

# Chapter 1

## Neuroscience of Connection: How Supportive Relationships Grow Our Brains (Birth Through College Years)

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### ABSTRACT

*Students of all ages develop best in the context of caring relationships, and this chapter discusses why it is true from the neurobiological perspective. The chapter covers the historical highlights of collaborative work in neuroscience and education; the neurobiology of human development in the context of nurturing or problematic relationships from infancy through early adulthood; latest research that shows how supportive and secure relationships stimulate brain development and promote emotional regulation that enhances learning; neurobiology of childhood trauma, and pedagogical and counseling implications; and wider applications of the presented findings in fostering student support in schools and on college campuses.*

### INTRODUCTION

*Our heads are so big and our childhood so long because our brains need the nourishment of other brains. We are to live our lives in relationship. (Root, 2013, p. 33)*

Healthy, supportive relationships are crucial to student success, and discoveries in neuroscience are producing some confirming insights about the power of encouragement and positive engagement. As the contributors to this book emphasize in every chapter, students of all ages develop best in the context of caring relationships. This chapter was written to help parents, PK-16 educators, administrators, school

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counselors, college counselors, and student affairs professionals carry out their work with awareness of and sensitivity to the neurobiological processes typical in the development of their students. The chapter covers (1) the historical highlights of collaborative work in neuroscience and education; (2) the neurobiology of human development in the context of nurturing or problematic relationships from infancy through early adulthood; (3) latest research that shows how supportive and secure relationships stimulate brain development and promote emotional regulation that enhances learning; (4) neurobiology of childhood trauma, and; (5) pedagogical implications, and wider applications of the presented findings in fostering student support in schools and on college campuses.

In writing this chapter, we drew from our diverse professional backgrounds (secondary and high school teaching, school counseling, psychology, mental health counseling, college teaching, and student affairs) as we discussed the topics proposed in this chapter and their implications to the teaching profession. As stated earlier, the paramount idea of this chapter and of the entire volume is that *all learning in education and counseling occurs in the context of relationships*. It is the relationships (parent-child, teacher-student, and student-student) that serve “as a basis for the student to learn, to change, and to develop” (Locke & Ciechalski, 1995, p. 34). William Yount (2010) observed the importance of the teacher-student relationship across the countries:

*For the last 15 years, I have begun educational classes and conferences by asking participants to consider teachers they have had. I ask them to... write down words or simple phrases that describe their “best teacher.” Americans, Russians, Ukrainians, Kyrgyz, and Kazakhs answer the same way. Some point to competency in the classroom: punctuality, order, teaching skills. Some point to clarity of understanding: understandable lectures, good questions, focused explanations. Most, however, point to relationships: care about students, willing to listen, flexible, helpful. Then I ask them to describe their worst teachers. Most... point to a lack of relationship: anger, humiliation, threats, arbitrary punishments, and favoritism. The “link of life” between teacher and student is more important to learning than any particular educational system. (p. 455)*

Research from elementary schools through college years confirms the link between the quality of teacher-student relationship and academic and behavioral adjustment (Hamre & Pianta, 2001), positive outcomes for children with social-emotional problems (Sabol & Pianta, 2012), and learning in general (Cornelius-White, 2007). Similarly, student affairs programs aim to advance student development and learning, foster engagement, promote diversity and respect, and encourage students to thrive through the means of community. Even before neuroscientific discoveries were made available to counselors, counseling was defined as “a professional relationship that empowers diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals” (Kaplan, Tarvydas, & Gladding, 2014, p. 368). Counselors knew that the most essential aspect of helping clients came from the therapeutic properties of a counseling relationship. When people feel heard and valued, they recognize that they matter, draw strength from this connection, and learn to heal.

## **NEUROSCIENCE AND EDUCATION: HISTORICAL HIGHLIGHTS**

While educators agree that relationships matter to learning and well-being in general, they may not always know why and how this is true from the neurobiological perspective. Ironically, it is not the lack

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