

J JOSSEY-BASS TEACHER

GRADES PreK-5

Strategies for Teaching **Boys & Girls**

ELEMENTARY LEVEL

MICHAEL GURIAN,
KATHY STEVENS, AND KELLEY KING



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Strategies for Teaching Boys and Girls – Elementary Level

A WORKBOOK FOR EDUCATORS

Michael Gurian

Kathy Stevens

Kelley King

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About This Book

STRATEGIES for Teaching Boys & Girls: A Workbook for Elementary Level Educators is an invaluable resource for teachers working with students from preschool through fifth grade. It weaves together brain science and classroom strategies in a way that is both easily understandable and immediately applicable. This is the kind of book that teachers want—one that combines the right balance of “just enough” theory to help teachers become knowledgeable and a “whole bunch” of practice so that they can jump right in with the strategies on Monday morning.

We’ve organized this book around several important strategy domains so that you can go right to the sections that you need. We do suggest that you start with Chapter One to lay a foundation about the brain. After that, feel free to skip around to the parts you most need as a teacher. You’ll find chapters on movement, visual teaching strategies, social interaction, offering choice, art and music integration, making learning relevant, and more. Each of these chapters provides a fascinating look at how the brain works and illuminates why these strategies are so important for all learners. Central to each chapter is an exploration of the differences between the male and female brain and the connection of these hard-wired differences to gender-specific teaching strategies. We think you’ll appreciate the comments from students about their own learning, as well as the anecdotes from teachers about what works in the classroom.

The highlight of this book is the extensive lists of classroom activity and strategy ideas that span all content areas. We wanted to create a book for teachers that can be read and

re-read many times over and that will be a source of creativity and inspiration for years to come. We hope that our ideas may infuse a new level of excitement, curiosity, and student learning in your classroom.

The Authors

Michael Gurian is a social philosopher, family therapist, corporate consultant, and the *New York Times* bestselling author of twenty books published in twenty-one languages. The Gurian Institute, which he co-founded, conducts research internationally, launches pilot programs, and trains professionals.

As a social philosopher, Michael has pioneered efforts to bring neurobiology and brain research into homes, workplaces, schools, and public policy. A number of his groundbreaking books in child development, including *The Wonder of Boys*, *Boys and Girls Learn Differently!*, *The Wonder of Girls*, and *What Could He Be Thinking?*, as well as *The Minds of Boys* (coauthored with Kathy Stevens), have sparked national debate. His newest work, *Nurture the Nature* (2007), provides a revolutionary new framework, based in neurobiology, by which to understand and care for children all the way from birth to adulthood.

A former university instructor, Michael has worked as a consultant to school districts, families, therapists, community agencies, and other organizations. He keynotes regularly at conferences and has lectured at such leading institutions as Harvard University, Johns Hopkins University, Stanford University, and UCLA. His training videos are used by Big Brother and Big Sister agencies throughout North America.

Michael's work has been featured in various media, including *The New York Times*, the *Washington Post*, *USA Today*, *Newsweek*, *Time*, *Educational Leadership*, *Parenting*, *Good Housekeeping*, *Redbook*, and on the *Today*

Show, Good Morning America, CNN, PBS and National Public Radio.

Kathy Stevens, executive director of the Gurian Institute, is an international presenter and coauthor of *The Minds of Boys*. Her work has been featured in national publications including *Newsweek*, *Reader's Digest*, *Educational Leadership*, *Education Week*, *National School Board Journal*, and *Library Journal*.

Kathy has over twenty-five years of experience working in the nonprofit sector, focusing on children, youth, families, and women's issues. Her professional experience includes teaching music in Pre-K-8, designing and administering programs in early childhood care and education, domestic violence, juvenile corrections, adult community corrections, teen pregnancy prevention, cultural competency, and women's issues. Much of her early work was done in economically disadvantaged minority communities.

In addition to her work with the Gurian Institute, Kathy has designed and delivered training for the Federal Bureau of Prisons, Virginia Department of Corrections, Girl Scouts, U.S. Navy Ombudsman Program, Disproportionate Minority Confinement Task Force and a variety of nonprofit organizations. As a diversity trainer, she was honored to participate in the Children's Defense Fund's Institute for Cultural Competency at the former Alex Haley Farm in Tennessee.

Kathy lives in Colorado Springs with her husband. She has two sons and seven grandchildren.

Kelley King, director of the Gurian Institute's education division, has been a classroom teacher, special education teacher, teacher of the gifted, and a school administrator for twenty years.

While a school principal, Kelley initiated and led her school through an improvement process targeted at closing the gender gap, including the analysis of the data, professional dialogue and training, and the identification and implementation of effective strategies. Through action research, she has been able to demonstrate the effectiveness of *The Minds of Boys* and *Boys and Girls Learn Differently!* theory to enhance the achievement of all students.

Through her work with the Gurian Institute, Kelley presents at schools and conferences across the United States. Her work has been featured in national publications including *Newsweek* and *Educational Leadership*, and she is regularly interviewed by local and national media.

Kelley and her husband, Chris, live in Superior, CO with their two children.

About the Gurian Institute

IF you would like to help your school and community better understand how gender affects learning and living, please contact the Gurian Institute. Through our four divisions—Education, Family, Human Services, and Corporate—we provide training and services to schools, school districts, institutions of higher education, parent groups, businesses, youth-serving organizations, juvenile and adult corrections, medical and mental health professionals, religious organizations, and others serving boys and girls, and men and women.

We also provide keynotes and breakouts at conferences worldwide. There are Gurian Institute trainers throughout the United States, and in Canada, Australia, China and France.

We are committed to helping school districts, corporations and agencies become self-sufficient through internal training-of-trainer models. These are ongoing and serve populations over the long term.

A highlight of our training year is our annual Summer Training Institute, in Colorado Springs. Professionals join together for four days of training and networking. Some individuals become certified on the fifth day.

The Institute also provides books, workbooks, training videos for educators and parents, newsletters for parents and teachers, online courses and live chats, as well as other products.

For more information on services, products, and our philosophy, please visit www.gurianinstitute.com.



Acknowledgments

TEACHING is both a craft and an art. Each new teacher arrives in the classroom with a toolbox filled with ideas, strategies, passions, and hopes that will be transformed into opportunities for children, boys and girls, to learn how to read, add, subtract, think, ponder, and dream. With every passing school year teachers add new tools to their toolbox—they learn from professional development opportunities, from each other, from mentors, and they learn from the children.

The Gurian Institute has been invited into classrooms around the country, meeting wonderful educators who have honored us by allowing us to help them expand their toolbox. They have been the motivation and inspiration for this book. Dedicated administrators and teachers are working every day to understand how boys and girls learn differently, and by so doing help every student reach as high as she or he can. This book is richer as a result of teachers sharing their successes and students adding their voices. We are grateful to each and every one of them. We especially must acknowledge:

- Our Gurian Institute certified trainers, whose expertise and dedication carries them to hundreds of schools every year, sharing their knowledge and experience with their colleagues, practicing what they preach, improving the odds for each boy and girl who enters a classroom. Many of our trainers are educators just like you—principals, classroom teachers, curriculum specialists, school counselors—working in schools rich in diversity, challenge, and success.

- The outstanding educators in the Boulder Valley School District, especially Ellen, an exceptional mentor and role-model, and the magnificent teachers and staff of Douglass Elementary School.
- All the schools, teachers, administrators, and students who shared their wisdom and feelings with us—they make the book more real.
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Dedication

Michael: For Gail, Gabrielle, and Davita, and all the teachers.

Kathy: To all the teachers who dedicate themselves daily to offer each girl and boy a chance to develop to her or his fullest potential. I am in awe!

Kelley: I could not have participated in writing this book without the patience, understanding and support of my family. My husband, Chris, coached me to take it one step at a time as I pondered the magnitude of writing a book on top of being a full-time school principal. My children, Connor and Roxanne, were always so understanding when I sequestered myself in the study for long periods of time. They have been my greatest teachers about gender differences—as evidenced by my son’s exasperated inquiry one night, “Why do you have to write a book? That just means that people like me have to read it.”

1

The Science of Boy-Girl Learning Differences

A primary concern for nearly every teacher is the difference we each intuit in the males and females we teach. We all know that there is immense overlap between the genders, and that each child is an inherently sacrosanct individual not to be limited by a gender stereotype, but we also know that boys and girls learn differently right before our eyes.

—Michael Gurian

IN the past couple of decades one question has taken on more and more significance when we consider how ready an individual child might be for entering school: Is the child a boy or a girl? Exciting and ongoing research into the living brains of boys and girls is showing us that not only are boys and girls different at the organic level, but how they learn is different in many, many ways from the day they are born.

In the early days of the Gurian Institute's work with educators, we would ask the question, "How many of you took a course on how boys and girls learn differently during your teacher training in college?" Even in audiences of several hundred teachers, no hands would go up. When we ask that same question today, a few hands might go up. When questioned further, those who raise their hands generally report that they covered the topic of gender and learning briefly in an education class.

At the same time, when teachers take our course in how boys and girls learn differently they often ask, "Why isn't this taught in college? Why aren't schools of education

teaching this?” Fortunately, more and more are every day. Many are catching up to the newest brain research in learning, development, and gender.

The book you are about to read is based on twenty years of in-school research and ten years of training teachers in the practical strategies that grow from teaching (and learning) that work. You’ll meet many teachers in this book, and your toolbox will be increased manifold.

You’ll also have a head start on the education course that will, we hope, be taught in every school of education in the future.

Boys and Girls Learn Differently!

This chapter will give you an overview of the latest information available on how boys and girls learn differently and how that difference can and should change the way you implement your curriculum to ensure that every child, male and female, will have the chance to succeed to his or her maximum potential. For many of you, this information will bring an “Aha!” that validates intuitions you’ve had for a long time. We hope it will confirm that you have been on the right path as you work with your students. We hope that, for many of you, this information will open the door to exciting new experiences as you implement what you learn.

Where and when does gender in the brain begin? Soon after conception, boys and girls are on diverging development paths. If a child receives an X chromosome from each parent, a female architectural plan goes into action. If a child received one X chromosome and one Y chromosome, a different plan is activated and a male system is designed. These plans result in not only different bodies, but different brains. Beginning at around six weeks,

a male fetus triggers biological mechanisms toward the secretion of large amounts of testosterone in his fetal system. His genitals drop, producing the testosterone he needs. From that point until somewhere between five and six months of development, testosterone becomes the “chief engineer” of the developing male’s body and brain, giving him the capacity for a higher muscle mass than a female, different iron and calcium ratios, and different brain “formatting.” Developing female fetuses receive testosterone during the developmental period between six weeks and six months in utero, but not as much. They receive more estrogen-type hormones. This helps format their brains to be female. By six months in utero, boys and girls have been formatted with different brains.

Are these differences all that matter? Of course not. There are many similarities between girls and boys in utero and once they are born. There are also many differences among girls and among boys that indicate how powerfully individual personalities can trump gender in importance. Furthermore, the way a child is nurtured can affect how he manifests his maleness and she her femaleness.

Caveats aside, gender is a big deal—especially in learning. One can make the argument, if one wished to, that every boy could cry as much as every girl, or that every boy could talk about his feelings as much as every girl (it would be a tough argument, but social theories can make it); however, the brain research on gender difference is now so detailed, it is no longer possible to responsibly argue that boys and girls learn the same way.

What Are the Differences?

Although researchers are still discovering new areas of difference between the male and female brain, a number have already been identified that have implications for how

boys and girls learn. Remember that we are generalizing based on relevant research. There will be exceptions to each generalization, as every child is an individual, and male and female brain difference ranges both between boys and girls and among boys and girls. Remember also that difference means only that—one is not better than the other. Both are equally capable of learning and succeeding, but they do so in ways that we must understand if we are to create an educational environment that meets the needs of both!

Structural Differences

Using *magnetic resonance imaging* (MRI), *positron emission tomography* (PET) and *single photon emission computed tomography* (SPECT) technologies, scientists can look at the living brain and watch it work. The most advanced technologies let researchers watch actual blood flow in the brain, see where the brain is working, and by looking at male and female brains in this way, can see that boys and girls are working in different areas when completing the same tasks.

Over the past couple of decades, technology has helped researchers focus on some specific areas of structural difference between the male and female brain. Following are some of the most significant differences and their potential impact on your classroom.

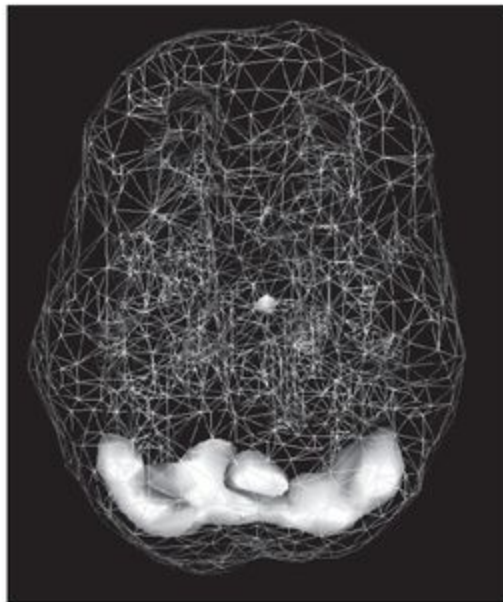
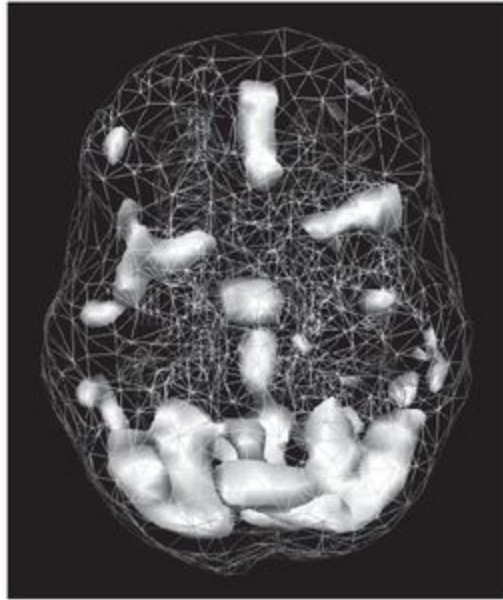
Corpus Callosum—This dense bundle of nerves connects the two hemispheres of the brain. In females, this bundle of nerves tends to be denser and larger than in males, resulting in increased cross-talk between the left and right hemispheres. The anterior commissure, a tiny additional connection between the unconscious areas of the hemispheres attached to the end of the corpus callosum, is also larger in females.

And this means—girls are generally better at multitasking than boys, including watching and listening and making notes at the same time. It also may explain why girls tend to tune into their own and others' feelings and move emotional content more quickly into thought and verbal processes. Girls can tell you how they feel as they are feeling—boys often need time to process before they can explain feelings.

Brain Stem—This is the most primitive part of our brain. Our “fight or flight” responses come from the brain stem; when we're threatened or in crisis this area of our brain takes over, telling the body how to respond.

Amen Scans of the Female Brain (top) and Male Brain (bottom) at rest. The areas you see that look like bubbles are areas of activity—while at rest!

SPECT scans used by permission of Dr. Daniel Amen



With the male brain's greater amount of spinal fluid, messages tend to move more quickly from the brain to the body.

And this means—boys’ brains tend to be poised for fight or flight and for a physical response when they feel threatened or emotionally charged. Boys in your class may slam a book, kick a chair, use an expletive, or engage in some other kind of physical display when challenged. This behavior may be the result of an emotionally charged incident when the boy is not given enough time to process the emotional content.

Limbic System—This system is a collection of structures located under the corpus callosum and just above the brain stem, most of which are duplicated in each hemisphere of the brain. Within the limbic system are several structures that play a key role in how boys and girls learn and perform differently. Parts of the limbic system that process emotion and sensorial memory are, in general, more active in girls than in boys, resulting in increased emotional memory for females. Additionally, females tend to be better able to read emotional cues in others.

- *Hippocampus*. A key player in converting information from working memory into long-term or permanent memory. This process is crucial for learning to have meaning and for retention. The hippocampus tends to be larger in females and the speed of neural transmissions is faster than in males, resulting in generally increased memory storage for the female brain.
- *Amygdala*. A small, almond-shaped structure connected to one end of the hippocampus that plays a very important role in the processing of emotions, especially fear and anger. The amygdala tends to be larger in males. Some researchers believe that the close proximity of the amygdala to the hippocampus suggests that emotional content is “tagged” onto many long-term memories. Consequently, recalling a memory can recall an emotion as well.

And this means—boys often display increased aggressive or impulsive responses—they tend to be sent to the principal a lot more than girls! Girls attach more emotional and sensory detail to events and remember them longer. They can hold grudges a long time. Writing stories will tend, on average, to be easier for girls when words are the only medium of inspiration used to help set up the paper.

Cerebral Cortex—This part of the brain contains about ten thousand miles of neural connections in each cubic inch! As thick as about three of your hairs, this area is where the serious intellectual functions of the brain take place. Thinking, speaking, and recalling—all things that need to happen in a classroom—are controlled in the cerebral cortex. The female brain tends to have more connections between neurons in the cerebral cortex. Blood flow in the brain is up to 20 percent greater in the female brain. Along with the increased neural connectivity between hemispheres, this adds more potential for information to move quickly between areas of the brain.

And this means—the increased speed of their neural connections may help girls process and respond to classroom information faster than boys, help them make transitions faster, help them multitask, and help them access needed verbal resources (reading, writing, complex speech early in life) better than the average boy as they engage in learning.

Cerebellum—This is the “doing center” of the brain. It is larger in the male. Coupled with about 15 percent more spinal fluid in the male neural system, messages between the brain and body can move more quickly (and with less impulse control) in the male body.

And this means—boys often learn better when their bodies are in motion. Sitting still can frustrate the male system, causing him to exhibit behavior that can appear disruptive or impulsive, and sometimes land him in the principal's office because he “can't sit still, can't stop touching things, is distracting his classmates” when he's really responding to his biological needs.

Processing Differences

Studying the images of the working brain, researchers find that not only are there structural differences between the brains of males and females, but there are also differences in how they use their brains. This has significance for teachers, as you develop strategies to implement your curriculum in ways that will allow all your students, both boys and girls, to perform at their best.

Here are just a few of the processing differences that have the most impact on learning.

Language Processing Areas—These areas are different in the male and female brain. Whereas males tend to have these areas centralized in the left hemisphere, females have multiple language processing areas in both hemispheres. As a result, females have more access to verbal resources than males, and therefore develop language earlier.

And this means—girls generally have significantly more access to verbal resources when they start school, and throughout life, than boys. On average, females use twice the number of words that males do (this includes writing and reading). It is easier for them to learn to read and write in kindergarten and first grade. Because literacy is the foundation of learning, this early difference often results in gender gaps that show up early in elementary school and persist throughout middle and high school.

Spatial Processing Areas—These areas are also significantly different in the male and female brain. Testosterone, the primary architect of the male brain, is believed to create more and denser neural connections in the right hemisphere of the male brain, with the result that males have increased resources for spatial reasoning—mental manipulation of objects, gross motor skills, mathematical reasoning, abstract reasoning, and the like. With less testosterone at work during fetal development, females tend to have less right hemisphere area devoted to spatial resources. (A crucial note: although girls generally test out worse than boys in spatial manipulation tests, there is less of a gender gap in mathematical calculation. Girls are not worse at math, as has been the stereotype in the past).