In fact, to help you shift your mindset from how you conduct your class to how you can transform your personal life, we've renamed some of the advice sections "Out of the Classroom." We still emphasize one or two classroom elements of a brain-based approach, such as your relationships with your students.

This chapter guides you through the principles that will support you in sustaining your physical, emotional, and social health so that you can be the teacher you strive to be. In order to *give* your best to your students, you must *be* at your best. To be at your best, consider focusing on these three areas of your general well-being:

1. Vibrant health
2. Running your own brain (self-regulation)
3. Relationships

Rather than give you a long "to-do" list it makes more sense to focus on the fewest things that matter most. This illustration highlights the big three items.

11.1 Get Your Brain on Your Side



Vibrant Health (Physical Well-Being)

You may be a teacher for the next 20 years, or you may not. Perhaps you'll go on to become an administrator or an author. Whatever you choose to do, few things are as important in this life as your physical health. If you're not doing well yourself, how can you hope to do anything well?

Nutrition

What does your diet have to do with your brain, or how you show up as a teacher? Everything! Simply put, your body and brain are inexplicably connected. What you put in your body affects your brain function. What you do to your brain affects your body.

The “gut-brain axis” is a term used to describe the two-way communication between the gut and the brain (Chianese et al., 2018). In fact, many researchers now refer to one's gut biome as the “second brain.” Your gut bacteria stimulate the neurons of your enteric nervous system to communicate directly to your brain. This constant communication, driven by your diet, influences memory, mood, and cognition (Galland, 2014).

To be at your best physically, fuel your body with foods that will boost your energy, mood, and overall health. The general guideline for optimal brain and body nutrition is to consume more natural foods (fruits, vegetables, healthy fats and whole grains) and fewer high-sugar, high-carb processed foods (white breads, candy, soda, chips, alcohol, etc.) (Beilharz, Maniam, & Morris, 2015).

Keep consuming foods rich in natural fats, such as avocado and nuts, while cutting back on foods high in trans fats, such as those that are fried. This type of diet may will increase neurogenesis—the production of new brain cells—and reduce chronic inflammation, a health problem that is connected to all chronic diseases (Netea et al., 2017).

Your goal is to keep your body at top biological functioning. That means enhancing the health of your mitochondria, strengthening your antioxidants and commit to the overall robustness of your immune system. Do whatever works for you in this regard.

OUT OF THE CLASSROOM



Movement

In Chapter 7, you learned the power you can harness with movement and physical activity to improve your students' learning outcomes. As you might have guessed, much of the research and benefits apply to teachers. Physical activity impacts your brain function, mood, and health.

To recap, physical activity enhances both working memory and short-term memory (Chen, Zhu, Yan, & Yin, 2016). Exercise triggers the release of brain-derived neurotrophic factor (BDNF), a natural substance that enhances cognition by boosting the ability of neurons to communicate with each other (Griesbach, Hovda, Molteni, Wu, & Gomez-Pinilla, 2004). Daily exercise contributes to elevated BDNF levels in various areas of the brain, including the hippocampus, which is critical for memory processing.

Physical activity is linked to greater levels of happiness and self-worth (Reddon, Meyre, & Cairney, 2017). People report being in a better mood after engaging in moderate to vigorous physical activity (Wen et al., 2018).

OUT OF THE CLASSROOM



If you leave school in a foul mood or frequently wonder whether being a teacher is of any worth, try building your brain and body with regular exercise for a couple weeks and see if things change. This boosts a sense of control over your life. Start a morning walk/jog program at your school to keep you motivated and accountable. Use it as an opportunity to start your day off right and build connections with students. Or sign on as an assistant coach to one of the sports teams at your middle or high school and then join in the workouts.

Sleep

Most adults need seven to eight hours of sleep every night. Anything less (or even more) than that, and the risk of chronic inflammation increases. Inflammation is the immune system's natural response to the presence of foreign bacteria and viruses, as well as to wounds, other injuries, and toxins that can cause illness. Your acute inflammation response (pain, repairing a cut or wound, etc.) is temporary and critically helpful in restoring the body to health. However, chronic inflammation is the result of the immune system being in constant "fight mode." Over time, chronic inflammation directs your disease-fighting cells to attack innocent, healthy cells, tissues, and

organs throughout your body, eventually damaging multiple systems. This is what can happen when your body does not regularly receive the proper amount of rest.

Poor sleep quality has also been linked to increased cancer risk (Xiao, Arem, Pfeiffer, & Matthews, 2017). The body works to heal itself during sleep, so limiting that time can deplete your body's resources for fighting off foreigners and keeping you in good condition.

How does a lack of sleep lead to inflammation? Sleep is regulated by circadian rhythms that cause you to drift between phases of sleep and wakefulness throughout the day. When your sleep pattern is disrupted (e.g., because you've been staying up too late grading papers for the past week), your circadian rhythms get out of sync. These same circadian rhythms are also responsible *for regulating your immune system* (Scheiermann, Kunisaki, & Frenette, 2013).

So, when your circadian rhythms are disrupted, your immune function is also compromised. Even one night of binge-watching your favorite TV show till early morning can trigger inflammation processes in the body (Irwin et al., 2008). People who habitually get less (or more) sleep than they need exhibit elevated CRP levels (a substance produced by the liver in response to inflammation)—an indicator of chronic inflammation (Irwin, Olmstead, & Carroll, 2016).

Going to bed at the same time each night and waking up at the same time every day reinforces healthy circadian rhythms, which in turn supports healthy immune function, including keeping inflammation to a minimum. So, set yourself a bedtime that will allow you to get the recommended amount of sleep. If you struggle with insomnia, stay away from the night-time medications (they are bad for the brain)—instead, focus on some simple things you can do to help you fall asleep, as well as improve the quality of your sleep. Try taking melatonin an hour before bedtime. Set an alarm on your phone for 30 minutes before bedtime to remind you to turn off all your screens (phones, tablets, laptops—anything that's brightly lit and interesting). Turn down the thermostat to between 62 and 68 degrees. Darken your sleeping area as much as possible, or wear a sleep mask. If the problem is that thoughts keep running through your head, try writing them down in a notepad on the nightstand or counting backward from 100 by threes, and enjoy some well-earned rest.

OUT OF THE CLASSROOM



Running Your Own Brain (Emotional Well-Being)

You are likely involved in daily conversations that revolve around one or more of these stress-inducing topics: high standards to meet, standardized tests to cram for, disrespectful students, angry parents, students experiencing trauma and/or poverty, and students with learning challenges. You may try to wish these things away, but they keep cropping up. At times, the situation may seem hopeless. Unless you take steps to maintain your mental health, you're likely to struggle with depression.

Though you may continue to do the best job you can for your students, the consequences of your troubles will extend to them as well. A negative state of mind can reduce your effectiveness as a teacher, even if the impact on students' learning isn't evident right away. One study, for example, found that teachers' depressive symptoms in the winter negatively predicted students' spring mathematics achievement. The classroom experiences of the affected teachers' students were of lower quality than those of their less-stressed peers. Finally, students with lower math ability made greater gains when they were in higher-quality classrooms with less depressed teachers (McLean & Connor, 2015).

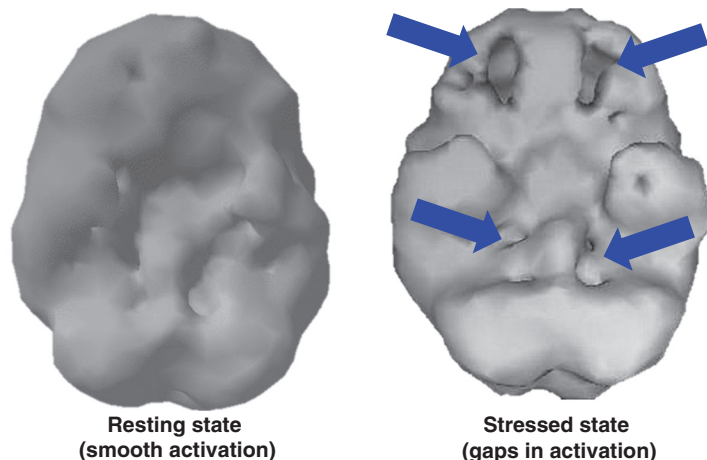
The numbers of students in poverty, experiencing trauma, or faced with learning challenges are increasing. Teachers today need greater emotional resilience and self-regulation to manage the emotional stressors of being an educator. Coming up are three prominent ways to improve teacher well-being.

Choosing Serenity and Peace

Here's a secret about "stress." It is *your* brain that generates *your* stress response. Here's how it works. First, incoming sensory data arrives. At that moment, your brain's two "stress filters" (relevance and sense of control) take over (Godoy, Rossignoli, Delfino-Pereira, Garcia-Cairasco, & de Lima Umeoka, 2018). Based on how *you* filter and then process the information, you'll either get stressed (or not). In other words, you are in charge of the stress you feel. Again, stress is generated in your brain as a response *to a perception* of a loss of control of a person, event, or situation. That's why we may have differing responses to the same potential stressor. People are different, and people experience stress differently depending on their coping tools. Thinking that your students, principal, or parents stress you

11.2 Stressed Brains Underperform

Impact of Acute Stress on the Underside of the Brain as Seen with a SPECT Scan



out is misplaced blame. They don't stress you out. You stress you out (Godoy et al., 2018). So how can you take back some of that control when the going gets tough?

Start by learning how to say no (long before you need it) when people ask you for help, whether in your work or your personal life. We're talking about students, other teachers, your friends, and your family members. It may not seem to fit your idea of yourself or the way you should behave, but you can have the best of intentions and still turn down obligations that would overextend your ability to meaningfully support others. Being the person who says "Yes!" to everything with a smile, only to turn around and feel a rush of stress as you realize you over-committed yourself does not serve you or your students. Practice saying, "Wow—that sounds interesting. Thanks for thinking of me. Unfortunately, my plate is seriously full right now. I'll let you know if things slow down a bit and I'm able to contribute at another time."

Here's another simple but effective technique. It only takes a second. The next time a student yells at you, a parent sends an angry email to you, or you learn of yet another student suffering from hunger, an abusive home, or suicidal thoughts, take a deep breath and pause.

For deeper and more lasting exercises in stress reduction, choose one of these proven stress reducers to take care of yourself as you work to care for others: meditation, journaling, praying, breathing

exercises, or spending time talking and connecting with a loved one (Schneider-Levi, Mitnik, Zafrani, Goldman, & Lev-Ari, 2017).

Extending Forgiveness

Many teachers get frustrated with a student early in a semester or the school year, then hold a grudge against him or her all year long. Some staff may even hold a grudge against a school leader who left the school years ago! But anger and resentment are dangerous “brain baggage,” with serious costs.

To “resent” is to hold an emotional grudge against another. The grudge is an unresolved and unhealed hurt from something that another said or did where *you felt wronged*. For example, a student rolled her eyes at you, a colleague questioned your lesson plan, or your principal made a comment suggesting you consider another career. These can all lead to feelings of anger and resentment, whether or not the person truly meant to insult you.

People who carry grudges and resentment are prone to a long list of undesirable outcomes—heart disease, obesity, insulin resistance, high lipid ratio, excess triglycerides, increased alcohol consumption, and smoking behavior, just to name a few (Toussaint et al., 2018; Toussaint, Shields, & Slavich, 2016). Resentment is linked to depression and other mental health challenges (Ricciardi et al., 2013). People who harbor hostility toward others experience impaired cognitive function for up to 10 years or more (Toussaint et al., 2018). Ever heard someone say, “I’m so angry I just can’t think straight?” All those angry feelings cloud your brain function and make it difficult to think, learn, and remember.

With all these troublesome outcomes, why do we often find it so hard to forgive? It’s because resentment activates the reward systems in your brain—specifically the nucleus accumbens and caudate nucleus (Billingsley & Losin, 2017). This is the same reward system activated when someone uses hard drugs. In crude terms, we hold on to hurt feelings and get “high” off the hoped-for reward of punishing your adversary. Our perception is that by holding this hurt in our consciousness, we will eventually get some kind of revenge. But that is a costly lie people tell themselves.

Maybe you believe that forgiving the person you hold so much anger toward would trivialize the unfairness you have suffered or compromise your sense of justice. You might feel like you’d be “rolling

over” or allowing that person to “get away with it.” The truth is that letting go of resentment and grudges in no way condones or minimizes the behavior of those who have hurt you. Forgiveness *is a personal health skill* that puts you on a better life path. It can help you bring up the anchor you’ve been dragging while you struggle to row your boat.

Forgiveness involves (a) the reduction (or dissipation) of vengeful or angry thoughts, feelings, or motives and (b) a shift in thinking toward the perceived offender (Toussaint et al., 2016; Quintana-Orts & Rey, 2018).

Start by forgiving that *one* student or *one* family member for that *one* thing they did that *one* time. Letting go of just one resentment for a single, isolated, or situation-contingent, experience is called “state forgiveness,” as in “For the moment, I can let it go.” In a giving or kind “state” we all are more likely to do kinder things. The more often you can do this, the more often you will uphold your values of being a thoughtful and compassionate person. In the long run, what you want is to develop “trait forgiveness,” which is a permanent skill set to forgive in all circumstances. This level of forgiveness *does not negate the gravity of the hurt created*; rather it acknowledges the pain and supports you taking control of the hurt and choosing forgiveness for yourself.

What are the benefits of developing trait forgiveness? People with trait forgiveness experience better physical health. Specifically, they have healthier hearts, live longer, sleep better, are less likely to turn to medications or alcohol for relief (Ricciardi et al., 2013). They also have better emotional health—less stress (which also improves physical health), happier, higher levels of overall well-being (Ricciardi et al., 2013).

When someone is being forgiving, fMRI scans show their prefrontal cortex is active (Billingsley & Losin, 2017). The prefrontal cortex is a region of the brain involved in critical thinking, planning, and decision-making. It is our reasoning center, which we can use to convince the amygdala, our reactive emotional center, to take a back seat and not override our behavior. The involvement of the prefrontal cortex is significant because it reminds us that you get to choose forgiveness. It can inhibit the revenge-seeking motives generated by the reward centers in the brain that drive resentment (Billingsley & Losin, 2017).

FIVE STEPS TOWARD FORGIVENESS

1. **Acknowledge the hurt.** Feeling disrespected never feels good. It is natural to be upset and hurt by these experiences. Label the feelings you are experiencing; allow yourself to feel them; express them in writing or to a trusted confidant. Ask yourself how motivated you are to be done with this painful experience.
2. **Recognize the powerlessness of resentment.** Refusing to forgive gives you a false feeling of power. You think you are powerful by withholding forgiveness, but in reality you are allowing the way someone else behaved to have power over you. This false sense of power is used to mask your own hurt and vulnerability or your frustration that someone did not live up to your expectations. Holding a grudge (or a grade) against that person will not offer you the healing you are looking for.
3. **Empathize with your offender.** See your offender as a human, with character and a personality beyond their choice that hurt you. Take the uncomfortable step into their shoes and see their choice from their perspective. What need were they seeking to fulfill with their choice? Find similarities between you and your offender (Ricciardi et al., 2013). If the offender was a student, remember that he or she is still a kid—with an immature brain, undeveloped social skills, and whatever else students may lack—and is driven by social needs that authorize rebellious behavior if it impresses his or her peers.
4. **Make a choice.** The pain you dredge up by dwelling in the past is your choice. Choose to no longer be a victim, and allow yourself to feel differently. Surrender your desire for justice to a higher power, and move on with your life. Life is too short. Even if a student cussed you out during class, why let this person's poor choices impact you?
5. **Renew or release the relationship.** It is up to you to decide whether the one who initiated the hurtful experience should be allowed to stay in your life. Do the person's positive attributes outweigh his or her negative ones? If so, work to renew the relationship and move forward; explicitly tell the person, "What you did was not okay, but I am still committed to having a positive relationship with you." Know that, while giving forgiveness to an offender is a one-time event, finding relief from your own pain is a process. Be kind to yourself as you take the time needed to fully heal. If, on the other hand, the relationship is no longer worth the struggle, either ask for support from school administration or remove the person from your personal life—and then move on.

Choosing Gratitude and Optimism

With all the stressors that teachers face, it is easy to get discouraged and feel like it's just not worth it. Depression, anxiety, and low job satisfaction are real issues in this line of employment. These factors are strongly connected to workload, student behavior, and employment conditions (Ferguson, Frost, & Hall, 2012). How can a passionate teacher manage all these feelings?

First, if you find yourself getting angry, discouraged, or depressed for more than a week or so, get professional help. See a counselor or doctor. Why? Because the longer you are in a negative state of mind, the more permanent it begins to feel and the harder it becomes to change it. Thus, sadly, only a small portion of those who get prescriptions for a long-standing depression ever get any relief (Bschor & Kilarski, 2016).

The challenges you face in your chosen profession—the seemingly endless responsibilities, setbacks, and obstacles to student learning—are unlikely to go away. The key to handling the emotional drain that can accompany this challenging, yet meaningful, work is to fill your emotional reserves with enough positive deposits to keep your well from running dry. This is where gratitude and optimism can help.

Making gratitude a life habit is one of the greatest gifts you can give yourself. Gratitude is an orientation of noticing and appreciating the positive role that others have played in your life (Wood, Froh, & Geraghty, 2010). Gratitude is proven to be connected to a wide array of benefits—improved relationships, physical health, self-esteem, high levels of work satisfaction, lower levels of stress and depression, and more (Rusk, Vella-Brodrick, & Waters, 2016).

How can you get a “foothold” and start this process? One way is to keep a paper on your desk to write just two phrases every day. First, as you enter your classroom every morning, jot down a few words that express one thing you are looking forward to that day. Second, as you leave each day, write one thing you are grateful for that happened that day.

Relationships (Social Well-Being)

Humans are social creatures who depend on each other for survival. Yes, that includes surviving the world of teaching. Remember our discussion in Chapter 4, on the significance of relationships: Lack of connection is associated with physical pain (Eisenberger, 2012), emotion distress such as anxiety and depression (Stanley & Adolphs, 2013), and reduced gray matter in the brain (Gianaros et al., 2007).

Teachers have a variety of relationship dynamics to navigate that impact performance and overall well-being. Let's focus in on three of those relationships: your relationships with your students, your relationships with your colleagues, and your personal relationships.

With Your Students

Have you ever noticed how a negative interaction with one student can impact your mood and teaching for the rest of the day? Working to improve your relationships with all your students will not only help you be at your best, it will improve their learning too. Do you have a student (or two) who just drives you crazy? That's the student you might consider spending more time with. There is evidence that spending just a few minutes a day with individual at-risk students can improve the teacher's view of that student (Driscoll & Pianta, 2010).

Building strong relationships with your students takes time, effort, and, preferably, a plan. We recommend that you commit to eating lunch with students one day a week. Make it a habit to greet them at the door every day. Make eye contact with them, greet them by name, and connect with them through a high-five, handshake, or other greeting.

With Your Colleagues

Teaching has, unfortunately, evolved in some areas to be a very isolated profession. If this is true at your school, consider being the one to disrupt the cultural norm of "closed door" teaching. Create time to collaborate with your colleagues. Ask them what is working well for them, and share where you are finding success.

If the teachers' lounge has traditionally been a space to "vent" about students, stakes, and scores, work to shift that norm. Do your part to transform it into a place where teachers celebrate successes, admit mistakes, and ask for support. Your strategies might include the following:

1. Every day of the school year, make it a point to say, text, or give a note to a colleague of appreciation for the contributions he or she makes to the school, the kids, or you.
2. Celebrate a "staff of the week" (or month, if your school is small) so that every staff member gets acknowledged.
3. Do a favor for another staff: give them a box of tissue, buy them lunch, or, if they need help moving over a weekend, jump in to lend a hand!

Your Personal Relationships

As you know, your relationships outside of school have an impact on your life *in school* (Gonzalez, Ragins, Ehrhardt, & Singh, 2018). In order to feel “whole” and be effective at work, use the following tools to handle or prevent conflicts and to keep issues from one sphere of your life from crossing over into the other.

1. If you are angry with someone, ask yourself, “How might my anger be inappropriate?” In short, it might be that you have made an accidental faulty assumption or judgment.
2. Make it a point to forgive and heal broken relationships. Schedule time to spend with the people most important to you. Create a standing “date night” with your partner, child, or best friend to ensure you are strengthening your key relationships.
3. Use your commute to help manage your feelings. Before you get out of your car at work, take a deep breath and visualize your students’ faces, feel their needs, and put a smile on your face. Tell yourself, “I can be my best, for them, for just these hours today.” After you drive home and park, sit in your car and clear your head. Let go of any work stressors. Remember the good things in your relationships; remember what makes you happy and how you can fuel your own joy. Take a deep breath, and walk into your home calm and ready to feel relaxed and connected with those you love.

In everything you do, remember that short, brief stress is unavoidable. But the more nasty, chronic stress, the kind that damages your health, is optional.

Conclusion

Brain-based learning is the pursuit of learning through the brain’s natural learning processes. It begins by understanding how the brain (and thus learning) is impacted by the factors outlined in this book. As you reflect on your teaching, perhaps you have realized you naturally teach in ways that are “brain-friendly.” And perhaps you have come to learn of new habits you would like to adopt in your teaching. We appreciate you and your efforts, and we wish you well on this amazing adventure of brain-based teaching and learning.