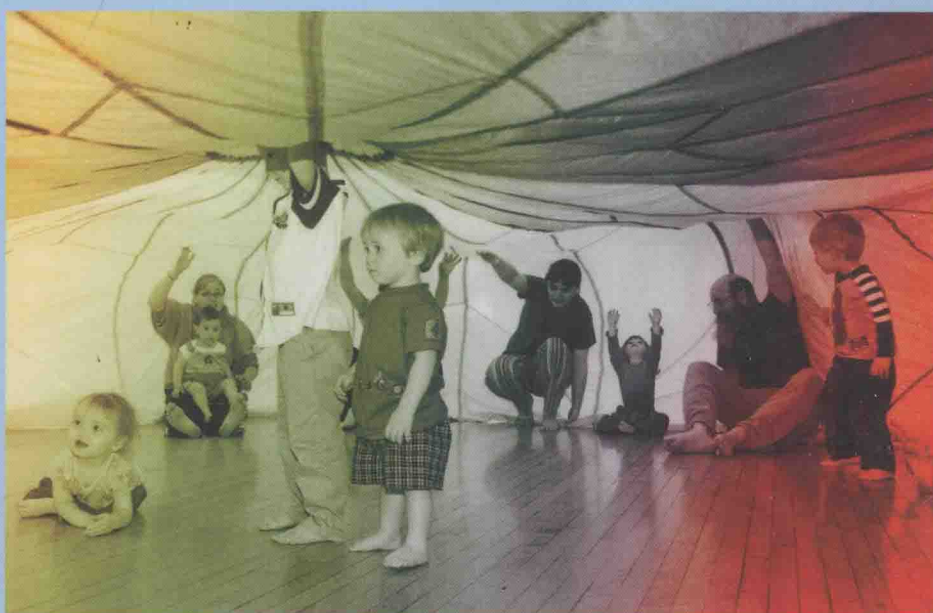
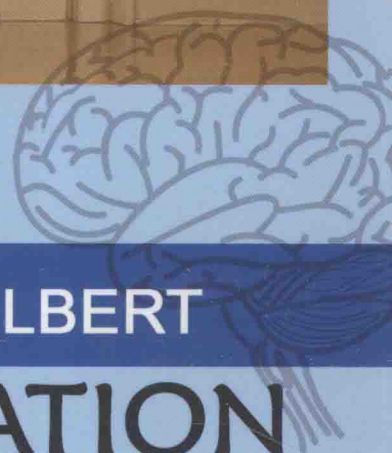




BRAIN-COMPATIBLE

ANNE GREEN GILBERT

DANCE EDUCATION



Brain-Compatible Dance Education

by
Anne Green Gilbert

**Photos by
Bronwen Anne Gilbert**

Brain-Compatible Dance Education

脑协调舞蹈教育

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*American Alliance for
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By providing a myriad of ideas and variations, Anne Green Gilbert encourages teachers to see all the possibilities of Brain-Compatible Dance Education for all ages and abilities.

IMPORTANCE OF DANCE EDUCATION

The National Dance Association recognizes the outstanding work that Anne Green Gilbert contributes to our field – especially in creative dance. We commend her for reaching out to the international community, teaching all ages the importance of the connection between a healthy lifestyle and the developing mind. Arts and health organizations across the globe urge us to dance in order to:

- ♦ Build self-confidence and achieve personal goals
- ♦ Improve core curriculum skills in math, science and language arts
- ♦ Develop muscle strength, flexibility and improve circulation
- ♦ Improve posture, balance and coordination
- ♦ Enhance self-expression and communication skills with creative decision-making
- ♦ Learn conflict-resolution skills and positive behavior through teamwork

All of these elements develop a highly creative quality of life. Although research on the effect of the arts on brain development is still in its “infancy,” Anne leaps boldly forward to reveal her unique ideas on this subject through her extensive research and practical teaching applications.

National Dance Association Board of Directors



Learning is change. It is change in ourselves because it is change in the brain. Thus the art of teaching must be the art of changing the brain.

~ James E. Zull

This book is dedicated to the pioneers in creative dance education whose writings “changed my brain” and started me on the path to teaching, decades ago:

Ann Barlin
Joyce Boorman
Norma Canner
Geraldine Dimondstein
Gladys Andrews Fleming
Bonnie Gilliom
Margaret H'Doubler
Mary Joyce
Barbara Mettler
Ruth Murray
Virginia Tanner



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David Gilbert for supporting my passion for dance for over thirty years, for reading the manuscript, offering suggestions and coping with my late night and long weekend writing sessions for over two years. You are my one true love.

FOREWORD

Brain-Compatible Dance Education is unique in its goals to integrate what is known about human growth and development and the maturation of the brain with the art of dance. Whereas sensory motor learning has always been an intrinsic part of the preparation of physical education teachers, strategies to graduate instructors of dance who support and can make use of current research in this field have been severely limited until now. *Brain-Compatible Dance Education* presents information on the anatomical make-up of this important organ and elucidates relevant and current theories of brain development. Most importantly, appreciation of the emergent mind of the developing human being is placed in tandem with what the physical and emotional act of dancing can do to support the learning process. Awareness of the value of sensory motor experiences in the plastic mind of a child is matched with pragmatic classroom guidelines and tips to support the teacher's educational intentions.

Brain-Compatible Dance Education offers practical applications for dance class derived and developed to support intellectual learning. Ten important principles of "BrainDance" are introduced. Concepts include the development of a meaningful curriculum, a meaningful environment, effective feedback and age appropriate curricular choices. Teachers of all dance forms will appreciate the strong philosophical and physiological basis for establishing dance as an integral part of the educational curriculum. Theories from known and respected motor learning specialists are in attendance with masters of dance education such as Laban and Bartenieff. A delineation of effective classroom strategies completes the preface of the book.

Brain-Compatible Dance Education is divided into lesson plan components, from the beginning warm-up of dance class to the final closure of cool down. The respective sensory motor goals are presented with simplicity and clarity. Movement behavior and sensory motor development concepts are supported and expanded upon by the thoughtful and integrated dance tutorials provided in the text, as well as a description of specific components of the National Dance Standards that are to be achieved. A thorough list of dance skills vocabulary is also provided at the beginning of each chapter.

All human beings first learn through movement. Movement must be an integral component of the learning process throughout the lifespan. *Brain-Compatible Dance Education* provides an intellectual rationale and offers practical suggestions for dance lessons from infants to adults. Dance as a form of communication is a common thread throughout all of the chapters. Dance as an art form is presented most powerfully in the chapters covering formal choreography and appreciation.

The reader of this book is encouraged to be a lifelong learner and show responsibility as a role model to his or her students. The teacher of dance is further encouraged to incorporate theories of multiple intelligences in dance class to reach all learners. This book will be an inspiration and reference in the development of class material for all levels of dance educators for years to come.

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2005–2006 Board of Directors (President),
International Association for Dance Medicine and Science (IADMS)

PREFACE

In my book *Creative Dance for All Ages*, I wrote, “creative dance combines the mastery of movement with the artistry of expression.” In other words, dance technique and composition skills – the craft of the art form – are integrated with creative and reflective experiences that develop the dancer’s artistry. Teachers all over the world continue to ask me how to bring improvisation and choreography into dance technique classes of all styles and how to include skills and steps into a “creative” dance class. The only answer I ever think of is “Just do it!”

Now, *Brain-Compatible Dance Education*, as a companion to *Creative Dance for All Ages*, provides background materials and practical applications for dance teachers who wish to present a holistic approach in their classes. Since the first printing of *Creative Dance for All Ages* in 1992, great strides have been made in brain research as related to the understanding of how we learn and move. This research contains a wealth of information on the body-brain connection and the important role movement plays in developing the brain. *Brain-Compatible Dance Education* examines specific research and how it should be applied to effectively present dance lessons, engaging both teachers and students to think as well as to move.

While *Creative Dance for All Ages* focuses on fifteen dance concepts and many ways to embody each concept, *Brain-Compatible Dance Education* approaches the subject of teaching dance through an understanding of the lesson plan. After the introduction on brain-compatibility, the five core chapters focus on each of five lesson plan areas. Besides making connections between “how students learn best and how best to teach,” each chapter contains new ways to explore dance concepts so to develop technical, compositional and reflective skills. The Appendices contain a wealth of information ranging from assessment to child development and lesson plans and resources for developing craft, artistry and more.

I hope you find this book helpful for planning lessons that meet the National Dance Standards and reflect best practices in dance education. *Brain-Compatible Dance Education* will make teaching and learning a joyful, meaningful experience for you and your students!

Anne Green Gilbert

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An Overview

Brain-Compatible Dance Education

In this chapter:

Elements of a Lesson Plan

Introduction

The Body-Brain Connection

- ♦ **Background**
- ♦ **Understanding the Brain**
- ♦ **Four Opportunities for Brain Development**

Ten Principles of Brain-Compatible Dance Education

Planning, Presenting and Evaluating Brain-Compatible Lessons

- ♦ **Lesson Plan Synopsis**
- ♦ **Planning the Lesson**
- ♦ **Presenting the Lesson**
- ♦ **Management Tips**
- ♦ **Special Issues**
- ♦ **Solving Space Problems**
- ♦ **Reflective Teaching**

In Summary

Brain-Compatible Dance Education

Elements of a Lesson Plan

NATIONAL STANDARDS for DANCE EDUCATION

National Standards for Dance Education, What Every Young American Should Know and Be Able to Do in Dance, Reston, VA: National Dance Association, 1994.

1. Identifying and demonstrating movement elements and skills in performing dance
2. Understanding choreographic principles, processes and structures
3. Understanding dance as a way to create and communicate meaning
4. Applying and demonstrating critical and creative thinking skills in dance
5. Demonstrating and understanding dance in various cultures and historical periods
6. Making connections between dance and healthful living
7. Making connections between dance and other disciplines

LESSON PLAN FORMAT

Warming Up

Exploring the Concept

Developing Skills

Creating

Cooling Down

DANCE CONCEPTS

Place, Size, Level, Direction, Pathway, Focus

Speed, Rhythm

Energy, Weight, Flow

Body Parts, Body Shapes, Relationships, Balance

Introduction

Ms. Jones begins dance class by leading her students through a series of exercises. She starts her favorite music, hands out scarves and instructs the students to pretend they are butterflies. As they run around the room, there is little creativity. In fact, some students swat each other with the scarves. Ms. Jones collects the scarves and asks the students to form lines at one end of the room. She then instructs them to gallop one by one like ponies across the floor. Ms. Jones notices that many students are talking and shoving; she thinks that reading a story might quiet them down. After reading the story, she tells them to “act out” what they have heard or seen. Several students react to the animal characters by making both appropriate and inappropriate noises while others just run around. Only a few seem to try their best to dance the story. After class, Ms. Jones wonders why her students never seem to improve.

Mr. Brown warmly greets each student by name and follows the weekly ritual that signals the beginning of the dance class. He leads his students through a movement sequence based on developmental patterns that prepares their bodies and brains for physical activity and learning. Mr. Brown introduces the lesson concept and together they explore it in a variety of ways. Contrasting music helps the students internalize the contrasting elements of the concept. After the structured exploration, he asks each dancer to reflect on which element of the concept is more challenging to explore. Next, Mr. Brown teaches a Russian folk dance that incorporates some of the skills they have practiced in previous classes. After the students practice the folk dance, Mr. Brown divides them into groups and asks each group to “re-choreograph,” or create their own movement, for one of the dance sections. After they perform the new folk dances, they openly discuss their work. Class ends with deep breathing as Mr. Brown praises his students for their concentration and cooperation. Later, he reflects on the lesson and notes a few ideas for next week’s class.

What is the difference between these two classes? Both Ms. Jones and Mr. Brown are professionals who have been teaching for many years. Both want more than anything for their students to grow as dancers and as responsible people. But Mr. Brown has an advantage – he understands how the brain works. He is able to plan and present lessons that coordinate two crucial elements, the students’ bodies and minds. Mr. Brown is using a brain-compatible approach in his classes.

Brain-compatible dance education is based on current research about how we learn. This chapter outlines this research and conceptual principles that are used to plan and present the most effective dance class. The next chapter discusses another form of brain-compatibility, how to structure the teaching of developmental movement patterns (that help build the brain) into an effective mind-body warm-up called the BrainDance.

The Body-Brain Connection

Movement activates the neural wiring throughout the body, making the whole body the instrument of learning.¹



Background

When I taught dance and physical education at the University of Washington in the early 1970s, I studied books by Newall Kephart, Bryan Cratty, Marianne Frostig and Jean Ayres. They wrote about stages of development, perceptual-motor skills, sensory integration and learning disorders. The connections they made between the brain and the body resonated with my experiences and thinking. In 1981, when I began teaching children in my private studio, I discovered that many of the exercises recommended by these authors were inherent in my methods. By exploring the concepts of Space, Time, Force, Body and Motion (adapted from Rudolf Laban's vocabulary), my students named body parts, practiced balance and developed eye-hand-foot coordination while exploring temporal, spatial, locomotor and nonlocomotor skills.

In the early 1980s, only a few of my students demonstrated learning and motor development problems. I used specific exercises from books mentioned above to guide them. I worked with the children for a few minutes before or after class and gave their parents exercises to use at home. In general, I saw gradual improvement.

By the 1990s, more and more students in my classes had not only motor or learning problems but also exhibited disturbing behavioral problems. These were caused by cultural changes that resulted in less movement in their lives. During the late 1960s and early 1970s, a generation of children spent hours sitting in front of televisions and in cars, rather than experiencing the joy of physical activity. In the 1980s, we saw the unfortunate results of children focusing on video games, viewing even more television and experiencing less unstructured play. The 1990s brought a plethora of computers and electronic games, families under stress, conflicting parenting advice, children spending more time

being restrained in car seats, unnecessary baby equipment, children in long hours of day care without parental guidance, playgrounds disappearing, overly competitive sports for all ages and high-stakes testing in schools. No wonder children had so much trouble with learning and behavior!

Movement is the key to learning, but people today spend hours simply sitting. Even babies in utero experience less movement because mothers spend so much time in front of computers and televisions. The American Academy of Pediatrics recommends that children under the age of two should not watch television or work on computers; children over two should be limited to watching only educational material for no more than two hours a day on any kind of screen media.² When we watch television, we go into ocular lock, staring with no movement in our brains. In the critical years as their brains develop, children should move, dance, play and interact with peers rather than stare at screens.

Balance is the key to healthy living. Our sedentary life coupled with poor nutrition has caused an epidemic of obesity with an increase in serious learning and behavioral problems. We have forgotten the importance of a balanced brain. Without a fully functioning lower and mid brain, the cortex must bare the burden of assuming more functions. Children are taught to read at an increasingly early age, which is inappropriate for healthy brain development. We over-schedule them with extra-curricular activities and competitive sports that leaves little time for free play and the development of motor skills, creativity and imagination. Children are pressured to learn and perform at levels that are not age-appropriate, with little opportunity to develop their social and emotional brains – the limbic system. Government and school districts put pressure on teachers to achieve high test scores, which leads to an even greater imbalance in the classroom and in society. Children become disengaged in their learning when rote education dictates and test scores are the priority.

Fortunately, the 1990s also provided an amazing amount of brain research based on advances in technology that allowed scientists to analyze images of the brain in action. Because I needed to understand my students' problems in order to guide them, I investigated a new generation of authors: Carla Hannaford, Eric Jensen, John Ratey, Patricia Wolfe, Shirley Randolph and Margot Heiniger. They presented ideas based on extensive research, which helped me refine my philosophy about brain-compatible dance education.

Understanding the Brain

The human brain is composed of two kinds of brain cells: glia and neurons. Glial cells are much more numerous than neurons and provide metabolic sustenance and a structural framework for the neurons. However, it is the neurons that perform the brain's work. The brain houses about 100 billion of these nerve cells. Each neuron has a cell body, one axon and many dendrites. The cell body contains the nucleus and oversees the cell's basic major metabolic functions. The axon, which may be a centimeter to a meter long, has two responsibilities: conduct information in the form of electrical stimulation and transport chemical substances. When an axon is insulated with a fatty substance called myelin, it conducts information faster because the myelin reduces interference from nearby reactions. Dendrites are branch-like wires that grow out of the cell body. Dendrites receive incoming information.

Neurons pass on information through synaptic connections: the end of the axon subdivides, sometimes forming many branches called axon terminals, then connects with the dendrites of another neuron. Information flows in one direction from the cell body, down the axon, to the synapse.

This information is carried inside a neuron by electrical impulses, but is transmitted across the synaptic gap from one neuron to another by chemicals called neurotransmitters.³

At three weeks of fetal development, the brain's billions of neurons begin developing through a process called neurogenesis. Within four months' gestation, these "building blocks" are for the most part fully formed. Neurons migrate to the areas of the brain where they are needed immediately after their formation. By the end of neurogenesis, most neurons take their final position so that all the major brain structures are in place.⁴

The most important part of brain development is synapse formation. While no new neurons are added after birth, many new synapses and dendrites grow at a rapid pace in the first few years of life. Synaptogenesis is a slower process than neurogenesis and migration. It begins at two months of gestation and continues through much of the first two years of life. Throughout this developmental phase, 1.8 million new synapses per second are produced.⁵ To accommodate this huge synapse formation, neurons expand their dendrite surfaces by producing dendritic spines. As much as 83% of total dendritic growth occurs after birth.

How all the neurons and synapses correctly link together is one of the most intriguing puzzles of the brain. Neuroscientists are still trying to find all the answers to brain wiring, but it appears that there is a fine balance between "nature" and "nurture." Genes (nature) direct the growth of dendrites and axons to their approximate locations in the brain, but then environment (nurture) takes over, refining the rough circuits to customize the individual brain. For example, most children are born with the neurons to speak any language but, because of their environment, certain synapses are pruned and they only speak the words they hear daily. Babies' brains are "works in process" and sculpt themselves in response to the world around them.

All areas of the brain must work in an integrated way for the brain and body to fully function. A strong lower brain and mid brain, which develop primarily through sensory and motor activities in the first years of life, are vitally important for overall brain function. Without this coordination, basic processing that our lower brain handles automatically has to be conducted by our upper brain. This makes sensory processing more awkward and difficult.

The brain is programmed to develop in stages within a certain sequence. When that sequence is disrupted and stages are missed, the brain must compensate. As the brain develops, gaps cause problems in processing information, which can compromise cognitive function. By understanding the important work of each part of the brain, we realize the value of all parts working in harmony.

