

Endorsements

There is an interaction between people of different cultures within the educational environment they live, learn, and mature in. The behavior of parents and teachers within a given cultural context and learning environment over time impacts the health and ability of young people to thrive in their environment. It's an interactive paradigm: people/culture <--> learning environment <--> ability to thrive.

Culture may be viewed as the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations. It includes the customary beliefs, social forms, and material traits of an ethnic, religious, or social group. *The Culturally-Wired Brain* offered by Dr. Annita D'Amico and Dr. René Rochester bridges the role of culture into an exciting framework for the neurobiology and bio-psycho-social-spiritual aspects of teaching, understanding and learning. It provides a paradigm for understanding the unique interactive forces and powerful role of culture in wiring the brain for learning. This book connects the dots and neural circuits between cultural research and classroom application to enable and enhance youth to fly like an eagle in the journey of life. This book is essential reading for educators, counselors, social workers, parents, and other professionals interested in maximizing the learning and success of youth in the 21st century.

—Fred L. Peterson, Ph.D.

*Professor (retired) of health behavior and health education
The University of Texas at Austin*

Dr. Rochester's passion for learning is palatable. Students and alumni often comment that her investment in their lives was a turning point in their education. She is committed not only to young people's intellectual health, but also their spiritual and emotional growth. That is why she is such an effective educator.

—Susan Shafer

*Director of communications,
Brentwood Academy, Brentwood, TN*

As the cultural dynamics of America continue to change at an accelerated pace, Drs. Rochester and D'Amico address the realities and implications for educators today. This is an important work that seeks to support the critical work of educating the next generation of leaders. America must win the battle for educating the minds of young people. In *The Culturally-Wired Brain*, the authors share their passion, expertise, and commitment to the next generation of leaders by bringing valuable research and understanding to the front lines of education.

—Mark Householder

President, Athletes in Action

A refreshing study . . . of how culture influences the learning process . . . This resource will give hope to a generation in need of leaders . . .

—Marvin Daniels

*exec. dir./CEO of the Hope Center, Inc.,
Kansas City, MO.*

THE CULTURALLY-WIRED BRAIN

WHY CULTURAL BRIDGING IS CRITICAL FOR
LEARNING AND UNDERSTANDING

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WHY CULTURAL BRIDGING IS CRITICAL FOR
LEARNING AND UNDERSTANDING

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INTRODUCTION

*Then I was standing on the highest mountain of them all,
And round beneath me was the whole hoop of the world.
And while I stood there I saw more than I can tell
And I understood more than I saw.*

—Black Elk

My (AD) first teaching position was at a small international college. Students in my classes represented as many as fifteen different countries. All were bilingual or trilingual and several students spoke multiple languages. All handled classroom information in ways unique to their individual cultures and languages. The young men and women were from Africa, India, Arabia, Asia, Russia, and Europe. Many aspects of their lives were very different, but a common denominator was the desire of these young adults to share their lives with others: their histories, family backgrounds, faiths, dreams, and goals.

The president of the college was a strong student advocate and proactive in providing campus resources,

academic tools, and career guidance. He negotiated office space for the creation of the college's first student career center. Students were actively involved in the center. They used the center to explore personal interests, aptitudes, and discuss challenges of living in multi-cultural communities. They met with friends to discuss complex issues such as: faith challenges, arranged marriages, inter-racial/cultural dating, sexual abuse, domestic violence, and issues of asylum and exile.

The students had the usual stressors of college life combined with multi-lingual and cultural challenges. Individuals often came into the career office just hoping to find someone to listen to their concerns. During this time I marveled at the powerful influences of each student's culture and language as a guide for processing thinking.

The Culturally-Wired Brain: Why Cultural Bridging is Critical for Learning and Understanding explores the role of culture and mother tongue on the brain's neurobiological organization. We use the definition of culture as a collective social programming of the mind that is revealed in symbols, values, rituals, and learning patterns.¹ Mother tongue is defined as a native or first language learned from birth during a critical biological period when language is linked to age and social identity. Throughout childhood, the language and culture of our mother tongue wires our brain for processing information, interpreting values, and assessing meaning. Both mother tongue and culture work in harmony helping individuals interpret their world.

The brain is shaped by the lives we live. Each people group's specific culture and society "wire up" minds.² This wiring of brain cells (neurons) creates networks from cultural behavioral patterns. The patterns are expressed as neuron networks. As these patterns are repeated, they become wider, stronger, and deeper like a well-traveled

country road. Neuron connections make new connections that follow the familiar patterns. The brain uses these patterns to custom design individual cognition and learning styles.³ Understanding the cognitive impact of culture on the minds of youth is critical to establishing a sensitivity and wisdom in teaching pedagogies. Education has the potential to develop relational communities that heal and reconcile our unique differences and empower each student for academic success. The word cognition refers to thinking, conceiving of ideas, reasoning, etc. It is used as an umbrella term that includes all mental activities of thoughts and thinking. Thinking and cognition are used interchangeably in the book.

Over the past thirty-plus years of teaching experience we continue to bear witness to how culture influences our thoughts and life experiences. Individuals continue to share with us their frustration and pain when others perceive their cultural differences negatively. When entering the U.S. from other countries, individuals are often expected to assimilate and adapt to mainstream standards. Individuals and families often become isolated or shunned in the dominant community when assimilation does not happen. There are similar challenges for individuals who have always lived in the U.S., but who are from different ethnicities or cultural communities. Diverse cultural learning needs of these youth may be completely misunderstood or ignored, because they are *Americans*. A prevailing assumption is that youth will conform and adjust to the different behavioral and academic expectations of their educational setting. But academic achievement can be arrested by stress from social and emotional pressures. When youth do not understand their differences they may perceive that being youth of color makes them ill equipped or scholastically incompetent by the standards of instructors and classmates. National

statistics report from thirty to forty percent of culturally diverse youth continue to struggle in U.S. classrooms. Youth frustrated by academic struggles are at greater risk for dropping out of school, low paying jobs, increased exposure to crime, physical and mental illness, and social and economic poverty. The Alliance for Excellent Education (AEE) estimates that 1.3 million American high school students drop out every year with a disproportionate number of the students youth of color.⁴ This distressed population of youth creates communities that have deep impacts on our nation's social, political, and economic health.

Our approach to the role of culture in students' academic lives is both scientific and observational. We draw from our academic knowledge, research data, as well as from our personal experiences. Culture as a developmental cognitive theory uses multidisciplinary findings from the fields of sociology, psychology, anthropology, neurology, and theology. Our hope is that we do not appear to oversimplify current academic concerns, misrepresent youth and teachers' learning relationships, or be so wordy you will disregard this work. Our ultimate goal is to co-labor with you as we each become more attentive students of our students.

The aim of the book is three-fold. First, to introduce and explore the different ways personal and societal cultures and languages influence students in their cognitive development. This includes the bio-psycho-social and spiritual influences. Secondly, to explore ways educators can partner and strategize with culturally-diverse students as they grow academically. Finally, to help educators build collaborative partnerships with equity and authority that network and co-labor with the broader community. We each have unique educational experiences and we often teach like each of us learns. As educators, we understand our

world through our personal culture and language. Difficult learning situations have planted insecurities in each of us, but personal learning potholes help us develop compassion and empathy for others' personal-learning journeys. Here is a brief synopsis of our personal stories.

**An Academic Journey:
Personal Narratives by
Drs. D'Amico and Rochester**

My Academic Journey, René D. Rochester

I was born at Boston City Hospital in August of 1959. My mother was a nurse and my father an accomplished musician. When I was nine months old my father passed away, suddenly leaving my mother with two children under the age of four. My birth certificate, like other children born during that time, had the handwritten word *colored* in the space for race. My parents had grown up in the era of segregation.

However, change for all people groups in the United States was on the horizon. The *Brown v. Board of Education* ruling, which struck down racial segregation in public school, had passed just five years before I was born. The result of the ruling was that my older sister and I were allowed to attend an all-white school. Breaking the color line presented both social and academic challenges during those years. My sister was called "walking Tootsie Roll" and I was "walking Tootsie Roll jr." Many of my teachers believed my cultural, social, and ethnic background put me at an educational disadvantage, and I was placed in the lowest academic track. As a result of boredom and extra free time in my classes, I began to get in trouble. I would finish my lessons quickly and then try to find something to do. By the

time I was in middle school my mother had been widowed twice and worked long hours to support three children as a single mother. It was a challenge for her to monitor our grades, and I was exceptional at “getting by.”

Events began to change when a sixth grade teacher recognized my academic potential. She and my mother advocated to have me moved to a more challenging track. Not everyone believed in my potential. I will never forget the conversation between this teacher and the principal as I sat in his office. My teacher told the principal she believed I needed a more challenging curriculum. She said the work was not challenging enough and I was bored in the classroom. The principal said, “Now, you know colored kids don’t learn like our kids.” His words became a constant reminder in my head, whenever I struggled with schoolwork, that I might not be capable academically. Thankfully, my teacher did not stop fighting for me; she and my mother moved beyond the principal to the school board. I was eventually placed in a more demanding academic track. At this same time, a coach recognized my athletic ability, and I was pulled once again away from academics, this time into the athletic arena. Athletics became my life. I had learned to avoid reading and somehow graduated high school without reading one entire book.

I graduated with a full athletic scholarship to the University of Texas at Austin. Those first years were very tough academically. I was not a reader, and I didn’t believe I was capable of academic excellence. Academic probation was a constant threat. I was almost 2,000 miles away from home and all my social and emotional support systems. It was a tough season, but something happened in my junior year that was the turning point. The belief in who I was and what I was capable of accomplishing was radically changed by a decision to commit my life to Jesus Christ. I began to

believe my mind was capable of learning and excelling in whatever I worked at. I began to read, to study, and to excel. I graduated with a degree in science and began teaching and coaching. Later, I returned to the University of Texas and finished a master's and doctoral degree.

I have now been teaching almost thirty years. My passion, fueled by my own life experiences, is to help individual youth understand and walk out their academic potential. I have taught numerous ACT prep classes to inner-city youth and I watch as they struggle to anchor their ways of knowing and learning to the format of standardized tests. The years of working with students provide the energy and passion for this book. A student's culture and experiences impact how a student learns, and what that individual believes about his or her ability to learn, change, and become successful. My students continue to be an exciting investment in my life.

My Academic Journey, Annita Kerr D'Amico

I grew up in rural Missouri where I attended a one-room schoolhouse until the seventh grade, when our district was annexed into the town's public schools. I loved school, and it was an exciting diversion from simple farm life. Memories of my school years are those of libraries and teachers filled with interesting treasures of information. My academic world was expanded through books, and I traveled and lived lives through the characters in the books I read. The stories of others' lives let me know I could experience a bigger world. My parents had limited educational opportunities and encouraged us to pursue academic success. I graduated from high school with a determination to attend and graduate college. None of my family had ever attended college, but it had been my desire from childhood.

The community I grew up in was small and homogeneous. Everyone was lower middle class, and everyone was involved in community. I majored in history in college, because I believed we needed to understand our history to understand our present. I imagined my own future students would be just as excited as I was about school. In college I took a Black and Hispanic history class. Many in the class were from urban areas of St. Louis and Kansas City. As I became friends with students in the class, they shared their personal stories of racial, ethnic, and social bias and inequality. These individuals were patient with my own ignorance of cultural diversity. I began to notice how each diverse student group formed its own community on campus. Our professors were primarily from the dominant white community and mostly middle class. They did not discuss the impact and role of different cultural worldviews on the ways our community groups interfaced on campus. Interracial dating was frowned upon.

Two years after graduation I moved with my husband to Italy. Immersion in a different country, culture, and language revealed how deeply I was locked into my personal ways of defining and perceiving life. I became stressed and irritated with the daily challenges of “negotiating” the territory. I was now a foreigner who spoke poorly. The challenge to communicate interfered with my ability to cultivate new friendships. Previously, I believed my perceptions of what was efficient and reasonable were universal. Italians have a saying, “Whatever can be left for tomorrow, leave for tomorrow. There is always tomorrow” (*sempre domani*). I thought the expression was irresponsible. I struggled with reading and writing my new language. I found myself hiding my cultural inadequacies, avoiding public greetings, afraid to reveal my foreign origins—evidence I didn’t belong. My culture made sense; the new culture did not. Even more

alarming, the new culture challenged the value of my personal cultural beliefs.

I attended Rome University for two years, and all the exams were oral. I not only had to understand the material for the exams, I had to express myself and explain my answers intelligibly. This multiplied the feelings of constant stress and emotional inadequacy I felt as a foreigner. I learned how to survive, but it took a number of years to learn how to participate on some level of community. I lived in Italy for a total of six years. During this time, an Italian couple adopted my husband and me into their family. Sitting around their dinner table is where we learned to better understand and integrate Italian culture into our lives. The Italian culture did not replace my original culture; it grew it. I eventually learned to speak and read the language and fell in love with the country. I never lost my American accent, but my cultural worldview was changed forever.

We consistently use the terms students, classroom, school, teacher, and educator in the following chapters. However, we believe this book has a broader audience. The administrative staff and leaders of organizations serving diverse populations could find the information helpful. The divinely-designed minds and brains of young people have incredible potential. We are convinced that caring adults have influential power to tip youths' scales from risk to resilience. Educators are strategically positioned to implement protective factors that buffer risks and promote positive youth development. These three factors are: caring relationships, high expectations for youths' academic and personal development, along with opportunities to participate and contribute in culturally sensitive communities.

We have an opportunity to renew our vision for education as a diverse multicultural community. We discuss

strategies that minister to the intellect and spirit of each student. Educational instructional skills must become as diverse and creative as the youth we minister to as we provide skills, strengthen knowledge, and promote healing and ethical guidance through caring relationships.



CHAPTER 1

MODERN YOUTH

There is always a gift in any challenge.

—Bronnie Ware

A Season of Rapid Growth and Development

Birth through adolescent years involves the most rapid growth mentally, emotionally, and physically of any period in our lives. As youth move into pre-adolescence and adolescence, they enter into a natural developmental period of increased experimentation and identity exploration. Modern youth are dealing with normal developmental challenges and experiencing unique global and local societal changes and influences. The influences and pressures of today add stress and information overload to the lives of most youth, but the impact of these pressures is multiplied for youth of diverse cultures and languages. Monumental social and cultural change is not new in the course of history, but the magnitude and accelerated pace of today's changes are. Modern stressors influence ways youth think, develop

relationships, experience physical and mental health, and develop skills and tools for adulthood.

Culturally and ethnically diverse students are now the majority-minority in a number of U.S. cities.¹ This diverse educational population is challenging many conventional methods of teaching and learning, as they process information in unique cultural ways. Brain development is influenced by family and community relationships and experiences that serve to build the very architecture of the brain. These relationships are guided by personal and group culture. Neuroscience is helping to better understanding how culture and language become embedded in the neuron wiring of each brain affecting intellectual expression. Culture may be defined in multiple ways, but for this discussion we are using the definition by Geert Hofstede, a Dutch social psychologist and pioneer researcher in cross-cultural groups and organizations. “Culture is a collective programming of the mind that expresses itself in symbols, values, and rituals. The programming is so embedded in the very fabric of our being that we may be unaware of the influence.”² This means youth think and process information in agreement with their cultural training.

Our challenge as parents and educators is to develop increased competency in the social, emotional, cultural, and academic bent of our youth in this season. How are brains also influenced today by societal culture, 24/7 technology, parenting changes, early involvement in adult behavior, and other modern influences? What are basic needs that help youth develop people skills, compassion, kindness, moral and problem-solving stamina and resilience? In spite of all the modern challenges and influences, youth continue to have a basic need for relationships with caring adults willing to coach and mentor them throughout their lives. To get a

better understanding of youth's brains today, let's look at some significant cognitive influences.

Environmental Matrix of Influences: How Brains Are Being Changed

Societal Cultural Shift

The K-12 student population is referred to by some researchers as Generation Z and is considered the first global generation. They are the *always-connected generation*, larger than the Baby Boomers and three times the size of Generation X. Technological and societal changes influence how individuals communicate, form relationships, and negotiate information. Unique technological influences contribute to this generation's move toward a pan-cultural mindset (youth imitating multiple cultural worldviews). Youth can travel the world and never leave their bedroom.³ Changes in a global cultural mindset has the potential to widen the gap between generations increasing communication challenges. Does this generation know how to unplug?

Addicted to Plugged In

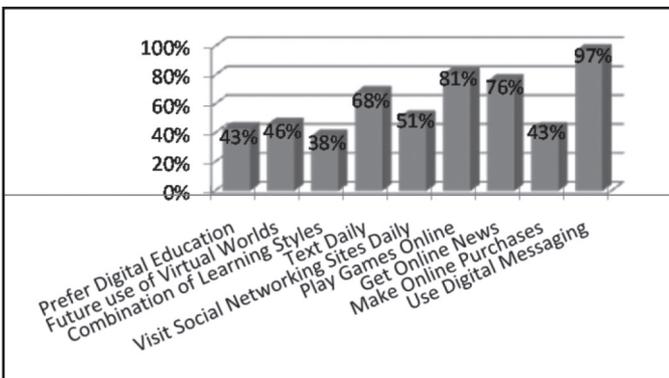
A study surveying different age groups and use of the Internet found approximately ninety-five percent of twelve through seventeen year olds report they are now online and eighty percent use social media sites. The instant feedback design of technology is affecting changes in ways youth interact and respond in classrooms. Youth appear to be developing more highly distractible tendencies, shorter attention spans, hyper-digital attachments, and low interpersonal skills. The acronym, A.O.A.D.D., coined for Always On Attention Deficit Disorder defines youth focus as "a lack of deep-thinking ability due to what one expert

refers to as ‘fast-twitch wiring.’”⁴ Quick-acting multi-tasking behaviors appear to generate a need for instant gratification with a growing dependency on the Internet as a type of external brain. Youth state because information is readily available they do not feel the need to remember or memorize things. One student shared, “Why should I weight down my brain with information that is easily carried in the cloud?”

A Kaiser Family Foundation study reports that today’s youth pack a total of ten hours and forty-five minutes of media into their days. This is a similar amount of time adults spend at work each day. A major difference is young people use this amount of media seven days a week instead of five.⁵

Research facts on teen tech use reveal:

- Approximately 21 million teens use the Internet and 10.5 million use it daily.
- 68 percent text daily
- 51 percent visit social networking sites daily
- 81 percent of teens play games online
- 76 percent of online teens get online news
- 43 percent make online purchases
- 97 percent of girls ages 15-17 use digital messaging.



These individuals have been immersed since birth in the digital world and are consumers of all sorts of technology including Twitter, texting, social networking, SnapChat, Kik, smartphones, etc. Researchers suggest there is evidence that culture, socioeconomic status, and gender have an influence on how Gen Zers use technology. A recent PEW study found that African American and Hispanic youth report more frequent Internet use than white teens. Young men reported frequent use of Facebook, while young women preferred Instagram and Tumblr. Teens from lower socioeconomic households (less than \$50,000 yearly income) used more Facebook, while teens from more affluent households used more Snapchat. The digital “culture” has become another language and means of social relationships for many youth.⁶

The web is impacting learning preferences of Gen Zers. A 2010 study found that forty-three percent of today’s teens prefer a digital approach to education and find it easier to learn from the Internet. And forty-six percent believe that virtual worlds will one day be used regularly in schools. Still, thirty-eight percent have not eschewed books altogether, but enjoy a combination of print and online learning.⁷ Not all teens are pleased with their friends’ and family’s increased reliance on electronic gadgets, and share they would like to have more time to disconnect from the gadgets. Almost half of the students interviewed shared they wish they could just “unplug” for a time. Forty-five percent said they get frustrated when friends text, surf the Internet, and check their social networking sites when hanging out. I recently asked a group of students in a high school psychology class, “Do any of you sleep with your phones?” All but two of the forty students said, “Yes.” I asked, “Does keeping the phone so close interfere with your sleep?” They agreed it did, but felt they needed to stay connected. One student shared he has to stay “plugged in” or risk being socially alienated.

The PEW Research Center's Internet and American Life Project polled 1,021 individuals from think tanks, research groups, corporations, and universities. Participants in the study shared what they perceive are long-term impacts of hyper-connected lives on youth by 2020.⁸ All agreed there will be significant effects on how brains are being wired to process information. Half reported youth are currently influenced to make poorly-informed decisions based on shallow or incorrect information from the Internet or their tech-connected peers. The other half of participants shared they are hopeful youth will eventually hone abilities enabling them to judge between what is good information and what is bad.

Technology is also impacting the expressions of student literacy and comprehension. Reading, specifically among teens and young adults, must compete with media that offers instant information and less imagination. Reading

Reading fluency looks different today with an increase in digital reading activities.

and writing fluency involve whole-brain processing of language that build cognitive dexterity to remember, retrieve, and organize information. Print reading seems to be on the decline. Numerous research teams assume this means youth are becoming less fluent;

however, there is strong evidence for an increase in digital literacy activities. A PEW report on teens and social media shares that ninety-three percent of teens surveyed report regular participation in online activities that include reading, writing, sharing fan fiction, remixing online music, images, and videos. This supports evidence for the increased

role of digital media.⁹ Youth are combining reading with other things.

Studies found:

- Fewer than one-third of thirteen year olds read print on a daily basis, but surf the Internet daily.
- Fifty-eight percent of middle and high-school students report using other media while reading.
- The bulk of print reading time is shared with watching TV, video/computer gaming, instant messaging, e-mailing or web surfing.
- Print reading comprehension scores for seventeen year olds have continued in a downward trend since 1992.
- Employers are concerned with decrease in print reading and now rank reading and writing skills as top deficiencies in new hires.¹⁰

Research results suggest the emerging generations are altering how reading proficiency is being expressed. Reading is taking place, but it is being incorporated into media and other activities. This generation's social behavior has become "digital behavior." Even media is experienced differently, they don't just watch media, they "live tweet" it.

Parenting Changes and Early Involvement in Adult Behavior

In this new season, families and parents are parenting differently. As parenting styles change, ways of transference of cultural values are also impacted. There is an increase in mothers working outside the home, single-parent households, and blended families. Relational development in the

home has changed. Face-to-face dialogue has now become screen to screen. The redefining of the modern family may be the most significant contribution to youth increase in adult level choices as consumers. The previous rites of

Face-to-face
dialogue has now
become screen to
screen.

passage to greater levels of responsibility and privilege have all but disappeared. One of these privileges is credit and debit card use and early accumulation of debt. Modern youth have possibly the most power as consumers of any young age group in history. They have moved from childhood to the

responsibilities of adulthood without the development of maturity in critical reasoning. Increased access to family resources allows youth to function as major consumers of market goods and services.

Youth involvement in adult experiences has also increased through technological avenues. Studies of virtual world activities indicate both potential for benefits and negative influence. The University of Utah studied children diagnosed with autism, depression, and Parkinson's disease and the influence of video games. One game designed for the study showed it helped children improve in resilience, empowerment, and a fighting spirit.¹¹ Video games may also improve decision-making skills. Many games require fast reactions and split-second decisions to evade virtual death. At the University of Rochester, cognitive neuroscientists found some games provide players' brains decision-making practice for the real world. Action-oriented games seem to simulate the decision-making process. Participation in video games appears to cause neurons to stimulate positive

emotions, and the reward system helps youth develop more positive responses to challenges.¹²

Other researchers believe there is an addictive quality to technology and that youth who spend too much time in the virtual world may actually handicap opportunities for real-life, social-skill development. Dr. Sherry Turkle of MIT believes technology can dominate young people's lives. In *Alone Together*, she discusses her students' 24/7 attachment to technology.¹³ Turkle shares that multitasking has become multi-living and technology has seduced us by enabling us to bail out of reality and create worlds we feel we have more control over. She finds that her students would rather text than talk, limiting their communication skills.¹⁴

Educational psychologist Jane Healy in *Endangered Minds* sounded the alarm concerning the effects of popular culture and unsupervised use of technology are having on the development of young brains. She traveled the nation interviewing teachers and observing classrooms. Teachers shared concerns that youth function differently in school today. Social skills are weaker; shared conversations are difficult; attention spans are shorter and students struggle with assignment follow-through.¹⁵

Old Systems and New Students

New responses to modern youth require reconsidering assumptions about what youth need to learn and how successful learning will take place. American systems traditionally have been hesitant to develop our rich cultural and linguistic differences. We have historically challenged our multilingual and cultural students to become monolingual and monocultural. Concepts of the United States as a melting pot propagated the idea that diverse cultures would benefit by losing their cultural identities to become

more American. However, today many Americans want to maintain their distinct cultural identities and practices.

A few years ago we attended a large Haitian Youth Conference in Boston. The conference was held in a regal 1900s Catholic cathedral. Worship banners written in French hung from the ceiling. Individuals crowded into the church almost on top of one another, not due to lack of respect for personal space, but because “rubbing shoulders” indicate affection for one another. The conference was open to the extended family and the church was packed with grandparents, parents, aunts and uncles, siblings, cousins, and godparents.

These families represent only one group of the recent wave of “new Americans” who are repopulating and redefining older neighborhoods located in large cities like Boston. Unlike those who came in other seasons of immigration, these new Americans keep close ties to their old homelands and travel frequently between their two countries. Modern long-distance traveling choices provide faster and more economical ways of connecting. The children learn English in school, but many families want the interactions at home to be in their mother tongue. They need and want their language and culture to maintain close family connections and traditions. Haitian Americans want to be American *and* retain their Haitian identity.

Research is identifying the vast benefits of a child’s first language and culture to his or her mental growth, personal development, and educational progress. Students “perform more successfully when instructional strategies acknowledge, respect, and build upon language and culture of home.”¹⁶ Allowing youth to incorporate their mother tongue, and this includes dialects, into academic learning practices is indispensable to intellectual, social, and emotional development.¹⁷

Brain-Based Culture

For nearly a century, social cognitive scientists have suspected that cultural training biased the brain for meaning and learning. On a plane flight over the Colorado mountains, I noticed how growth of vegetation is responsive to the “lay of the land.” Large growth, like trees, tends to grow in certain places, while shrubs grow in another, and a mixture of growth in other areas. Individual development of intellectual expressions is also influenced by the lay of the land—physical, anatomical characteristics, family beliefs, community differences, personality and emotional differences, etc. But a similar influential factor is that established growth in nature, as well as in the brain, exercises dominance. New growth must be incorporated into the patterns already present. New growth will naturally take more time. Understanding the influence of pre-established cognitive patterns helps understand that academic mastery of new knowledge is a process of integration of the new with established patterns.

Ancient Israelites understood the power of childhood teaching in cultural values and instructed parents to:

Teach your children diligently, talk to them when you sit in your house, when you walk by the way, when you lie down, and when you rise up.

(Deut. 6:7 NAS)

For us to remember
new information, it
must find a place to
become rooted in
knowledge already
established in memory.

The instruction became a proverb for parents:

Train up a child in the way he should go. And when he is old he will not depart from it.

(Prov. 22:6 NKJV)

The brain is designed for active family and community participation. This social-cultural networking in the brain takes place on a molecular level. Culture guides thought patterns interpreting relationships and logging vast amounts of data entering through the senses. In other words, our culturally-trained senses become gateways to how we think, and we then behave in agreement with that thinking. Our formative years build thought patterns forming foundational knowledge. This foundational knowledge becomes the basis for dominant thinking patterns.

Culture and Mother Tongue as a Cognitive System

Personal cultures as a cognitive system involve language, styles of dress, diets, emotional expressions, and many other unique qualities. Sensory awareness, cultural, and language learning begins in the womb. A fetus is able to hear between twenty-four and twenty-seven weeks. It has been known for decades that babies learn general features of their native languages, including rhythm and intonation, in the womb. However, two recent studies confirm that babies also hear and mentally record distinct words and syllables they hear while in the womb. By the fifteenth week of pregnancy, taste buds are formed. The olfactory cells in the nose are functioning by the twenty-fourth week. Studies show that infants prefer flavors and odors they grow accustomed to while in the womb.¹⁸

A mother tongue is recorded in the brain along with early visual, acoustic, emotional, and non-linguistic

knowledge. This contributes to native languages being associated with multiple brain sites. For example, a child told not to touch a fire, sees the word “fire” in the mind with all the warnings. The word fire becomes a sensation that is hot, dangerous, and harmful; it also can symbolize warmth, comfort, and family. A second language may record the new word “fire” as just a word. A mother culture and mother tongue work in harmony to imbed knowledge and experiences neurologically.

This makes it difficult for us to explain why we believe or behave like we do with culturally-rooted beliefs and behaviors. Jerome Bruner, a professor of law and psychology at New York University, argues that culture, not biology, is the designer of the human mind, and it is culture that gives meaning to all human actions. “It [culture] does this by imposing the pattern inherent in culture’s symbolic systems—its language and discourse modes, the forms of logical and narrative [stories], and the patterns of mutually dependent community life.”¹⁹ Because we are trained in personal cultural assumptions as children, it is often difficult to recognize how cultural bias influences every aspect of our lives.

Cultural aspects of tradition and history become sacred beliefs about identity that develop strong bonds between individual members. For generations, my forefathers were all farmers (AD). Most farm families try not to concentrate on circumstances they cannot control, such as the weather, crop production, and the market for their goods. Instead, they are

Cultural aspects of tradition and history become sacred beliefs about identity that develop strong bonds between individuals.

concerned with personal qualities they can develop such as hard work, character, perseverance, and conservation of resources. My family's focus was on development of personal character, stewardship of relationships, and cultivation of respect: respect for the land, respect for elders, respect for yourself and neighbors, and respect for the future. Respect was much more valuable than monetary reward or success without honor.

I didn't fully understand many of the ramifications of this concept of communal respect until I grew older. One example involved not being allowed to wear work shoes in the house. It was not only because we would track in dirt but because my mother saw it as disrespectful to her and the demands on her workload.

Many cultures have strong cultural behavioral codes that respond and honor the role of respect. Stepping out of the bounds of those codes can bring strong emotional responses. Hurting someone's feelings is one thing, disrespecting his cultural laws of life is quite another. The biblical Jesus continually clashed with the cultural status quo of the religious leadership.

A powerful example takes place in the New Testament

“Man's mind,
stretched to a new
idea, never goes
back to its original
dimensions.”

Oliver Wendell
Holmes

when Jesus heals certain individuals on the Sabbath, the traditional Jewish day for physical and spiritual rest. The Sabbath was considered then (and is still today) a sacred day set apart for rest and dedication to God. The Jewish leaders challenged Jesus' actions of healing sick and crippled individuals on the Sabbath and said he was

disrespecting and dishonoring their laws. They were convinced Jesus was being reckless by regarding the troubles of individuals as more important than showing reverence for established traditions. Jesus was guilty of being disrespectful of cultural norms. He was grieved over their lack of compassion for their fellowman and spoke to their incorrect understanding of Sabbath respect as an expression of culture and source of Jewish identity. He explained another view of respect and compassion for the pain and anguish of individuals. The cultural code of practice and tradition was so strong that most of the religious leadership was unable to consider a different way of responding to their beliefs and practices. This is an example of a principle called “code switching.” Code switching is switching thinking from the linguistic or code system of one language or value system to that of another. It can be very complicated because it involves values and beliefs. Youth may struggle with statements from adults in school because they believe adults’ communication style is disrespectful. Adults and youth require opportunities to see how time to code switch is often needed to communicate more effectively in tense or high drama situations.

Edgar Schein shares that formation of culture is always a “striving toward patterning and integration.”²⁰ The very quality of the cultural patterns makes it biased against unfamiliar changes in thinking. The integration of ideology involves neuro-cognitive events based on our human need for stability, consistency, and meaning. The neuro-cognitive events involve connections of neuron networks that become familiar patterns the brain repeats.

We believe individuals’ cultural cognitive patterns are key to understanding how students learn and process information. The cultural cognitive model portrays the route that all new information must pass through. Culture

is a type of grid that information is filtered through. Since all information has a cultural connection of some type, the more similar or familiar the information is to the student, the easier it is to integrate into previous knowledge—the more foreign the information, the more difficult. This does not mean students cannot process new, unfamiliar information; it just means they will need more time to manage and find patterns that use knowledge already stored in their brains. Brains are designed to learn, grow, develop, and change; culture trains brains how to do this growth and development.

A Cultural Cognitive Model

The Cultural Cognitive Model outlines the pathways of cultural influences that guide the brain through integration of information and new learning.

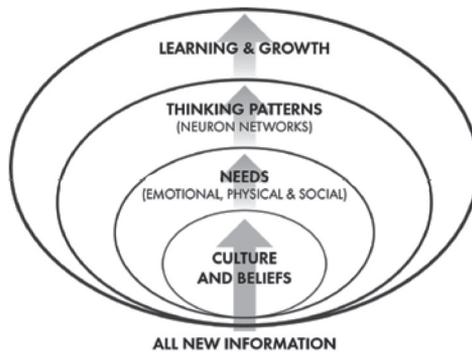


Figure 1.1. The Cultural Cognitive Model

In Figure 1.1 all new information is first processed through an individual's cultural beliefs and assumptions.

- a. *Culture and beliefs*: these foundational beliefs are instilled in each individual through birth families

and communities. Cultural teachings influence outward expressions of behavioral characteristics, social/emotional patterns, identity, and ethnicity. These beliefs and assumptions are recorded as neural networks in the brain.

- b. *Needs—emotional, physical, and social*: although all individuals have basic physical needs of hunger, thirst and safety, we define how these needs are effectively satisfied by culture. Spices that flavor the family meals, conversations that take place, how individuals express love, affection, and passion are valuable and all depend on cultural practices.
- c. *Thinking patterns or neural networks* are established. Individuals build thinking patterns that establish neural connections creating mental models. These become the models that guide cognition for new connections.
- d. *Learning and growth* are built by the continued use of the neural pathways and inter-neural patterns. New learning builds on previous background knowledge. This allows the brain to find agreement between what is known and what is becoming known. The brain is a magnificent organ that has a neuro-plastic quality, enabling it to grow and adapt through different cultural perspectives. The mind's design

Neuroplasticity is the ability of the brain to use experiences to sculpt and change the shape, size, and number of neurons and their connections. The brain re-shapes connections with every new significant experience.²¹

allows culture to function as an emergent quality with potential for growth and change as individuals are valued, respected, and partnered with in community.

Personal Culture

The following story of a young eighth grader points to a student's willingness to re-engage in a classroom when she perceived there was an opportunity to be cared for.

Student Story

It was an eighth grade American history class, and I (AD) was a visiting student teacher for six weeks. The homeroom teacher was retiring the following year and practiced "old school"-style class management. The idea of a student-centered classroom was not in her management model.

As I looked over the room on my first day, I noticed one young girl sitting at the very back of the room. She sat low in her chair, head down, and appeared to want to disappear completely. She was taller and heavier than her classmates, and I wondered if she were older or possibly repeating the class. During breaks, other students spent time talking to nearby classmates and engaging with questions about assignments, but the girl at the back of the room sat silently immersed in her own world.

Nurture and compassion are powerful learning tools.

We were working on biographies. Each student chose a historical figure and was assigned a day to present his/her project in front of the class. I assigned each student a date and time. Later, the homeroom teacher

approached me and told me I was wasting my time by giving that particular student a report date. She told me the girl was incapable of that level of work and would just be absent on her assigned presentation day.

The student's presentation was scheduled for the following week, and I honestly forgot about her assignment, leaving her time slot open. The following week when I looked at the schedule I saw her name and looked toward the back of the room, expecting the seat to be empty. However, she was in her seat looking at me, smiling. She was waiting for her name to be called to present her report.

I do not remember anything she shared that day, the name of her historical figure, or how long she talked. I only remember the look on her face when she finished. She seemed pleased and appeared to believe she had been given an opportunity to show herself academically and personally in a way she had not felt confident to do before.

After she finished her report, she shyly pushed a small piece of paper toward me on the teacher's desk. I tucked the note into my pocket, waiting until class ended and students had left for their next class. Scribbled in pencil were the words, "I love you— thank you." That day the young woman confirmed for me the power of hope ignited by an open door to a fresh start.

Many young students are waiting for someone to believe in their ability to learn and help them translate the world that is unknown. Nurture and compassion are powerful learning tools.

Cross-Cultural Communication

Albert Mehrabian, professor of psychology at UCLA, explains that culture changes in subtle ways as different individuals come in contact with each other. Cross-cultural

communications are further complicated, because individuals pay attention to different conversational aspects. Individuals focus on three major parts of a conversation: they pay attention to words being spoken, the tone of how words are spoken, and the body language of the person

Too often in school settings a miscommunication between a teacher and a student is interpreted as a student problem.

speaking. All these aspects depend on different cultural context for interpretation. Additional, multiple cultural layers are added to the conversation that include: time, perceived power, authority, emotion, age, gender, religion, nationality, and previous interactions. All these variables increase the risks for misinterpretation and miscommunication.

tion.²² When we don't understand the influence of a culture on individuals' responses and communication skills, those differences may be interpreted negatively as learning disabilities, lack of motivation, disrespect, or even a lack of basic intellectual ability. Too often in school settings a miscommunication is interpreted as a student problem.

Researchers examined teachers' perceptions of students' tendency toward aggression, low achievement, and need for special-education services based on individuals' cultural movement styles (i.e., walking). A videotape of African American and European American male students walking was shown to 136 middle school teachers. After the video, teachers were asked to fill out a questionnaire that included adjectives indicating perceptions of aggression and achievement. Results indicated no difference in perception for aggression or achievement based on ethnicity. The major

finding was that teachers perceived both African American and European American male students with a particular “stroll” to be lower in all three areas. The findings suggest culturally-conditioned behaviors influence teachers to see students with a stroll as more aggressive and in greater need of special education. “It stands to reason, therefore, that ethnicity and culture are inextricably linked variables for investigating and interpreting how teachers might react to behavioral differences.”²³

Daniel Everett has spent three decades studying and living with the Amazonian tribe, the Pirahās. He compares cultural disconnect to feeling as though you have become an alien. He powerfully describes the psychological effects of being immersed in different cultural and linguistic worlds.

When you cross the boundary from your language and culture community to another, you need to realize that you are [being transformed] from someone familiar into an alien. You could become a ‘freak’ instead of an attractive person; an incompetent, instead of a respected professional; ugly instead of lovely; fat instead of average; stinky instead of normal-smelling; and on and on. You may go from being articulate and witty in conversation to being perceived as an infantile dullard who can barely function in conversation. You will go from having many friends to having none. From enjoying good company, to stark loneliness. From having your personal space respected and being treated with dignity, to being seen as outside the normal politeness conventions and treated like a fruit tree (people get things from you whenever it is opportune for them). Familiar cues are missing. You will be frequently disoriented, feeling despair on the worst days. Most disturbing, perhaps, if you are part of the majority group in your home country, is that you will become a minority.²⁴

Summary

Leaders who understand the background, culture, and language of youth can incorporate this information as interactive strategies for helping students learn to trust in their ability to succeed. No one is ever truly culture free. Our culturally-tutored interactions and interpretations become our stories, not simply mirror imitators of our culture, but also as creators of culture. Research confirms that transference of culture begins in the womb. This continues throughout childhood as we are cared for as members of families.

These examples entail the language and emotions of acceptance, correction, affection, and disapproval, which provide building blocks for construction in self-efficacy. Efficacy is defined as “a capacity or power to produce a desired outcome.”²⁵ However, self-efficacy is also culturally defined as students and teachers use cultural language to define success, a quick wit, respect, trust, love, empathy, and loyalty. Children and adults need to feel appreciated by one another as they have an opportunity to interact and to share their lives whether in the classroom or in the community.

The brain is an amazing organ that is sensitive to experiences and cultural training. The hard-wired patterns become pathways for conducting messages more efficiently as the brain responds to repeat behavior. Connections not repeated will atrophy and fade away. The economy of cognitive function allows repeat behavior to be stimulated without having to “think” about it. This has positive and negative results. New neural connections are trying to find networks to partner with; they function like a country road with bumps, road construction, and interference closing down new connections. As neurons connect, the brain records the environmental information connected to

experience like the production set for a movie. Sensory information is recorded helping to log in the information correctly as memory in “full color.” New information is checked for validity and safety, the smells, sounds, colors, and emotions all hitch a ride with the information. The results are Technicolor, 3-D, virtual-reality memory clips.

Culture exercises a strong role in how the brain processes, stores, remembers, and integrates new knowledge with previous information. It is a system of thinking that is useful for stability in community, preservation of integrity, and beliefs. But culture also functions as the plasticity quality in the brain; it is open to growth and development. This growth is best through partnership with leaders sensitive to cultural history and individual needs. This growth can happen in the classroom as long as everyone involved is willing to grow and change together. There are numerous books and articles that address educators’ “call to teach.” Perhaps it is more appropriate today that we heed the “call to learn.”

“To make no mistake is not in the power of man; but from their errors and mistakes the wise and good learn wisdom for the future.” Plutarch
