This is to certify that the

dissertation entitled

A Descriptive Study of the Application of Research in Neuropsychology to Self-Use Training for Actors

presented by

Pamela D. Chabora

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in Theatre

Jon Bausch
Major professor

Date 6/15/94

O-12771

A DESCRIPTIVE STUDY OF THE APPLICATION OF RESEARCH IN NEUROPSYCHOLOGY TO SELF-USE TRAINING FOR ACTORS

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Theatre

1994

Dr. Jon Baisch

ABSTRACT

A DESCRIPTIVE STUDY OF THE APPLICATION OF RESEARCH IN NEUROPSYCHOLOGY TO SELF-USE TRAINING FOR ACTORS

By

Pamela D. Chabora

The purpose of this study is to reveal that developments in the field of neuropsychology since 1966 have affected patterns and goals in self-use training for actors. It further proposes that new avenues for actor-training pedagogy can be discovered through open inter-communication between these two fields.

Inherent in this study is a comprehensive analysis of pertinent published and unpublished documents including books, periodicals, clinical neuropsychological and actor-training research studies, graduate dissertations and theses, and audio/video materials. Excerpts from transcriptions of taped personal interviews with three innovators involved in the application of neuropsychology to actor training: Ramon Delgado, Arthur Lessac, and Susana Bloch, and with representatives from three influential institutions of higher education: Tisch School of the Arts, The Juilliard School of Drama, and Asolo Center Conservatory of Professional Actor Training at Florida State University, are used to trace the link between neuropsychology and the evolution of self-use training for the actor.

For this descriptive study addressing most recent applications, the breakthroughs and developments in hemispheric lateralization and specialization research begun by Dr. Roger Sperry in 1966 are most significant. In addition, reports on the application of this neuropsychological research to self-use systems which have been recently incorporated into actor-training curriculums (such as the Feldenkrais Method, the Alexander Technique, and Sweigard's Ideokinesis) further demonstrate the links between these two fields since 1966.

Finally, this study reveals a cyclical pattern of how neuropsychological research has been and can be applied to self-use training for actors. By citing specific examples of how this research is currently being used in actor training, it also provides a theoretical proposition to specialists in this area of theatre to openly explore, experiment with, and capitalize on continuing research in neuropsychology.

This dissertation is dedicated to my son Ethan R. Chabora who brought me yellow flowers.

ACKNOWLEDGEMENTS

The author wishes to acknowledge and thank all the people who made this study possible. A very special appreciation is expressed to Dr. Dixie Durr for her thorough analysis of the content of this study and for her unending demand for excellence. A special thanks is equally extended to the dissertation advisor, Dr. Jon Baisch, for his patience and for his meticulous attention to structure and grammar. Many thanks to committee members, Dr. John Baldwin and Dr. Martha Ewing, whose comments and suggestions were deeply appreciated. Graduate professor Frank Rutledge also deserves deep thanks for stimulating a clean and clear defense for this study.

The author also wishes to acknowledge Dr. Susana Bloch, Arthur Lessac, and Dr. Ramon Delgado for their unending support and cooperation during the research process.

Finally, the author would especially like to thank her mentor and best friend, Dr. Robert J. Chabora. Without his patient guidance and inspiration, this study would never have reached completion.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

TOWARD A NEW PROCESS

> The development of self-use training for the performer seems to me one of the most important activities in actor training going on today. It is uncompleted work, needing both extension and synthesizing. Our older actor training was too narrowly focused on acting as thinking. The new emphasis shares with the newer psychologies the breakdown of the old body vs. mind dichotomy. Man is seen as a whole--mind/body and body/mind being one. The actor talks totally with the body, out of a greater self-awareness. Organically correct self-use is the only sure basis for any expressive-use of self, as the actor in all kinds of performance situations turns himself into a living metaphor. Whatever he does, this actor will find himself earth-anchored, unified, tension releasing, always aware of his flows of energy, centering, and joyously calling (Clay 22).

Acting theorist, Jack Clay, clearly identifies the gradual change of emphasis from product (goal orientation) to process (ongoing sustained development) in actor training. He aptly acknowledges the impact of basic changes and developments in psychology and related fields, such as neuropsychology. In fact, as research regarding brain function has progressed, a new "subjectivism" has permeated all areas of formerly reductionistic (product oriented) fields.

During the past twenty-five years, this fundamental

change in thought has resulted in an emphasis by many contemporary training programs on abstract physical exploration, expansion of imagination skills, and on a more "holistic" or organic approach to character development and presentation (Delgado 7-10). Institutions such as Tisch School of the Arts, Montclair State College (noted for the work of Ramon Delgado), the Juilliard Actor Training program, the University of Oregon Theatre program, and the Asolo Center Conservatory for Actor Training at Florida State University represent just a few of the many actor-training programs which have adjusted curriculum goals in this way. In addition, professional theatre organizations dedicated to the research and development of progressive actor training, such as the American Theatre in Higher Education, have incorporated annual workshops on organic self-use and the application of research in neuropsychology to actor training. Two examples are Dr. Susana Bloch's Psycho-Physiological Model For Actor Training (from the Institute of Neuroscience in Paris, France) presented in 1991, and the workshop, The Integration of Feldenkrais Technique into Process-Oriented Training, conducted by the stage movement faculty from Asolo Center Conservatory in August, 1992.

New discoveries in brain cognition and the mind/body connection (i.e., the cybernetic "feed-back" loop) research-ed in the field of neuropsychology have resulted in a focus

on systems of movement emphasizing structural integration and alignment such as the Alexander Technique with the "Primary Control" dealing with the head/neck/back relationship (The-Use of Self), and the Feldenkrais Method emphasizing "Awareness Through Movement" and "Functional Integration" (Goldfarb 69). The recent application of these systems to all areas of actor training, including movement and vocal expression, not only represents a trend toward a more holistic or "process-oriented" training but also appears to reflect a clear application of research in neuropsychology (Bendetti 176).

HISTORICAL TRADITION OF GATHERING FROM SCIENTIFIC RESEARCH

> Conceptions of the human body drawn from physiology and psychology have dominated theories of acting from antiquity to the present. The nature of the body, its structure, its inner and outer dynamics, and its relationship to the larger world that it inhabits have been the subject of diverse speculation and debate (Roach 11).

Within the past one hundred and fifty years, critical writings and actual systems of actor-training pedagogy, such as Francois Delsarte's "Science of Applied Aesthetics," G.H. Lewes' "On Actors and the Art of Acting" (Cole 341), Jerzy Grotowski's "Poor Theatre" techniques (i.e., Paratheatrics), and Arthur Lessac's "Body Wisdom," have evolved in conjunction with an ever-changing understanding of brain cognition discovered in the field of neuropsychology (Lessac iv-vii).

This tradition has for the most part been a pattern of subtle borrowing. Peter Brook, in his book The Empty Space, cites Stanislavsky's "Great System" as one of the first instances in which the art of acting is openly approached from a point of view of science (Brook 15). Even Antonin Artaud's prophetic writings on his "Theatre of Cruelty" consider physiological data. His analysis of the relationship between voluntary breath and automatic emotion, referred to as his "Cabalistic Theory", is "safely within the mainstream of opinion on the science of acting" (Roach 224). For example, Artaud touches on the mind/body connection when he states:

> Respiration, while fundamentally automatic, is subject to voluntary influence. While its rate and rhythm may be altered to a certain extent, the physiological consequence of those alterations are fully automatized: if we breathe too fast, one set of sensations will automatically ensue; if we breathe too slowly, another set appears whether we will its existence or not ... What voluntary breathing provides is a spontaneous reappearance of life (224).

Later in this study, Artaud's synthesis of scientific data on breath and emotion with actor training will be utilized by neuroscientist, Dr. Susana Bloch, as a starting point for the explication of her "Alba Emoting" actor-training system.

Although developments in neuropsychology have been regularly applied to actor training since the mid-nineteenth century (Zorn 96), no acknowledgement of the value of this intercommunication has been formally documented. When asked

to identify publications specific to this study, both Professor Judith Pratt, past chair of the Stage Movement Specialists Forum of the American Theatre in Higher Education (hereafter referred to as ATHE), and Dr. Betty Edwards, director of the Center for Educational Applications of Brain Hemisphere Research, sent back negative responses.[1]

Joseph Roach, in his text The Player's Passion, presses the notion that theatre specialists need to broaden their scope in terms of evaluating their discipline, taking into consideration also the scientific milieu. "The theatre exists at the center of civilized life, not at it's peripheries. Specialists in other fields acknowledge this centrality" (Roach 11).

IMPACT OF ART VERSUS SCIENCE DICHOTOMY

Since 1991, a comprehensive search for published literature on the application of neuropsychological data to self-use training in acting has revealed very little. This basically unacknowledged "borrowing" of neuropsychological data and procedure for artistic results has either been a perpetuation of or a contributor to territorial barriers (i.e., the traditional arts and science dichotomy) that inhibit growth through interaction.

From the time of Descartes, the chasm in communication

[1] Representatives of Edwards' research center stated that they "were not able to find anything (published) related to the topic of neuropsychology in the performing arts" (Brain-Ed Center. Letter to the author. 20 November 1991).

between scientists and artists has grown. Although both are forms of investigation that communicate findings, science and art have traditionally conveyed information of a different order. Prior to the late 1960s, the scientist had investigated and reported on the world of objects and individuals as objective data, as finite products. On the other hand, the artist "communicates (often unwittingly) a part of himself, and is vitally concerned with the 'form' of the message. Perhaps, for such reasons, many individuals have questioned the validity of applying the methods and practices of science to the arts" (Gardner 311).

As recent scientific research, especially that regarding the human brain and body, has acknowledged a more systemic type of philosophy and method, scientists and artists are beginning to speak more and more in the same language. Neuropsychologist, Howard Gardner has taken a leading position in breaking down this art versus science dichotomy:

> And so making a case for interrelations between these two fields has become my major undertaking for the past few years; I would hope to convince developmental psychologists to consider the arts, and aestheticians to ponder the nature of human development. I would encourage artists and non-artists to appreciate the common links (rather than the alleged gulf) between them (Gardner v).

Neuroscientist, Dr. Susana Bloch explicated a call for this type of interaction in her recent article, Effector Patterns of Basic Emotions, when she stated, "this kind of

approach brings the study of acting--up to now an almost exclusive domain of the arts--into the field of neuroscience" (Bloch 17).

With a growing dependency on the mind/body philosophy and other discoveries from the field of neuropsychology, it is disturbing that the field of theatre has not fully acknowledged the impact of this research on actor training or the potential for interaction and mutual benefit. In the words of aforenoted Judith Pratt, "We need more people (researching and) writing dissertations about such medical connections. I have long felt that the sports medicine people are way ahead of us in applying medical research to performance" (Pratt, Judith. Letter to the author. 12 December 1991).

> There is a great mystery surrounding what really goes on in our acting workshops, almost a mystique. We hear of particular uses that teachers are making of Alexander, Tai'Chi Chu'an, Yoga... Reich...of the exciting things being done with actor training methods with disturbed children, of the extension of theatre games into new areas, of gestalt, of new thoughts on the Stanislavski system. But little of this work and the ideas, experiences, goals and philosophy which lie behind it is open to us for sharing. Mostly, there is silence.
>
> We must start by telling each other of our experience as best we can, trusting that the freedom of the space will allow us to be heard; We must not fear to sound strange or old fashioned, too much or too little concerned with politics, science, empiricism or philosophy; too devoted to craft or intuition; too centered on internal states or on physical action. Let us say what we have to say in any way we can. A number of assumptions need to be attacked to break the silence (such as):

> That actor training is separate from and unrelated to the inquiry and findings going on in other areas such as psychology, anthropology, and sociology (Brown ix, x).

STATEMENT OF PURPOSE

The purpose of this study is to investigate whether developments in the field of neuropsychology since 1966 have affected patterns and goals in contemporary training for actors, particularly in the area of self-use, and if so, whether new avenues for actor training pedagogy can be offered through open intercommunication.

Three questions guide this inquiry. Firstly, how have developments in neuropsychology influenced actor training in the past twenty-five years? Secondly, how has actor training, specifically dealing with self-use, changed in the past twenty-five years? Thirdly, what are the views of representative innovators and institutions regarding this application of research in neuropsychology to actor training and what pedagogical implications do they foresee from this intercommunication?

APPLICATION OF RESEARCH IN NEUROSCIENCE TO RELATED FIELDS

> It is a strange contradiction of this age of scientific enlightenment that we literally know more about the separate parts of the human organism than we do about the manner in which the organism operates as a totality. As we come ever closer to an understanding of the basic mysteries surrounding the life process, we seem to move further from an understanding of how man communicates with man, how feelings and emotions are generated and transmitted; in short, how man functions and can best function as a totality...

> in addition, a great number of current 'self-realization' movements [and particularly training methods of acting, speech, and movement] treat the issue of human physical performance within the context of their own particular philosophies. However, the vast majority of these movements rely heavily upon varying degrees of mysticism and an all too frequent disdain for proven scientific conclusions (Lessac, Body Wisdom i).

This research study was prompted by a number of widely publicized examples of other fields benefiting from current research in neuropsychology. Specialists in visual art, music, creativity theory, sports medicine, and education have already made major strides in the areas of performance and pedagogy in the past twenty years. Published reports outlining the details of hemispheric lateralization and specialization of function prompted further inquiry and experimentation in these specialized fields. Such activity seems to reflect Dr. Sperry's prophetic statement that "from here on in those who would expound on the mysteries of human thought will have to know as much about brain physiology as they do about Greek philosophy. It now becomes important in any instance to distinguish between pre-1965 and post-1965 versions of a given philosophic stance"(Restak 381).

In the area of visual art, the work of specialists Elliott W. Eisner and Betty Edwards stand out. Eisner (1972) addresses the contributions and limitations of scientific research to art education. His work has had a great impact on both art education and educational perspectives in general

in the public school systems. His research has also been the catalyst for many Fine Arts Mandates in the United States (McLaughlin 78).

Betty Edwards' writings on art and Sperry's research in neuropsychology exposed the general public to the current brain research and its potential for practical application. Her work not only describes the ongoing research on hemispheric specialization and dominance, but also challenges the reader/student to explore right hemisphere capabilities, bypassing traditional methods of visual art production (Drawing On the Right Side 1979). A description of both Eisner's and Edwards' most recent research on current understandings of cognition and education in the arts is elucidated in Chapter One of this study.

Applications of neuropsychological research to music began as early as 1968, immediately following Sperry's discovery. New information on the right hemisphere's connection to aural, spatial, and gestalt cognition gave experts in the field of music a prominent position in this experimentation. Studies identifying music's non-verbal qualities tied the art-form to the intuitive, creative right hemisphere. Other studies addressing music's sequential, metered, and rhythmic qualities identified music's ability to aid integration with the left hemisphere (Schweiger, 1985). "Neuroscientists have found that music activates the flow of neural impulses across the corpus callosum, the fibrous

tissue that connects the two hemispheres, creating a harmonious interchange between them" (Merritt 138). Further research has also revealed that the more skilled a musician, the more likely that musical skill will "migrate into the linguistically dominant left side" (Gardner, "Music of the Hemispheres" 92). Such evidence leaves those in the area of actor training with questions regarding a similar transference of function as an actor becomes highly skilled and familiar with each role he/she studies.

Andrea Shindler, executive director of The Foundation For Human Potential, has taken a prominent position in the current movement to "stimulate inter-disciplinary cooperative research concerning the possible relationship between (artistic) ability and neurologic functioning, particularly at the cognitive level" (Shindler 1). Beginning with a three-day symposium in 1988 entitled "Art and the Brain", dealing with the process of learning how the brain produces visual art, Shindler has continued in this exploration of cognitive and creative output by sponsoring a similar symposium this past November (1992) entitled "Music and the Brain." In this symposium, she brought together preeminent professionals in the field of neuroscience such as Dr. John Brust from Columbia University, and in the field of music such as Dr. David Epstein from M.I.T.'s Music and Theatre Arts Program. Ms. Shindler's pioneering position as a facilitator of inter-communication between neuroscience and the arts may well

lead to a "Symposium on Theatre and the Brain".

Most recent developments in the application of research in neuroscience to music are currently being disseminated by the "Music and the Brain Information Center" (MBIC), a division of the Center for the NeuroBiology of Learning and Memory at the University of California at Irvine. This center offers "a computer-based bibliographic record of scientific research on music including its brain substrates" (with more than 10,000 entries), serving as a "clearing house for the newest findings and fostering interdisciplinary knowledge concerning music, behavior, the brain and allied fields" (Letter to the author. May 1993).

In April of 1990, Ohio University sponsored a "Conference on Creativity" calling together artists and scholars from many fields to address the most current thinking on creativity. Among the speakers were Elliot W. Eisner and Betty Edwards. In recent years the analysis of creativity has moved from a mystical or philosophical realm to a more scientific realm. The scientific analysis of creativity, tracing the biochemistry of neuro-transmitters and neuroproteins from specific areas of the brain, "helps us to understand how a richly associative system could function as a 'workshop of the possible'" (Boden 129). As a result, the topic of creativity has also moved from theoretical discussion to practical techniques

which can be and have been implemented, influencing many fields including the arts and education. Creativity has taken on a whole new meaning as more data has been uncovered regarding brain cognition and hemispheric specialization/ dominance. New techniques have been developed to expand an individual's complementarity of hemisphere function, focusing on activities which can stimulate the less dominant hemisphere. "The ideal creative person is one who can integrate or use in a complimentary way the specialized functions of both sides of the brain" (Torrance 177).

> Particularly in this "Decade of the Brain," it is instructive to ask whether advances in understanding the brain and how it controls behavior have aided in the search for methods that could potentially enhance human performance. Further understanding of the basics for performance is likely to come from ongoing research in neuroscience and on "peak performance." Recent neuroscientific studies using imaging techniques have shown that even simple motor processes have complex neurophysiological correlates. Research on high performance behavior has made progress in identifying the affective, attentional, and cognitive states associated with such behavior" (Druckman 228, 19).

Of all the various fields herein addressed, no other relates more directly to self-use training for actors than the fields of sports performance and sports medicine. Applications of research in neuropsychology to sports medicine have been ongoing since Sperry's initial split-brain operations. Current hemispheric research regarding successful sports performance has been directed toward pre-performance intervention. Based on experimentation using biofeedback data of hemispheric activity, pre-

performance techniques were developed "to teach athletes to habitually use cognitive behavioral techniques at strategic times in their sports performances" (Druckman 224). For example, in one study dealing with improved aiming, cardio-vascular deceleration motivated by breathing and imaging techniques altered the alpha activity of the left hemisphere "(reducing covert verbalizations and increasing the visual-spatial processes dominant in the right hemisphere) which allowed dominance of the right hemisphere at the time of the shot" (223). Can the use of these neuro-imaging techniques for improved performance be carried over to actor training, particularly in the movement and self-use aspects? The idea that honing the ability to "let go" and allowing automatic processing versus conscious control to take over in performance seems as beneficial to the stage performer as to the athlete.

Of the fields included in this introduction, education has undergone the greatest transformation as a result of research in neuropsychology. The contemporary emphasis on holistic and active learning in educational philosophy and pedagogy has been attibuted by many to our new understanding of brain cognition. This issue is at present quite controversial among experts in neuropsychology and education alike. Noted neuro-psychologist, Dr. Sally Springer, claims that "those who seek to modify educational systems and implement

assessment and training programs based on our knowledge of brain asymmetry, are indeed, on shaky ground" (Left Brain, Right Brain. Do we educate both? 25). On the other side of this controversy, education theorists such as Leslie Hart and M.C. Wittrock claim that current research on cognition requires a new look at the pedagogical tradition, and perhaps, a revamping. Hart (1981) claims that the old-fashioned focus on rote learning (a left hemisphere function) encompassed in an authoritative "fishbowl" atmosphere prevents creative outcomes--"instead 'right' answers and simple forms of regurgitation are favored. Our need now is for non-rote 'intellectual' learning that uses our entire cerebrum effectively. And that demands new kinds of settings for learning" (Hart 506). Educational researcher, M.C. Wittrock, also works from the assumption that "teaching and instruction can be improved by understanding the cognitive and neural processes of learners and teachers" (Wittrock 330). His collection of data on attention and knowledge aquisition provides a direct application of research on brain cognition to the teaching of young children. The implications of such applications are far-reaching and have already impacted curriculum content and pedagogical choices.

> Educational researchers and teachers want to know the cognitive processes people use to comprehend information. Do they use a spatial and holistic process, a verbal-analytic process, to make sense out of instruction? What information-processing strategies do they use to comprehend, remember,

> and recall information? How can we stimulate these processes to facilitate meaningful learning? They would like to know and be able to measure how people differ from one another in these processes, so that they can better design and individualize teaching for them (Wittrock 330).

This brief exploration into the application of research in neuropsychology to other related fields compels one to question why such intercommunication has not occurred more openly and actively in the area of actor training. Are the strides taken in musical processing or in sports medicine different from the strides that could be taken to address the physiological and emotional needs of an actor portraying a character in performance? Like the musician, the actor must also deal with the aural, the linear, the simultaneous, and the subtextual. As noted herein, research on brain specialization, localization of function, and hemispheric dominance has had a major impact on pedagogical techniques in general. Therefore, can what we do know about brain cognition and consciousness provide any tips to acting teachers on how to stimulate creative expression from each singular individual? Will this research in neuroscience ever arrive at a "usable" level for us in actor training, or must we remain hooked to that intangible, mysterious thing called "intuition"? Throughout the following chapters, these questions and others will be theoretically and practically addressed.

PROCEDURES, SCOPE AND LIMITATIONS

This research project follows the criteria prescribed for a qualitative descriptive study. Qualitative researchers are concerned with developing, understanding, and describing "multiple realities through a process of interpretation" that is "context-bound" (Smith, J. 5). Therefore, the data collected from pertinent published and unpublished resources, from audio and video collections, and from transcriptions of taped interviews with sample innovators and actor-training specialists at three representative institutions are descriptive.

Following a contemplation of the application of neuropsychological research to some of theatre's closely related fields such as music, visual art, and sports medicine, a brief overview of the beginning research on hemispheric specialization and lateralization conducted by Dr. Roger Sperry (et al), and the subsequent evolution and application of this research is explicated. Within this overview, particular attention is paid to the application of this neuropsychological research to self-use training for the actor.

This overview encompasses a selection of pertinent published and unpublished documents, examining relevant library resources including books, periodicals, clinical neuropsychological and actor-training research studies,

graduate dissertations and theses, and audio/video materials. Material which clearly supports or negates the original premise of this investigation that developments in the field of neuropsychology since 1966 have affected patterns and goals in self-use training for the actor is researched and recorded.

Later in this study, this research will be juxtaposed with current applications of research in neuropsychology to self-use training for actors revealed through interviews with selected innovators and institutions both to uncover possible repeated patterns and to contemplate possible implications for the future.

OVERVIEW OF DISSERTATION CONTENT

CHAPTER I. Chapter One addresses the most recent applications to actor training beginning with the afore-mentioned breakthroughs on hemispheric lateralization and specialization catalyzed by Dr. Roger Sperry (et al) in his "split brain" operations in 1966.

Sperry's "split brain" operations (surgically separating the cortical connection between the two brain hemispheres) had a major impact on the world because they revealed that the right hemisphere was indeed an active participant in the cognitive process and that the corpus callosum, the cortical pathway or "major nerve fiber tract ", was the connecting factor for the two hemispheres (Springer 5). This discovery opened up a whole new door to integrated

research for scientists, educators, artists and theatre practitioners alike. Earlier "self-use" or mind/body systems like the Alexander Technique and the Feldenkrais Method were soon considered viable pedagogical options. By the late 1970s, organic self-use became the first step in training for actors.

Following an exploration of these neuropsychological breakthroughs, several specific examples of the application of Sperry's research, and subsequent developments, to actor training are included. This aspect of the study reveals that new theories on gestural and emotional expression and methods for learning physical movement have emerged from this pioneering work in neuropsychology.

CHAPTER II. Data collected primarily from observations of and from taped interviews with three contemporary innovators in actor training who have actively utilized recent research in neuropsychology in the development of their own unique training systems is addressed herein. Based on my comprehensive search for significant examples, Ramon Delgado, Arthur Lessac, and Susana Bloch exemplify the relatively few attempts to mesh current neuropsychological data with actor-training techniques (Bloch, "Commentaries" 205).

CHAPTER III. In order to trace the many links between neuropsychology and contemporary self-use training for actors, three examples of institutions which offer

conservatory settings for professional actor training are examined. These institutions appear to actively utilize and to develop connections between theatre training and research in neuropsychology. Data collected from correspondence, personal observations, and taped interviews with actor-training specialists representing the Tisch School of the Arts, The Juilliard School of Actor Training, and Florida State University's Asolo Center Conservatory for Actor Training is analyzed and discussed.

These institutions of higher education have been selected not only for their leadership positions in the reputed ATHE organization and in professional theatre training in general, but more importantly for their recent experimentation with and incorporation of many or all of the self-use systems to be explored in this study. They are prime examples of the creative excellence that can be reaped from intercommunication between neuropsychology and actor training.

CHAPTER IV. Finally, this study closes with a call for theatre artists and neuropsychologists alike to discourage territorialism and to openly capitalize on the possibilities available in each field. A summary of the findings disclosed in the 1993 ATHE panel on Intercommunication Between Neuroscience and Actor Training: Aesthetic and Pedagogical Implications marks the beginning of such an open exchange. Following the lead of the few innovators

explored in this study, theatre practitioners, especially specialists in actor training, are encouraged to ignore the stigma that art and science cannot mix, and to start openly benefiting from the ever-changing understanding of the human brain provided by neuropsychologists (Bloch, Susana. Letter to the author. 6 June 1992). The conclusion of this study considers the implications of this theoretical intercommunication and application.

DEFINITION OF TERMS

This study is directed toward the theatre practitioner, particularly the specialist in actor training. Therefore, common theatre terminology is assumed, while references to scientific terms are concisely explicated whenever possible. In this dissertation, "theatre movement for the actor" encompasses kinesthetic (i.e., sensation of position, movement, and tension of the body in space) expansion, physiological awareness, alignment orientation resulting in proper "self-use." It also includes techniques specific to production requirements such as characterization (physical gesture), contact improvisation, clowning, mask (both neutral and character), acrobatics, stage combat, mime and basics in the major idioms of dance including modern dance, ballet, jazz, tap, folk, and historical period movement (Rolfe 7).

Herein, the terms "expression" and "gesture"--that is, "movement of the body, or a part of the body, to express or emphasize ideas, emotions, etc." will generally be referred

to in a pedagogical or theatrical context (Guralink 608). Similarly, the term "holistic", "the view that an organic or integrated whole has a reality independent of and greater than the sum of its parts" (Guralink 669), will often be paired with references to contemporary actor-training pedagogy.

> 'Self-use' must be distinguished from expressive use. It is to define what Martha Graham calls the 'divine normal.' If the body is held to be a universal construct, the organically correct use of which in movement and voice is available to us all--The basic activities of simple self-use are lying, sitting, standing, walking, breathing, and calling. Only when the actor knows what these mean as correct, neutral experiences, is he really ready to move on to expressive-use of himself (Clay 17).

Ideally, proper "self-use" is the first goal of contemporary actor training. In the early 1900s, F.M. Alexander was one of the first to dispute the pervasive mind/body dichotomy of his time with the holistic term, "self-use." He identified ideal alignment as central to proper self-use. Ideal alignment is a dynamic (versus static) head, neck, and back relationship which follows what Arthur Lessac, one of Alexander's advocates, refers to as the Curvo-Linear Principle. "This principle states that the body's naturally curved line follows a single directional blend of the parenthesis-like bow shape--a curvo-linear structure rather than a linear one" (Lessac Body Wisdom, 7). Dynamic alignment is achieved by focusing

on the process, what Alexander calls the "means-whereby," versus trying to attain some finite product, what he calls "end-gaining" (Jones 44-51).

The "mind/body" connection referred to throughout this study is also central to proper self-use. This term encompasses the "synergic" or "correlated interaction" of different organs and parts of the body (Guralink 1479). The "mind/body" connection is also central to systems research, reflecting a "circular versus linear causality." It focuses on the "cybernetic feed-back loop," a kind of circular or "recursive" process where the body's control system compares its present state to its goal, "giving rise to the system's subsequent actions" (Goldfarb 67). In other words, the interaction between the brain (the central nervous system) and the body (the peripheral nervous system) is cyclical and interdependent. Every intention will synergetically yield a physical movement and every movement will mutually express an intention. This mind/body systems research is the product of developments uncovered in the field of neuropsychology.

"Neuroscience" is a branch of science dealing with the nervous system, its structure (i.e. the brain, the spinal column, and the peripheral nervous system), and its diseases. In turn, "neuropsychology" is a branch of neuro-science dealing with "insights into brain function gleaned from evaluating the effects of various injuries to the

cerebral hemispheres (Springer 173).

> In addition, modern neuropsychology attempts to extend our understanding of psychological processes by examining the ways in which they break down. Thus, the fact that visual impairments can take on a variety of forms leads to a theory or model of vision that incorporates many stages and takes into account the contribution of other psychological processes. In the same manner, investigators search for the ways in which memories break down and disorders of language, movement, and emotion occur. Sometimes, a behavior thought to be a unitary mental process turns out to be a complex interaction; other times, they discover that what were thought to be separate mental activities actually arise from the same brain mechanism (Springer 174).

"Neuro-anatomy" basically deals with the anatomical structures of the brain (i.e. the hindbrain, the midbrain, and the forebrain), especially focusing on the cortical regions of the cerebral hemispheres, the spinal cord, and the peripheral nervous system. Two branches of science directly related to neuroscience are "cognitive science", dealing with the empirically based "nature of knowledge, its components, its sources, its development and deployment ... related to human knowledge" (Gardner 6), and "psychobiology" which is a combination of behavioral science and brain science providing another means of understanding how the brain influences our perception of the world.

Through Dr. Roger Sperry's experimentation on "split-brain" patients (i.e. epileptic patients who underwent an operation severing the corpus callosum which connected the

right and left hemispheres) in 1966, neuropsychologists have identified the contra-lateral or cross-functional duties of each hemisphere, noting a hemispheric dominance of cognition in an abundance of cases (Springer 13-14). Doctrines of cerebral "localization of function" dealing with particular functions assigned to specific regions of the brain such as Paul Broca's speech area, and "hemispheric lateralization" have also led to the understanding that each hemisphere is capable of "perceiving, learning, remembering, and feeling independently of the other, but that some differences exist in the way each hemisphere deals with incoming information" (Springer 6).

> The left hemisphere processes information linearly, logically, and sequentially; it makes fine discriminations, differentiations in stimuli,and deals with verbal information. It is responsible for thinking versus feeling and intellect versus intuition. On the opposite side, the right hemisphere is responsible for metaphoric expression, interpretation of complex visual patterns and synthesis. It processes information non-linearly and intuitively; simultaneously deals with the figural, auditory, kinesthetic, and emotional (Torrance 117).

As mentioned earlier, these neuropsychological developments have affected contemporary artistic theory, and are addressed at length in this study. The traditional "dichotomy" between the fields of science and art has begun to disintegrate as a result of these findings and as a result of the work of innovators like neuropsychologist, Dr. Susana Bloch, who have taken the lead in intercommunication.

> Drama is often considered the most conservative artistic activity, and scientific literature on the topic is extremely limited. Anatomy has been taught for centuries in fine art schools, yet drama departments very rarely have courses on physiology--(Bloch, "Commentaries" 207).

REVIEW OF THE LITERATURE

Since the purpose of this study is to inquire about and describe the application of research in neuropsychology to self-use training for actors, and to explore the implications of an open intercommunication between the fields of theatre and neuropsychology, this dissertation is addressed primarily to the theatre practitioner, and most especially to the specialist in actor training. Therefore, the descriptions of scientific terminology and research developments found in the following references are clarified using analogies to theatre whenever possible. Knowledge of general theatre terminology and sources is assumed in many cases.

After searching the published literature available since 1966 in both neuropsychology and actor training respectively, this author was not able to find a single document which comprehensively examines the application of neuropsychological research to actor training, (particularly dealing with self-use). Included in the following review are several theatre resources which cite current research in hemispheric lateralization to theories on consciousness (Groetzinger 20-21), and

which briefly acknowledge the impact of this research on specific actor training systems (Delgado x). But none of these sources explores specifically how this research has influenced the acting system or what the potential for further application could imply.

In support of this study, several excellent sources dealing with the general history and application of neuropsychological research are particularly insightful. Neuropsychologists, Sally P. Springer and Georg Deutsch provide a clinical view of brain asymmetry in their text, Left Brain, Right Brain. "They separate established facts from the many speculations that abound, giving a thorough presentation of the history of the research findings on brain-damaged, split-brain, and normal subjects--they then take on speculation: two brains, two minds?, cultural differences in hemisphericity, and discuss education and the right brain with an evolutionary perspective" (Curtiss 19). The Integrated Mind by Michael S. Gazzaniga and Joseph E. LeDoux takes this initial research on hemispheric specialization a step further. A section dealing with emotion and interactive brain activity leads to an interesting discussion on creativity and artistry, citing theatre artists in particular.

Robert Ornstein's The Evolution of Consciousness and Colwyn Trevarthen's collection of essays in honor of Roger W. Sperry entitled Brain Circuits and Functions of the Mind both

focus on the enormous influence of Dr. Sperry's revolutionary experimentation on hemispheric lateralization and complementarity. "This influence extends beyond the field of neuroscience and related areas of cognitive psychology and philosophy of mind and has altered the popular conception of human nature" (Trevarthen, Afterword). Trevarthen's chapters on "Psychophysical Interaction," and "Coordination of Movement as a Key to Higher Brain Function" are particularly pertinent to this study.

Neuropsychologist, Howard Gardner, provides a different understanding of brain cognition and neuropsychological research initiated by Roger Sperry than the aforementioned emphasis on hemispheric specialization. His book, Art, Mind and Brain, focuses on the synergic interaction of brain hemispheres (central nervous system) and the body (peripheral nervous system) in relation to artistic creativity. His most recent book, The Mind's New Science, is a thorough account of the latest research in the field of neuroscience. It addresses the most current data on multi-modal cognition and parallel distributed processing, expanding on the synergic interaction of brain and body. The Dual Brain, edited by Frank D. Benson and Eran Zaidel, also addresses the application of neuropsychological data to artistic creation and expression. The section entitled, "Harmony of the Spheres and the Hemispheres: The Arts and Hemispheric Specialization," provides a clear-cut view of

the possibility of explaining and/or offering avenues for artistic creation with current neuropsychological data.

One of the most authoritative resources for this study is the annotated bibliography entitled, Contemporary Research in Brain Hemispheric Specialization For Artists and Art Educators, by Deborah Curtiss. This thesis provides a comprehensive overview of all published articles and books addressing the application of neuropsychological research to the arts from 1966 until 1982. Although her interest is focused primarily toward the visual arts, this document includes many studies on the neuropsychological aspects of artistic expression, including movement and voice. Another visual artist and theorist, Dr. Betty Edwards, provides a more comprehensive look at the application of neuropsychological research since 1966 to visual art. In addition to her renowned texts, Drawing on the Right Side of the Brain and Drawing on the Artist Within, "integrating current knowledge of hemispheric specialization with the teaching of art, specifically drawing" (Curtiss 13), Dr. Edwards has also established a Center for the Educational Applications of Brain Hemisphere Research (Brain-Ed Center) at California State University at Long Beach.

Texts such as Thomas Blakeslee's The Right Brain and Jack Fincher's Human Intelligence, focusing on hemispheric lateralization and "right brain" creativity in artistic endeavors, illustrate a frenzy of interest in new

discoveries on brain hemispheric specialization. Articles like Norman Geschwind's "Specialization of the Human Brain," Sally Springer's "Left Brain, Right Brain: Do We Educate Both?" and Lauren Julius Harris' "Right Brain Training: Some Reflections On the Application of Research on Cerebral Hemispheric Specialization to Education" represent publications capitalizing on and experimenting with this new neuropsychological data.

In addition to the aforementioned general texts and articles on neuropsychological research and on the application of this research to the arts, contemporary psychological perspectives on creativity are also explored. The Nature of Creativity, written by psychologist Robert J. Sternberg, provides an overview of the changing theories on creativity and the artistic process as new discoveries in brain cognition have evolved. A section entitled "Cognitive Approaches" includes relevant articles by noted psychologists and neuropsychologists such as Robert W. Weisberg, Pat Langley, Randolph Jones, Roger C. Schank, Howard E. Gruber, David Henry Feldman, and Howard Gardner.

Elliot Eisner, keynote speaker for a recent "Conference on Creativity" (sponsored by Ohio University's College of Fine Arts in 1990), has also conducted extensive research on cognition and education in the arts that is pertinent to this study. His books, Educating Artistic Vision, and Educational Imagination, Cognition and Curriculum, focus on

"the development of aesthetic intelligence and the use of critical methods from the arts for studying educational practice" (Brochure from "Conference on Creativity" 1990). Eisner's research embraces the potential benefits of applying neuropsychological research to "Educating Artistic Vision." In fact, he takes the application a step further by calling for an immediate re-evaluation of educational curriculum content and pedagogy based on this more expansive view of creativity and cognition. Eisner (1982) explicates the ramifications of retaining the traditional view of what "knowledge" is. He cites the influence on school curricula, on conduct of research, on funding for research, on academic promotional standards, on the definition of professional competence, on access to publication of research, "and (on) shaping our conception of mind" (Eisner, Cognition 38).

Several sources addressing preliminary applications of this neuropsychological research to actor training take a prominent position in this review of literature. Richard Groetzinger's dissertation, Fantasy and the Actor: Implications of Research on Acting Theory, provides the most thorough account of the scientific "research on fantasy--to determine the significance of that research to current acting theory and practice" that is available in current published resources (Groetzinger i). This work not only addresses early applications of psychological data to acting technique such as Stanislavski's "organic approach

to acting" using Theodule Ribot's psychological research, but it also discusses research on brain hemisphericity as it relates to consciousness and fantasy in acting technique. Reference to P.V. Simonov's research on the neuropsychological aspects of the Stanislavsky Method makes this dissertation particularly pertinent to this study.

Another contemporary acting theorist briefly addressing the application of neuropsychological research to actor training is Robert Bendetti. Bendetti's acting text (1993), The Actor at Work, includes an excellent synthesis of the actor-training innovations and self-use systems that are addressed in this study as well as an analysis of the "Role of Analytical Thinking in Acting: Right and Left Brain Functions" (Bendetti 176). The Player's Passion written by Joseph R. Roach closes with an analysis of self-use systems and scientific research applied to contemporary actor training, juxtaposing it with earlier applications of science to actor training such as those of Francois Delsarte and G.H. Lewes.

Eugenio Barba's article entitled "The Fiction of Duality" parallels Jean Marie Pradier's article "Towards a Biological Theory of the Body in Performance" in addressing the most contemporary applications of neuroscientific research to actor training. Both articles ponder the aesthetic impact of such applications.

Because of recent neuropsychological validation, the Alexander Technique and the Feldenkrais Method (two

self-use movement systems developed prior to Dr. Sperry's neuropsychological research) have been actively integrated into the actor-training theories and curriculum of the innovators and sample institutions to be explored in this study. The following resources address these two self-use systems, this recent neuropsychological validation, and the incorporation of both into contemporary actor training.

A series of inclusive articles on self-use by Jack Clay and Kristin Linklater (T.D.R. Vol.21: 23-27) addresses this incorporation of both F.M. Alexander's and Moshe Feldenkrais' self-use systems in actor training. Linklater further addresses the Feldenkrais method and Alexander's alignment technique in terms of vocal and physical actor training in Freeing the Natural Voice.

F.M. Alexander's texts along with Edward Maisel's collection of writings by Alexander supply a thorough understanding of his self-use principles including "Primary Control", "Inhibition", "End-gaining", and the "Means Where-by." These sources also document the laborious development of his techniques, as well as the consequential neuropsychological connections. Alexander's colleague and son-in-law, Dr. Wilfred Barlow, describes his own scientific experimentation and psychological research using the Alexander Technique with his patients in The Alexander Principle. More Talk of Alexander (Barlow 1978) also

includes a comprehensive description of how the Alexander Technique was recently applied to the performing arts.

Psychologist, Frank Pierce Jones,(1979) continues this scientific validation of the Alexander Technique.

> Drawing on his long association with Alexander and his brother, Jones supplements Alexander's findings with his own carefully designed research at Tufts University Institute for Psychological Research. By measuring the differences between 'habitual' and 'teacher guided' movement patterns, and studying the actual mechanics of the body in achieving awareness, Jones provides scientific support for Alexander's ground-breaking discoveries (Jones. Afterword. Body Awareness).

Lawrence Wm. Goldfarb's published thesis, Articulating Changes, reveals the rudiments of the Alexander Technique in the self-use theories and methods of Moshe Feldenkrais. An authoritative source for this study, Goldfarb's recent research attempts to provide a "theoretical framework for understanding" the Feldenkrais method.

Feldenkrais' scientific experience as a physicist is most apparent in his two texts, Body and Mature Behavior and The Elusive Obvious. In these texts, the neuroanatomical and physiological basis for his self-use method are lucidly outlined. His additional book, Awareness Through Movement (A.T.M.) provides the movement exercises and theories dealing with gravitational pull and leverage that have become core to many theatre programs such as Florida State's Asolo Center Conservatory (Bendetti 16-17). Feldenkrais' interest in adapting his A.T.M. exercises to self-use

training for actors is well documented in his interview with Tulane Drama Review's editor, Richard Schechner, in the article "Image, Movement, and the Actor: Restoration of Potentiality" (Morris 112-126).

Neuropsychological substantiation of these mind/body or self-use systems is found in Wilder Penfield's research (Mystery). This Canadian pioneer in hemispheric differentiation writes,

> There is not good evidence--that the brain alone can carry out the work the mind does. Only one important fact remains--the mind, though born of (or at least dependent upon) brain tissue assumes some degree of independence of action even to the point of changing brain activity. We can now document, in quantitative physical terms, the effects of mental activity on the physical functions of the body" (qtd. in Groetzinger 11-12).

Paul Baker's Integration of Abilities and the aforementioned Acting With Both Sides of Your Brain by Ramon Delgado, are two of the sparse publications dealing with the application of this research to acting technique. Baker chronicles a semester experience working with student actors in a "process-format", utilizing "right-brain" activities such as non-verbal games, abstract movement and daily journals. The references to the neuropsychological connections are there but are meager offerings.

Along with a personal communication with Dr. Susana Bloch that has been ongoing since September 1991, her articles documenting the research and development of her

new system of actor training provide the data needed to support this breakthrough in intercommunication between the fields of neuropsychology and self-use training for the actor ("A Qualitative Analysis"; "Specific Respiratory"; "Alba Emoting"). "Effector Patterns of Basic Emotions: A Psycho-Physiological Method For Training Actors" concisely outlines her research on emotion, physiology, and respiratory interaction. It describes the elaborate physical training required for the actor to "step in" or "step out" of any emotion and to apply this to his/her tasks in the actual performance situation.

The article entitled "Commentaries on 'Effector Patterns of Basic Emotions'" by S. Bloch, P. Orthous, and G. Santibanez-H is a collection of international responses to this neuropsychological approach to actor training. The responses in this collection of noted theatre professionals such as Ross Buck from the University of Connecticut and neuroscientists such as Wolf Singer from the Max Planck Institute for Brain Research, vary from interested support to skeptical disagreement. In general, the commentaries acknowledge Susana Bloch's "laudable attempt to tie artistic behavior with scientific research" which should be "included in a true drama neuroethology to be developed in the not too distant future" ("Commentaries" 205). Additionally, several parallels are drawn between the earlier scientific codification of expression of Delsarte and the "Emotional

Effector Patterning" notation system that Bloch (et al) has developed. Michael Johnson-Chase's recent article entitled "Do We Cry Because We Grieve or Do We Grieve Because We Cry?" addresses Bloch's neuroscientific actor training research from the actor/movement specialist's point of view. His discussion of the use of Alexander as a "generalized effector pattern in and of itself" provokes some intriguing questions (Johnson-Chase 364). For example, can the concept of "ideal alignment" actually be counteracting an instinctual tension stimulated by a specific emotion? Can our efforts to remove excess tension to free up the actor's emotional being be actually neutralizing the actor's state of mind--counteracting emotional truth?

Literature in the form of brochures, sample syllabi, and departmental curricular policies from the three representative institutions selected for this study are also referred to herein. In addition, many articles documenting the evolution of the actor-training program at Tisch School of the Arts such as "For Young Actors, Tisch is the School for Hard Knocks" by Richard Conniff, are available. Training For The Theatre written by Michel St. Denis provides an authoritative outline of the original curriculum for the actor-training program at Juilliard.

In spite of our changing contemporary philosophy regarding process versus product (Feldenkrais, Elusive 79-87) and our application of research in neuropsychology to actor training during the last twenty-five years, no published comprehensive study addressing this intercommunication and its implications has emerged. There is a void in the available literature addressing acting theory, particularly in the area of self-use, and this ongoing application of neuropsychology (Bloch, "Commentaries" 205).

This study will demonstrate that actor training is a fertile field for such application and only in the last decade has this type of direct application begun to occur--and not without the aforementioned rigid territorialism which must be overcome in order to continue this prosperous intercommunication (Rejoinder 213-214).

Not only does this descriptive study fill the aforementioned void in literature in a historical sense, but it also provides a theoretical proposition to specialists in actor training. Historians in this relatively new area of actor training may benefit from this study revealing a repeated pattern of how neuropsychological research has been and can be applied to actor training (Bloch, Rejoinder 213-214).

With these thoughts in mind, can the specialist in actor training openly explore, experiment with, and capitalize on new developments in neuropsychology? Who are the innovators and institutions actively doing this? What are their missions and what are their results? The conclusion of this study will consider the implications of this theoretical intercommunication and application after examining selected innovators and institutions who have already begun to head in this direction.

CHAPTER I

NEUROPSYCHOLOGY AND SELF-USE TRAINING FOR ACTORS

OVERVIEW OF DEVELOPMENTS IN NEUROPSYCHOLOGY SINCE 1966

During a speech honoring 1981 Nobel Prize Laureate, Dr. Roger Sperry, the field of neuropsychology was identified as an area of research destined to expand two-fold by the year 2,000. "The human brain, they concluded, is our ultimate intellectual challenge in the last quarter of the twentieth century" (Restak 3). How we think, how the brain functions has been a source of intrigue since antiquity. From the work of Aristotle, who taught that "the brain was merely a cooling mechanism for the blood, while all the real thinking went on in the heart" (Pines 3), to the work of nineteenth century French surgeon, Paul Broca, credited with first seeing the association between the left hemisphere of the brain and localization of speech function, research on the human brain has impacted all realms of human existence, including acting theory. By the early 1930s, Broca's original evidence on hemispheric asymmetry had evolved into a pervasive acceptance of cerebral dominance--"that the left hemisphere (was) dominant for speech and language, and, by extension, for other high-level cognitive functions as well" (Springer, "Left Brain..."22).

Although aware of the anatomically similar hemispheres of the brain, neuroscientists during the early

twentieth century proclaimed that the left hemisphere was indeed the dominant or "major" hemisphere, responsible for speech, language, and therefore thinking; and the supposedly less advanced right hemisphere was designated the subordinate or "minor" hemisphere. Then in 1950, during a series of animal studies, Roger W. Sperry and Ronald Myers discovered that the "corpus callosum" between the two hemispheres was a connecting factor. This bridge of nerves between the left and right sides of the brain allows transmission of memory and learning. By the 1960s, Sperry and a neurosurgical colleague named Joseph E. Bogen, with their students Michael Gazzaniga and Jerre Levy, made a major break-through in the understanding of the two sides of the brain via experiments done on "split-brain" patients. What they discovered from researching these brain-damaged patients was that both hemispheres specialized in higher cognitive thinking but in different modes. This led them into more experimentation on the duties and functions of each side of the brain with normal adults. As mentioned in the Introduction to this study, they were able to specify two different styles of learning and thinking which paved the way for a whole new field of research: the left side of the brain deals with language, consonant sounds, and rules of grammar--classifying information; the right side deals with spatial tasks (two and three dimensional forms) and fine,

sensory discriminations--identifying faces and tactile patterns.

This research also led to the hypothesis that most human beings are influenced more strongly by one side of the brain. Those who specialize more in left hemisphere cognition were thought to excel in logical thinking. Neuroscientists also theorized that often many "highly educated, intellectual people habitually try to use the left brain for totally inappropriate tasks. That their right brains can virtually atrophy, making them totally inept, not just in sports and dancing but with the truly creative side of intellectual pursuits" (Blakeslee 23). The person with the dominant left brain might hear the literal words, where the person with the right brain dominance might focus more on the inflection, emotional implications, facial expression, and body language. But most of our waking life was thought to be under the conscious control of the left brain.

Concerning the interaction and/or dominance of these two sides of the brain, Jerre Levey found further evidence that the two modes of processing tend to interfere with each other, "preventing maximal performance" (Edwards, Drawing on the Right 36). Tests done on split-brain patients substantiated this fact. When each patient was asked to use the left hand (right hemisphere) to solve a colorful jigsaw puzzle, the patient's right hand (left

hemisphere) kept disrupting the process and confusing the patient. According to psychologist, Alex Osborn, the creative and critical functions cannot operate at the same time at their highest levels.

This research on the interaction of the brain's hemispheres has brought about a spectacular scientific controversy regarding complimentarity and dominance. Although the discovery of redundant functions in each hemisphere has led to a general "tribute to the plasticity of the brain" (Ferguson 176), some researchers have found that the crowding of redundant functions into each hemisphere can pay a price on their particular capabilities. This reinforces the argument for hemispheric dominance.

Contrary to this dominance line of thought, several studies have been done supporting the "complimentarity" of the right and left hemispheres. During a seminar on creativity and the functions of the brain in 1978, Alfred Kuhn introduced the "Theory of RSVR (random variation and selective retention)" (Wellesley 31). This theory emphasizes the complimentarity of both modes of thinking in the creative process. The right brain generates images, abstract ideas, builds hypotheses (Random Variation), and the left brain tests these ideas against external stimuli (Selective Retention). The statement made with this theory is that without the complimentarity of both hemispheres, we would never have a useful and new idea. "Thus as I see it,

right brain processes are inescapably involved, and deeply involved, in any learning process, and organized images cannot get into the head at all without both random variation and selective retention" (41).

The impact of Sperry's original research was far reaching, touching not only the scientific community but also society in general. His writings helped to focus further research on important questions related to the brain and the mind, to the brain and learning, to the brain and the body, to the brain and the creative process, and to consciousness. The unfolding data on hemispheric specialization and complementarity lead to a re-thinking of the mind (and the brain) as a process versus a thing. Behavior was also perceived from a more holistic or process-oriented point of view. The obstacles created by behaviorists who focused on the cause and effect of behavior, "rejecting conceptions of mental representations and averting consideration of higher level perceptual or problem solving processing," were now dissolving in light of this new information (Gardner, The Mind's 393). Sperry's landmark discoveries stimulated two different divisions of research activists: those who focused on changing the brain's activity by force (i.e., operative), and those who allowed each individual the freedom to learn how to provoke changes at will (Pines 153).

APPLICATION OF THIS NEUROPSYCHOLOGICAL RESEARCH TO THE ARTS

> Researchers are beginning to unravel our various states of consciousness--our sleep, our ecstasies, our anxieties, and our reveries. They are exploring the differing qualities of our two cerebral hemispheres. They are studying the formation of our intentions and plans. Soon they will be able to study our emotions. Next they may begin to understand the greatest mystery of all: the act of creation, or how men produce the inventions and the new ideas that set them all apart from all other living creatures (1973 Pines, 233).

During the 1970s into the 1980s, Sperry's initial research expanded into a re-evaluation of what the terms "neural events," "brain events," "brain processes," and even, "consciousness" meant. His research led to a validation of gestalt mind/body connections formulated earlier in this century. The concept of the human brain and body as a singular system coincided with a growing societal acceptance of "systems" philosophy. This view of brain, body, and ultimately, consciousness as "holistic systemic properties" (Trevarthen 384) carried over to and embraced the humanities, especially in the areas of aesthetics and creativity theory. Sperry acknowledges this result of his research in the following:

> In effect this change means that the whole value-rich qualitative world of innerconscious, subjective experience, the world of the humanities that has long been explicitly excluded from the domain of science on materialistic principles, is now reinstated. In this revised scheme, subjective phenomena have a place and a use in brain function and a reason for having been evolved in a physical system ... The new subjectivism in psychology has authentic support

> and grounding in basic theoretical changes in fundamental mind/brain concepts (Trevarthen 383).

A series of neuropsychological studies based on spatial visualization using picture identification revealed that scanning a picture results in "preferential activation of the right hemisphere, with increased attention to the object in the left visual field" (Restak 189). Acknowledging the tendency to scan a picture from left to right led both aestheticians and neuropsychologists to deduct that "aesthetic balance will be created by a picture that corrects the brain's left spatial bias by depicting the most important parts of the picture on the right side" (190). Similar contralateral connections to aesthetic appreciation and production are also made in the area of facial recognition, facial expression of emotions, and in aural processing (i.e., music). The implications of such data has been far reaching for those in the area of actor training. In Chapter II of this study, this research is examined in conjunction with the work of Dr. Susana Bloch.

Avraham Schweiger (1985) also addresses the application of neuropsychological research to the arts, including the performing arts. Specifically, he examines the functional, cognitive differences between the artist and the perceiver, as well as the experienced artist and the layperson. In his research, he is careful to warn that "at this stage of understanding...neuropsychology cannot hope to

offer much to artistic practice, either by determining which side of the brain should be used for the creative process or by prescribing how to control such unilateral contribution in the unlikely event that creativity is proven to be associated with just a single hemisphere" (359). Schweiger acknowledges the inconsistency of data supporting hemispheric dominance for specific types of performing artists. He also presents several suggestions for more specific and applicable neuroscientific research on the artist in the actual performance experience, calling for some kind of "standardized tests for artistic production and perception" so that data can be compared and "meaningful inference" can be made regarding potential and pedagogy (371).

> Activities that appear to rely upon the senses or upon affect are often regarded as non-intellectual, that is, as activities that make little demand upon thinking or intelligence. This tradition, one which is not only reflected in our psychological discourse, but in our educational policies, is based upon a limited, and I believe, educationally counterproductive view of mind. The formation of concepts depend upon the construction of images derived from the material the senses provide (Eisner, Cognition 34).

The application of this research to the arts has also led to many neuropsychological studies on the creative process by several eminent neuropsychologists including Howard Gardner (1973, 1982, 1987), Robert Ornstein (1986, 1991), and Michael Gazzaniga (1978, 1992). Recent research has revealed that true creativity pulls in both the technical processes of the left hemisphere and the

affective or intuitive processes of the right hemisphere. "The new creativity as a non-intellectual activity fails to take into account the dynamic, unitary, and coherent nature of the brain" (Ferguson 295). An empirical examination of "Asymmetry of Hemispheric Function and Creativity" (Harpaz 1990) outlines strong evidence (utilizing brain-wave activity as one measurement) that the right hemisphere is significantly more active in the creative process. The conclusion of this study suggests that a standardized creativity test could be constructed which "takes into consideration the notion of brain lateralization. (This) might be more useful in predicting performance in artistic and creative abilities" (169). Harpaz goes on to imply that future studies regarding right hemisphere dominance and creativity may provide steps to "train people to modify their thinking style, to acquire the skills needed to solve problems more creatively" (168).

As mentioned in the Introduction to this study, Howard Gardner has been a strong advocate for inter-communication between neuropsychology and the arts, comparing the varied cognitive tasks required by both scientists and artists alike. In his work, Gardner acknowledges that the scientist and the artist have traditionally worked in very different ways. The scientist has traditionally worked in an objective convergent manner with a singular "end-state" in mind--

"intent upon objectifying what he is studying" (Gardner, (The Arts... 315). The artist, on the other hand, works from an area of intuitive or subjective truth, utilizing divergent thinking to arrive at some new idiosyncratic resolution. "Should a scientist die in the midst of a work, it could be reconstructed by those privy to his conceptualization. But who can finish a dead artist's work?" (315). Current research supporting the existence of transystemic mental skills and gestalt perception in ordinary individuals has led to a new "isomorphism between scientific and artistic processes" (Gardner, "Strange Loops" 77). "In the final analysis, human creativity has numerous parallels across realms, with inspiration, intuition, and gestalt perception playing an indispensable role in the activities of both scientists and artists" (Gardner, The Arts and Human Development 318). For example, Gardner cites parallels in problem solving between the commercial artist who carefully follows established patterns to obtain a popular creative product and the creative scientist like Einstein or Freud who charts a whole "new investigation, sharing characteristics with the revolutionary artist" (312). Gardner's study of talents and special abilities has also been directed toward the cognitive idiosyncracies of the actor. He acknowledges whole body participation in performing. "The actor tends to be judged, in terms of his whole person. He puts himself, his body, his present

existence on the line in an all consuming way" (331).

> Little is known about the acquired skills of actors, though many seem to possess an uncanny ability to observe the manner in which an individual behaves and then to mimic it ... [Quoting the actor Nicol Williamson] "Some people remember rational processes of argument, I can't. What I do remember, after 10 or 15 years, is exactly how a man fiddled with a match-box while he was talking ... I slot it with other details I pick up about him. Ten years later, I take them out and mix in some of myself: and then I've got something separate that I've made" (331).

Gardner insists that neurophysiological investigation into the cognition of specific talents will reveal methodological tools for fostering creative artists and for developing artistic talent. He cites two opposing pedagogical views of the training of artistic skills which have emerged from the current neuropsychological evidence. One view he deems the "unfolding" "neutral" perspective, which clears the path of obstacles in order to nurture an artistic blossoming or virtuosity which a student already possesses. The teacher's task is preventative rather than prescriptive. This view is very similar to Eugene Vahktangov's description of the principal aim of an actor-training school. "A theatrical school must clear the way for the creative potentialities of the student--but he must move and proceed along this road himself, he cannot be taught" (Vahktangov 116). The opposite pedagogical view is more methodical, termed the "training, directive, or skills approach" (Gardner, The Arts... 209). This view purports

that the artist will never achieve his/her potential without the "attainment of highly intricate skills" provided by a gifted, insightful teacher (209).

Gardner's argument for interactive, "transystemic" mental skills is shared by many contemporary professionals. For example, Stefi Weisburd (1978) presents a strong, scientifically substantiated argument for the "merging of art and science and their common creative link ... Artists and scientists alike need to employ both rational and intuitive approaches ... Many problems transcend disciplines and demand a fusion of the two ways of perceiving" (300).

Like Gardner, Robert Ornstein claims that the work he did on the interaction of the hemispheres in artistic output following Sperry's seminal research was just the beginning of a move away from the rational "single-brain" idea (Ornstein, The Evolution of Consciousness 138). His recent research has uncovered additional divisions of function which Ornstein believes occur simultaneously, precisely due to their cognitive modes.

> In part this works because the sequences of information underlying language are a different adaptation than the all-at-once ideation that underlies art and movement in space ... How well could you dance if you thought about each foot and arm movement? And how well could you read if you did not read every word in the correct order" (135)?

Ornstein continues this argument for simultaneous and interactive cognitive activity in considering the creative

work of artists. He upholds the current work of neuro-scientist, Benjamin Libet, who has provided evidence utilizing electrodes and electrical stimulation which suggests that a spontaneous act begins one half second before one is conscious that he/she has decided to act. To Ornstein, this research utilizing modern technology reveals that most creative artists create much quicker than "conscious manipulation" allows (14). "Much human creativity--painting, writing, and dancing comes forth without the conscious intervention of the artist. Once the idea for artistic work is revealed by the unconscious creator, the artist can then consciously manipulate and refine it" (148). This concept of many invisible functions or "unconscious minds" preceding consciousness parallels Gardner's theory of multiple intelligences: identifying musical, logical, mathematical, linguistic, bodily-kinesthetic, spatial, and knowledge of self as individual intelligences (Obler 6). The implication of this research is that the artist must be provided with an atmosphere which will allow relentless generation of new ideas in order to produce the rare few that arrive at a conscious creative manipulation. In lieu of this research, the use of improvisation in creation of character may have more creative and cognitive value than was first suspected for actor training.

Another neuroscientist in line with Gardner's theories on interhemispheric interaction is Michael Gazzaniga. Gazzaniga worries that Sperry's original research on hemispheric lateralization has been taken way beyond the facts. "Lateralization has come to imply specialization" (Gazzaniga 47). Gazzaniga's own research reveals a balance across the "cerebral midline through highly specified neural codes" resulting in mental unity (39). He views the mind as fully integrated. Where the right hemisphere may receive sensory information directly via neural impulses originating in the left side of the body, that same information is communicated simultaneously to the left hemisphere through the "commissural channels." The only question that must be answered is what information, if any, is lost in the transference.

SIGNIFICANT DEVELOPMENTS SINCE 1985

This inquiry into human intelligence, brain function, behavior, and artistic creativity has been on-going, expanding from the neurosciences to developmental psychology, cognitive psychology, sociology, education, and even to anthropology. While most neuropsychological evidence and deduction resulted from the analysis of brain-damaged individuals, new technology has allowed neuropsychological inquiry to expand to the comparison of exceptional abilities against normal abilities. It has

also been extended to the analysis of motor activity which interferes with the performance of a skill. Included in this new data is the on-going consideration of the impact of environment and attitude. New theoretical models suggest that a wide range of special talents such as musical, visually artistic, poetic, and mathematical all spring from a "global, preconscious, specific set of (cognitive) skills" (Obler 496). Neuroscientists now believe that environmental enrichment is crucial for the expression of special talents but "enriched environment and practice, however, do not cause or generate special abilities" (496).

In spite of a growing body of research supporting a synergic, "multi-modal" view of mind and body, the faction of researchers pursuing the "hemispheric dominance/ specialization" view remains strong. Although they acknowledge the fact that environment, practice, and genetics cannot be ignored, they still purport that special talent is attributable to the superior functioning of a particular hemisphere (Obler 8). Their evidence supports a "dual consciousness" in conjunction with dual hemispheres. "It is one of the most philosophically provocative aspects of modern psycho-biology ... We now have good reason to believe that the experience of mental unity is an illusion" (Restak 177). Along with this dual consciousness and hemispheric dominance comes an inherent attentional bias, influencing whether one acknowledges or ignores certain

features of the world.

One of the arguments in this hemispheric specialization faction which is most pertinent to this study on self-use training for actors deals with the concept of cross-functional coordination. Dr. Marcel Kinsbourne, a neurologist from Toronto, has conducted several studies addressing the capability of the brain to handle several motor tasks simultaneously. His research has revealed that maximum effectiveness of the use of the right hand in motor tasks is hampered when the left hemisphere is also required to focus on an additional cognitive task simultaneously. In one study, Kinsbourne discovered a weaker cross-lateral hemispheric connection to the legs versus the hands. The interference effect was reduced when the patient was asked to complete competing tasks with one hand and the opposite foot. This information was soon put into practical use with astronauts. They are now instructed to carry out functions simultaneously--one with the right hand and one with the left foot. The pedagogical implications for training the actor (especially in the area of movement) utilizing this information are quite strong. For example, if a student performer has been asked to sing a highly complicated patter song requiring vocal agility and verbal dexterity, perhaps the addition of equally complicated dance movements involving synchronized arms and legs may result in this interference effect. The competing cognitive tasks could

render the performer incapable of completing all duties simultaneously. Furthermore, if this dominance argument is true, is it also possible for an instructor to decipher the hemispheric dominance of a student actor in order to relay instructions in a more accessible manner? Can the way a student manipulates his/her body in performance be counteracting the maximum effectiveness of cognitive duties overseen by a singular hemisphere?

As mentioned earlier in this study, the general move in current neuropsychological theory is away from the above "particularist approach" (Gardner, "Strange Loops" 78). In fact, the dichotomy of cognitive functions that has been set up through twenty years of hemispheric research has actually catalyzed an opposing line of neuropsychological inquiry; that of "multi-modal" functioning. The "multi-modal framework" not only rejects hemispheric differentiation but also rejects any separation of mind and body. "The question of whether a particular process happens at the level of 'mind' or body is improperly put and does not make any sense. This multi-modal framework theory does not believe that the mind/body processes can be analyzed separately from each other or from their physical and biological environment" (Samuel 8). [2]

[2] This theory of "Multi-Modal Framework" found in Mind, Body, and Culture acknowledges a context of multiple knowing, synthesizing anthropology and biology. The author of this study, Geoffrey Samuel, is an anthropologist.

Dr. Lynn Nadel, a neuropsychologist from the University of Arizona, substantiates this "process" approach to learning and cognition. Her research presents the mind as a network of multiple retrieval routes throughout the brain and body:

> No longer do neuroscientists believe that nerve cells are highly specialized. We cannot compare the brain to a computer, since it does not work in linear sequence. Instead, the brain is much more global than we had previously thought. Every neuron is influenced by the whole system, and it appears that each portion of the brain contains the information of the whole. This concept is called holonomy, and is based on the discovery that the information of the whole is contained in each part (Merritt 142).

The idea that the whole is contained in the parts is further substantiated in another model of mind/brain/body interconnectedness called "Parallel Distributed Processing" (Gardner, The Mind's New Science 394). This model moves away from the idea that information is collected and stored sequentially from some outside source. Rather, that memory, learning, and cognition is the product of connections among thousands (or even millions) of units. Knowledge is a product of the relationships or the "signaling of excitations or inhibitions from one unit to another." "'Perception', 'action', or 'thought' occur as a consequence of the altering strengths (or weights) of connections among these units. A task is completed or an input processed when the system 'settles' or 'relaxes' (at least tentatively) upon a satisfactory set of values or 'stable states'--in

short, upon a 'solution' " (394). This new model substantiates the gestalt concept of learning as a whole body process. One is born with such units and potential connections in place, learning occurs as these connections are activated. As one learns, more pathways or connections are opened to learn even more. One is more capable of processing new material. Learning becomes a systemic and ongoing process. Later in this chapter, this neuro-psychological data will be compared with the prophetic techniques for learning in the mind/body systems developed by Moshe Feldenkrais and F.M. Alexander. The use of these mind/body systems in contemporary self-use training for actors is now neuropsychologically substantiated with this "Parallel Distributed Processing" model.

A very recent finding(1990) in the area of immunology substantiates the mind/body interrelatedness even more. Investigators discovered through experiments with biofeed-back that the immune system is also equipped with a neural network leading back to the central nervous system. Before this discovery, they believed that the brain and the immune system were two separate entities--mutually exclusive. What is now clearly understood is that a series of neural transmitters allow a feedback or dialogue to occur between the brain and the immune system. Furthermore, researchers have discovered that emotional states have a powerful impact on the immune system. Included in the recent

airing (1993) of Bill Moyer's Healing and the Mind on PBS was an excerpt on how emotion can impact the immune system. It cited the joint efforts of Arizona State University's Institute of the Arts and of neuroscientist, Nicholas Hall along with his colleagues in the area of theatre from the the University of South Florida. These researchers utilized method actors to explore in a controlled setting the impact of emotion on the immune system. Utilizing Stanislavski's emotional memory techniques, the method actors explored moments of extreme sadness and moments of extreme joy. Electrocardiogram readings, diagnostic tests for vital signs, and blood tests revealed that emotion has a profound impact on and relationship to the body's immune system. The application of such data will affect not only the health profession, but will also expand our knowledge and awareness of the impact of intense emotional experiences undergone by student actors and by professional actors alike.

> The past 10 years have witnessed an explosion of research findings suggesting that the mind and the body act on each other in often remarkable ways ... Some practitioners are mining gold from the 'golden age', purveying healing techniques that 30 years ago were dismissed as hokum--and often still are (Gelman 89).

Further research on the neurological aspects of emotional expression has also revealed a keen relationship between the body and mental states, substantiating the concept of "visceral learning." Gary Schwartz (1979) of the

Yale University Center for Behavioral Medicine conducted a bio-feedback study testing muscle patterns as indicators of mental states. "By feeding back to the brain muscle patterns characteristic of happiness, the brain generates and sustains inner feelings of happiness. The experience of separate emotions such as happiness, sadness, or anger results from specific patterns of muscle tension which psycho-biologists now speculate are probably 'hard-wired' in the brain" (Restak 280). This research has led to the theory that mental and physical health can be governed by the brain.

More contemporary research on the neuropsychology of emotion has been conducted by Paul Eckman and his associates. His research has connected the neural positioning found in facial patterns to specific emotions. "We can control emotions using only facial expressions, somewhat like method acting" (Ornstein, The Evolution of Consciousness 86). Emotions are now considered to be the "chief organizing system of the mind", allowing the human organism to by-pass or short circuit "deliberation" in moments of life and death--hence "in the moment." Recent testing reveals that the circuitry for emotion travels through the limbic system (old brain) to the neo-cortex. This allows the emotions to take over in an emergency situation, often by-passing conscious control. In other words, we don't have to "think" before we run. In fact,

many contemporary neuroscientists believe that the emotional being controls the sense of self. One literally feels his/her way through life versus consciously controls it.

This current understanding of the neuropsychology of emotion, the fact that different emotions mobilize the body in different ways, and that they can be truthfully recreated through adopting specific facial and muscular patterns have a special significance to this study. In Chapter III of this study, the "Emotor Patterning" work of neuropsychologist, Susana Bloch, will be explicated. How she has synthesized the above research on emotion and the mind/body connection with her own scientific data into a psycho-physiological method for training actors entitled "Alba Emoting" will also be examined.

As mentioned above, the neuropsychological data of the "self" has been keenly connected to the emotional being. Robert Ornstein suggests that the sense of self is controlled by involuntary "mind-shifts", emotional shifts triggering uncontrolled reactions. "We misjudge our internal processes--often falling in love or attraction in exciting or even dangerous situations" (Ornstein, The Evolution 242). Ornstein describes our "weak conscious self" as largely a product of visceral or sensory input which produces an unconscious "evoked response" spontaneously while it takes at least a half second before one can

consciously respond to it. This leaves the job of immediate reaction to the independent and emotional unconscious mind. "This work demonstrates the existence of independent centers of neural control in the mind. These individual control centers produce a crowd of cerebral actors, each clamoring to get on stage ... all this action crowded on the nervous system signals the body to move before acknowledging it to the conscious mind" (145).

This research on "emotional" and "unconscious" connections to "self" is particularly pertinent to this study addressing self-use training for actors. In spite of the conscious mind's relative weak position in the mental system, Ornstein suggests that by slowing down and by using self-observation, the "automated routines" can be consciously acknowledged. Similar to the self-use philosophy and techniques of F. M. Alexander and of Moshe Feldenkrais, his research suggests that conscious awareness can indeed be strengthened. One can monitor the emotional shifts which trigger mind-shifts and uncontrolled reaction. For example, if a person is having an argument about burnt toast with his/her spouse, a small sensory detail (i.e., a "release object") like a smirk on the spouse's face may unconsciously shift the argument to the last battle he/she had about the spouse's mother-in-law. These unconscious mind-shifts happen as the sensory system continues to gather stimuli. Being aware of these sensory shifts, or "habitual

reactions" as Feldenkrais would call them, can help one to shift from "mind to mind instead of allowing the automatic routines to take over" (241).

> Knowing that there are different selves shifting in and out allows us to observe the automatic reactions of the mind. We can observe which factor--external, food, personal, social, environmental is causing you a given reaction. Under the stimulus of self-observation, the mind begins to change, and the links between action and reaction loosen" (Ornstein, The Evolution 242).

The parallels between this neuropsychological data and the mind/body systems created by F.M. Alexander, Moshe Feldenkrais, and Lulu Sweigard (to name a few) are obvious. Self-observation and self-exploration is now the first step in actor training. Using these mind/body systems in the core training of actors is now generally accepted. Can what we have learned about hemispheric cognition, mind-shifts, emotion, and the body have influenced this universal acceptance?

> The world we are in the process of creating for ourselves and future generations is the product of our brains; therefore, only by understanding how our brains work, can we hope to achieve true insights regarding individual and species motivations...There is an increasing need for approaches to human behavior based on the psycho-biological study of consciousness, it's transformations, and especially, its deviations. This places psychobiology in the unique position of bringing about unity between brain research and our highest humanistic and cultural aspirations. For the first time in history, the interest of science and the interest of the humanities coincide (Restak 380).

THE "RIGHT BRAIN" FAD

Before delving into a comprehensive account of the direct application of neuropsychological research to self-use training for actors, we should acknowledge the bulk of published material which has capitalized on and over-simplified these hemispheric discoveries. Articles like "Are You Thinking Right?" by Stanley Englebart, "Eureka!" by Thomas R. Murphy, and "Your Unconscious Dreamy Brain: It's All Right, Research Finds" by Thomas R. Blakeslee have subjugated this hemispheric research to the ranks of unsubstantiated "pop psychology". Texts like Whole Brain Thinking by Jacquelin Wonder and Priscilla Donovan, and You Don't Have To Go Home From Work Exhausted by Ann McGee-Cooper provide "Right Brain Versus Left Brain" cognition charts, tips for brain integration, and brain dominance "self-assessment " tests to assist the layman in understanding and balancing this innate "duality" of cognition.

Several authoritative resources warn against what neuroscientist, Marcel Kinsbourne, refers to as "dichotomania" (Harris 212). Jerre Levy (1987) speaks out against the "mythology" that has sprung up around the left and right hemispheres. "By all current measures, including the newest ones, both hemipheres are active and involved in any situation. To suggest otherwise is to misrepresent what is known about brain asymmetry" ("Left Brain, Right

Brain: Do We Educate Both?" 25). A strong advocate for a more cautious approach to the application of current neuropsychological data is Lauren Harris of Michigan State University's Department of Psychology. In his article, "Right Brain Training: Some Reflections on the Application of Research on Cerebral Hemispheric Specialization to Education", he addresses quite directly the "misunderstanding and misrepresentation of neuropsychological evidence, citing the published works of "authorities" who don't possess a "formal scientific training in neuropsychology" (219). "One of the most pervasive of these errors is to characterize highly complex, multidimensional cognitive processes as simple and unidimensional, and thereby to suppose that they can be localized 'in toto' in either the left brain or the right" (220). Harris is an active researcher in the area of hemispheric lateralization, focusing primarily on cross-functional connections and handedness. He lauds the efforts of current research being conducted in such areas as lateral gaze deviation and hemispheric activity (Gross et al., 1978; LaTorre & LaTorre, 1981; Walker et al., 1982), and lateralized facial expression of emotion. But in his writing and in his teaching, he stresses the importance of keeping to the facts, and warns against overly-exuberant assumptions and applications to other fields.

Howard Gardner joins the call for caution. He also

warns against "leapfrogging the facts." The idea of hemispheric specialization is still a subject of heated dispute, and so many promising studies addressing eye movement and laterality, dichotic listening, facial recognition and expression, and hemispheric dominance may be hampered by "overblown claims about laterality ... The current packaging of human brain research threatens to reveal more about academic huckstering than about neurological function" (Gardner, Art, Mind and Brain 284).

With this caution in mind, the following presentation of the application of research in neuropsychology to self-use training for actors is carefully substantiated and documented.

APPLICATIONS OF NEUROPSYCHOLOGICAL RESEARCH TO SELF-USE

USE TRAINING FOR ACTORS

> A mutual understanding between psychoanalysis and acting is the recognition that all fields are converging, and that the actor may someday rely on the biochemist's work on DNA for suitable analysis of character traits ... we must not let the arbitrary labels of "art" and "science" hinder our answering the question: What's going on here (Jaeger 107)?

From Aristotle's first suggestion that the body and the "soul" have a reciprocal relationship to each other, scientists and artists alike have been intrigued by the mind/body puzzle. Before the neurological evidence was available, ideo-motor theories connecting anticipatory thought to movement were already in place. Sperry's

research has led to the further understanding that man is a product of this interrelationship between the body and the brain. Thus understanding "self" entails understanding how the brain functions. Self-observation allows this understanding to happen. It allows the opportunity to control and to change previously unconscious habituation. Furthermore, researchers have revealed that there are many different selves or "wired in" behaviors that people use in specific situations. By stepping back, slowing down, and observing these different sensory selves ("mind-shifts") in action, awareness and conscious control can come into play.

Since the mid 1960s, actor training in the U.S. has undergone a period of scientific revelation and holistic development. Attention is now focused toward self-use rather than on the traditional mind-body dichotomy. The amplification of the self-use movement can be attributed to several factors including: the emphasized internal focus of the method acting tradition, developments in experimental theatre training such as Jerzy Grotowski's "Poor Theatre" techniques and Richard Schechner's "Environmental Theatre" innovations, and the theoretical changes regarding the learning process, imagination, and creativity based on break-throughs in neuropsychology.

Jack Clay (1977) describes the plight of young actors descended from the method acting tradition which has leaned

heavily toward internal creative responsiveness in the following:

> The fact is, in our basic "method" training, which is essentially education in responding, it was not always possible to get the actor to react openly, freely, and expressively to imaginary stimuli. Blocking the way for many actors were the eccentricities of their own habitual behavior, movement, and speech. Without the two-fold discovery by the actor of how he is using himself and then of a normal, organically correct self-use, the performer will always be limited in his ability to express a creative image. What we needed was a whole new area of training organic self-use (16).

Clay goes on to describe the individualized efforts to address these vocal and physical deficiencies, citing the separate pedagogy oriented to vocal production and the incorporation of codified dance idioms into actor-training curriculum. But these efforts did not address the crucial problem of organic self-use. Rather, these "closed systems" just reinforced the "schizophrenic split between word and behavior that plagues us all, in life as in art" (Clay 16). His argument continues with an acknowledgement of the impact of developments in gestalt psychology (such as the work of Wilhelm Reich and Paul Schilder) and especially the impact of research on cognition and learning resulting from fresh neuropsychological findings.

Joseph Roach (1985) also analyzes this emergence of self-use training for actors which he terms "vitalism." He describes the impact of contemporary neuroscience and psychology on actor training as revolutionary. Fundamental

to this "vitalism" approach is the belief that therapeutic work must first be done to counteract the "supposed degenerative influence that civilized living has exerted upon the human organism"(Roach 220).

> In response to this powerful idea, acting theorists have come to believe that before an actor can learn to act, he must himself learn to move and feel and live anew because in growing up he has disordered his musculature, misshapen his bones and dulled his sensitivities (Roach 218).

This new focus on "letting go", trusting the spontaneous impulses of the dynamically aligned and sensitized body, results in a special energy--a life force whose sum exceeds the singular elements (220). Like Clay, Roach also acknowledges the pioneering work in this area by psychologist Wilhelm Reich in 1942. Reich's analysis of excess tension and body alignments resulted in a deduction that neurosis in the muscles would inevitably lead to a bodily rigidity that would paralyze the mind (221). Other contemporary researchers have added to this "vitalist" focus on exploring and expanding self-use. The current use of improvisation and theatre games in self-exploration allows a "creative escape from pre-established patterns." Director, Peter Brook sees improvisation as a possible avenue away from a "closed system of false routines" (Roach 221).

Additional attention has been given to the impact of societal inhibition on the neurophysiology of the actor by

voice/movement specialist, Kristin Linklater. She has discovered that the whole vocal apparatus including the lips, tongue, teeth, and throat must be "re-activated" using self-use techniques to bypass society's repression of natural or instinctual behaviors. Linklater has been an authoritative researcher in the organic, holistic approach to vocal production. She has used the fundamental concepts laid out by Moshe Feldenkrais as part on her own unique pedagogy. She also identifies the "Poor Theatre" techniques introduced by Jerzy Grotowski in the 1960s as one of the major catalysts of contemporary self-use training.

Grotowski's focus on the body of the actor, removing all external idiosyncracies and habits that may interfere with expressive self-use ("Via Negativa") helped to pave the path for organic training. His training encompassed three necessary conditions to stimulate this self-revelation: to "canalize the stimulus in order to obtain required reactions", to "articulate the process of reactions to stimuli", and to "eliminate from the creative process the resistances and obstacles caused by one's own organism", both physical and psychic--the two forming a whole (Roach 225). The goal was to free the actor enough to be able to synthesize the inner and outer self into one entity. "The result is freedom from the time-lapse between inner impulse and outer reaction in such a way that the impulse is already an outer reaction. Impulse and action are

concurrent (225). Grotowski's work came from a combination of experiences with eastern philosophy, with oriental theatre techniques, with psychology and neuroanatomy, and with Copeau's Vieux Columbier tradition.

Like Kristin Linklater, Richard Schechner was highly influenced by Grotowski's visit to Tisch School of the Arts in the 1960s. He absorbed and expanded on the "Poor Theatre" techniques, and anticipated much of what neuro-psychologists have only recently scientifically validated. Schechner's description of process, of "getting there" versus "getting there", embraces current fundamental concepts of self-use training:

> All performing work begins and ends in the body. When I talk of spirit or mind or feelings or psyche, I mean dimensions of the body. The body is an organism of endless adaptability. A knee can think, a finger laugh, a belly cry, a brain walk, and a buttock listen. All the body's sensory, intellectual, and emotional functions can be performed by many organs. Changes in mood are reflected in changes in chemistry, blood pressure, breathing, pulse, vascular dilation, sweating, and so on; and many so-called involuntary activities can be trained and consciously controlled (Schechner, "Aspects of Training The Performance Group" 14).

Most recently specialists in self-use training for actors have directly acknowledged the impact of neuro-psychological research. For example, acting theorist, Jean-Marie Pradier (1990), takes a daring step in her current research examining the biological underpinnings of performance, both of the actor and the audience member.

Considering the health of the actor in light of this neuro-psychological data, Pradier questions the criteria for a healthy versus unhealthy performance experience. Her research also embraces the parallels between the brain's dream state and similar effects on the performer's biochemical/neural experience during performance. She also considers the biological stimulation of audience members by performers, acknowledging the "respiratory-postural-facial effector patterns of basic emotions" identified and notated by Dr. Susana Bloch. Pradier is careful to acknowledge the hypothetical foundation of her argument, but stresses a clear connection between neuropsychological data and the performance experience (4).

> My hypothesis is that the performing arts correspond to an instinctive magnification of biological motions. The codes which underlie the actor's activity tend to restore the organization of the bodily micro-rhythms which are analogies to the appropriate behaviors such as they exist in the animal world. Man's cultural development tends to render primitive corporal efficiency as secondary: there is no longer a need to catch a wild prey by surprise (Pradier 89).

Eugenio Barba of the International School of Theatre Anthropology addresses the application of research in neuropsychology to self-use training for actors quite succinctly. "He (Barba) looks at the way in which the body is falsely perceived as the 'actor's instrument', as somehow separate from himself" (Barba. Foreword to "Fiction of Duality" 311). Barba addresses the confusion caused by

split pedagogy addressing separate areas of training the actor. Reference to the actor's inner being (his/her mind) and his/her physical instrument sets up a duality of self-awareness that will inevitably hamper expressive-use. "To pass from daily behavior to the extra-daily behavior which characterizes performance does not mean freeing oneself from conditionings, but conditioning oneself differently, de-composing in order to re-compose"(312). This de-composing, honing an organic spontaneity, allows the actor to perform a role as second nature. "The body-actor is not the 'body' which the performer 'uses', not a physical machine. It is the junction at which the real and the imaginary, the concrete and the abstract, the physical and the mental meet" (313).

Another contemporary acting teacher/ theorist who has fully embraced the current research on hemispheric specialization and interaction is Robert Bendetti. In his acting text (1990), he devotes several sections to the separate hemipheric duties as they relate to the various aspects of acting. In his chapter on text analysis, he acknowledges the analytical and language-oriented duties of the left-hemisphere, referring to it as the side in charge of "thinking about." The right hemisphere's "spatial, musical, emotional, and intuitive functions" oversee the "doing." Throughout this discussion, he is careful to emphasize the continual cooperation of both

hemispheres in the art of acting. In his chapter on "Developing the Character", he utilizes information on hemispheric dominance to "consider the mental processes of the character" that the student is developing (240).

Not every contemporary acting theorist accepts this mind/body emphasizes or acknowledges the pedagogical benefits offered through neuropsychological research. Acting theorist, Hollis Huston is an opponent of the mind/body issue. Huston doesn't believe that physical "performance can be joined to the thought it performs." He does not believe that an actor can become the character. "The mind-body is a persistent category mistake. We can't speak of things and thoughts in the same breath ..."(Huston 46).

Huston stands relatively alone in this dichotic pedagogical view. Many actor-training specialists are ready to explore and expand on the cybernetic feedback loop between body and mind. For example, on August 3rd and 4th 1993, members of the Theatre in Liberal Arts Forum of the ATHE joined together for a collegium on "Naming and Claiming Creativity". The purpose of this collegium was for actor-training specialists and general professors of theatre to explore the research and techniques currently available on the creative process, on learning theory, and in neuropsychology--specifically in the area of brain hemispheric research. "Our jumping off place (is) an

examination of definitions of creativity and the creative process that reflect several different perspectives and current research including Left Brain-Right Brain, The Theory of Multiple Intelligences, Whole Brain Learning, Preparation/Incubation/Saturation/Insight/Verification, All at Once Processing, The East/West Division" (Berry TLA Newsletter 1). This collegium is evidence of a growing interest in the utilization of neuropsychological evidence in contemporary curriculum for actors. Information on hemispheric lateralization and localization of function is currently being offered in "Creative Process" and basic "Fundamentals of Acting " courses in universities throughout the U.S. (Hill June/1993).

EMERGENCE OF MIND/BODY SYSTEMS IN SELF-USE TRAINING FOR ACTORS

Noted theatre movement specialist, Bari Rolfe (1993), addresses contemporary movement training for actors in her article, "What Doth a Movement Person?" Taking into account the current research on mind/body, she acknowledges that the actor's primary physical needs are to achieve the aims of centered performance, of technical and muscular control, of stamina, and of economical, relaxed breathing. She believes that "preparing the body can be done well by using Alexander, Feldenkrais, and Lessac techniques, because they deal with centering, correctives, etc. Other systems like Todd, Aston or Rolfing might offer

the same" (5).

Gradually from the 1970s through to the present day, the first step in actor training has leaned toward the "awareness of self", the "dynamic centering and alignment", the "plasticity of movement", and the "economy of action" inherent primarily in the self-use techniques of F.M. Alexander and Moshe Feldenkrais; but also in the imagery techniques of Mary Todd, Lulu Sweigard, and Irene Dowd and in the movement analysis systems of Rudolf Laban, Jacques Dalcroze, and Irmagard Bartenieff (Fiscella 6). Modern-day theatre innovators like Kristin Linklater and Arthur Lessac, have gathered these different self-use techniques together and synthesized them into two of the most highly acclaimed acting (voice/movement) pedagogies available in the 1990s.

[A] ALEXANDER TECHNIQUE IN SELF-TRAINING

> David Mamet wrote about acting 'You start with a conundrum. You have to find the answer yourself' (Mamet 1989). Applied to artistic enterprise, Mamet's comment is undeniable. However, investigation into communication of emotion is so highly interdisciplinary that it is shared by many different kinds of scientists and artists alike, as well as Alexander teachers. The direction of research and development in other fields can, if we allow it to, influence our thinking about the evolution of Alexander Technique (Johnson-Chase 364).

Although the techniques of F.M. Alexander never found their way into actor-training programs in the U.S. until the late 1960s, his theories on the holistic Use Of The Self

(1932), developed in the late nineteenth century, can be labeled prophetic. It didn't take scientific validation for Alexander to recognize the organic value of the ideal head, neck, and back relationship ("Primary Control") central to his theories. His own physical and vocal obstacles incurred by a classical acting career motivated his experimentation with tension in the neck, back, and shoulders, and with the positioning of the head. After several years of this personalized experimentation and from his reading in physiology and neurophysiology (Myers 9), he concluded that one could not physically activate the "primary control" but one could direct it mentally. This mind/body "cybernetic connection" was central to ideal self-use. Relying on physical activation was impossible because habitual patterns which felt normal were leading him back to his original destructive behavior. Deep-seated tensions had become so much a part of his self-image that he could not trust what felt "normal." This focus on Conscious Constructive Control (1924) led to other percepts critical to his technique. If one needs to "let the neck release, to let the head go up and forward, to let the back lengthen and widen," then the focus of the work would be on the "means-whereby" or process versus "end-gaining," focusing on a preconceived final product. The process was dynamic and ever-changing. In order to arrive at efficient dynamic availability, one would need to inhibit initial habitual

responses and direct the body into the ideal relationship. Alexander believed that the ideal way to learn his "Self-Use" system was through a trained instructor working on a one-to-one basis with the student. Through verbal messages and kinesthetic communication via non-invasive touch, the student could learn to control habitual responses and direct the "primary control".

After years of teaching his system of self-use to noted medical professionals, singers, actors, and educators (Barlow 1973), Alexander worked with a neuropsychologist from the Tufts School of Psychological Research, Dr Frank Pierce Jones. What Jones did was to scientifically validate the positive effects of the Alexander technique on those who underwent the treatment, utilizing multiple image photography, electromyographs, x-rays, and subjective evaluation. He took the scientific information on Alexander Technique started by earlier physiologists like Sir Charles Sherrington and Dr. Wilfred Barlow a step further (Stevens 76). What he found was that inappropriate use of the sterno-mastoid muscles caused the pre-dominant head/neck/back imbalance diagnosed in most of the patients. This imbalance kicked off a series of successive structural and psychological problems. His neuropsychological data proved that utilizing the Alexander technique to reduce these imbalances "gave a more consistantly upward movement with less wasted downward and backward movements of the

body. As a result, the movement took less time and force. In short, it was more efficient" (Stevens 81). Jones also concluded that along with this efficient movement came a more psychologically balanced personality, more capable of assimilating input.

As exemplified by Jones' neuropsychological findings, Alexander left behind a legacy of holistic training that has expanded into both scientific and artistic areas of study all across the world. Several renowned institutions devoted to intensive training and further research in Alexander Technique have been established in England and in major cities throughout the U.S. by first and second generation Alexander students. For example, the American Center for the Alexander Technique (hereafter referred to as ACAT) in New York City was founded by Judy Leibowitz and Deborah Kaplin. "Debbie's mother was trained by Alexander and was an Alexander teacher. Debbie actually had his hands on her at the age of twelve, so she goes way back. She is also a registered physical therapist, so that's a very interesting connection" (Serota, personal interview 23 November 1992). ACAT is the oldest training school in the U.S. It is devoted not only to training well-qualified instructors in the Technique but also to furthering research in scientific and artistic applications. Until her recent death, ACAT founder Judy Leibowitz, was a key figure in the application of

Alexander Technique to actor training. Her pioneering work goes back to the American Conservatory Theatre (ACT) before they moved to San Francisco. Harold Stone, a director with Juilliard's Drama Division, recalls his first experience of Judy Leibowitz's unique application:

> It was in the 1960s that I directed a show for Bill Ball (A.C.T.) in Pittsburgh when he was just forming his company, and one of the first people I met on his faculty was Judy Leibowitz who was doing Alexander with that company. All the directors who came in to work with that company were required to take a one hour Alexander so that we would know what it was. I'd never heard of Alexander. I'd never heard of Judy Leibowitz. I'd never heard of any of these things. So when, quite a few years later, I came to Juilliard and here was Judy, it was a signal to me that Juilliard knew what it was doing (Stone, personal interview, 23 November 1992).

Later in this study, a comprehensive description of Judy Leibowitz's work with Juilliard's Drama Division is offered. Stone has theorized that it was particularly due to Leibowitz's efforts that the Juilliard curriculum originally incorporated Alexander Technique into its four year actor-training program.

A recent article entitled "Alternative Routes: Aligning Body, Mind and Spirit" from the actors' trade paper, Backstage (Walsh, 1991), describes the current trend toward "keeping the body and mind aligned" through the use of Alexander and other "body-mind" centering techniques. Professional actors and dancers in theatre centers like New York City are now actively seeking out these self-use

alternatives. Instructor, Joan Arnold, cites the connections between energy flow, physicality, emotion, and self-awareness that are inherent in the Alexander Technique as vital for actors "since they're always trying to bring out their center or core ... The technique is getting much better known. There are now neurologists and orthopedics who refer patients to the Alexander Technique" (35).

The use of Alexander Technique in self-use training for actors has also been an area of great interest for acting specialists in higher eduation. In the past three years, workshops on Alexander training for actors have been regularly offered by ATHE at their annual conferences. One outstanding practitioner in this area is Cathy Madden who not only teaches at an Alexander Institute in Seattle, Washington but is also a valued component of the theatre faculty at the University of Washington. In 1991, Madden conducted a workshop which not only reviewed the fundamental concepts of the Alexander Technique, but which also demonstrated how the Alexander training can be utilized directly in scenework and production. Madden mentioned the impulse for student actors "to pull back and down" as they become emotionally involved in a scene. To somehow physically cap the emotional welling that occurs in the moment is almost an instinctive behavior for actors. During her demonstration with a personalization exercise entitled,

"When I Was a Little Boy", Madden showed how applying the Alexander Technique at those moments of emotional "pulling down" through non-invasive touch could free the voice and also connect the actor more fully to the experience. She also guided a student actor during a monologue presentation from Clifford Odets' The Golden Boy to send his energy upward, flowing with the emotional, vocal, and physical energy rather than pulling back against it. A significant point that Madden made in her demonstration was that one does not have to stand still in order to benefit from the Alexander training. The technique can and should be applied throughout the actor's creative activity. She often attends the stage movement courses at the University of Washington to offer Alexander guidance. In a 1990 lecture/demonstration in Chicago, Madden also spent a great deal of time discussing the counteracting effect and pressure imposed by an acting instructor who is "endgaining". Some instructors who have no background in such mind/body concepts, have a secret agenda, a final product in mind for their students which can come out in the form of compliments or criticisms. She suggested that guidance should have an ongoing aspect to it, a "process" orientation.

Acting teacher, John Gray (1978), also acknowledges the neuropsychological and psychological benefits of the Alexander Technique. The security inherent in a more

balanced and centered mind/body will provide the student actor with a "framework for progress." From this all-embracing "vital centre" he/she will be free to absorb all idioms and aspects of his art form. "So it is desirable that the actor approaches this side of his training as early as possible, ideally as a kind of pre-training, for the more immured he is in his misuse habits the more he will have related the development of his needed techniques to these harmful habits" (Barlow 206). Like Madden, he notes the impulse for the student actor to pull against strong emotional currents. He also makes a strong argument for the use of Alexander's concept of "Inhibition". He mentions the fact that many young actors feel that "inhibiting the initial response" will counteract the "precious freshness" and "spontaneity" required for contemporary theatre. Actors are often confused by the idea that what they think is a "spontaneous" initial response is actually "wired in" habituation, "a complex set of bad habits accumulated over the years for a million different reasons ... His habitual, automatic reflex reaction, which he thinks to be spontaneous is probably nothing to do with appropriate reaction" (206). Ironically, Alexander's "Inhibition" will free the actor enough to choose an appropriate and desired reaction.

The following job placement announcement is exemplary of the pervasive pedagogical movement toward addressing the

actor's self-use in institutions of higher education:

> **ASSISTANT PROFESSOR/THEATRE** - (Acting Specialist/ Director); Fall 1993. Tenure Track. To teach all levels of acting courses in BFA/BA and direct one mainstage production each semester...MFA in acting with background in Linklater and Alexander/ Feldenkrais required" (ArtSEARCH Vol.12 no.7).

In addition to the aforementioned university/conservatory settings like Juilliard's Drama Division and the University of Washington, the professional actor-training programs at Tisch School of the Arts, Asolo Center Conservatory at Florida State University, Ohio University, University of Kentucky, and the University of Wisconsin-Milwaukee (to name a few) actively utilize Alexander training as a central synthesizer for all the other elements included in the acting curriculum. Associate Dean of Tisch School of the Arts, J. Michael Miller, acknowledges the central position that the Alexander Technique has taken in their actor-training curriculum in the past decade (Miller, personal interview, 6 May 1993). An in-depth exploration of exactly how the Alexander Technique has affected the acting curriculums and pedagogy of Tisch School of the Arts, Juilliard's Drama Division, and Asolo Center Conservatory for Actor Training is offered in Chapter III of this study.

[B] FELDENKRAIS METHOD IN SELF-USE TRAINING FOR ACTORS

The foundational concepts of self-use first outlined in F.M. Alexander's work are absorbed and scientifically expanded on in the work of Moshe Feldenkrais

(Goldfarb 1). The fact that Feldenkrais never acknowledged Alexander's influence has remained a source of great tension in the Alexander school (Elinore Morin, personal interview, 28 April 1992). Borrowing aside, Feldenkrais' approach to the "self-use" issue came to the fore beginning in the 1940s. Moshe Feldenkrais was a noted doctor of physics connected with the Universite Pierre et Marie Curie (Feldenkrais, Elusive 96-97). He introduced his own method of developing self-awareness while carefully identifying his use of current scientific data in the area of neurology, physiology, and evolution theory.

Similar to the origins of the Alexander technique, the Feldenkrais Method was the result of a traumatic knee injury sustained by Moshe himself. In an effort to rehabilitate his knee without major surgery, he began to examine the skeletal relationship, the leverage in relation to gravity, the muscular and neural connections, and the conscious control of the body in "intention to action."

Equipped with a vast background in neural anatomy, physics, psychology, and martial arts, Feldenkrais discovered that by exploring movement very slowly using his Fechner-Weber Law (i.e., "the smaller the weight you are holding, the smaller is the added or subtracted portion that you will be able to notice"--Body and Mature 108), by reducing the gravitational pull to a minimum, and by introducing new kinesthetic experiences based on

anatomical relationships, one could by-pass the inhibiting "habituation" wired in from childhood. Based on the "cybernetic feed-back loop" linking the peripheral nervous system to the central nervous system, Feldenkrais developed a series of exercises which he referred to as Awareness Through Movement (A.T.M.) exercises.

Taught in a group, the A.T.M. exercises were introduced to one side of the body (usually the right). Following the one side of relatively active exploration, the exercises would be repeated on the other side but only in the mind. For example, a series of A.T.M. exercises exploring shoulder rotation and all its possibilities was conducted in Spring of 1992 by Dr. Betty Dickenson, a past assistant to Feldenkrais. All of the physical activity in this exploration was focused on the right side. Following this intensive physical exploration, students were then instructed to turn onto the left side and image "the whole sequence, applying it mentally to the left side." With the systems approach, thinking is doing. Later, when the left side was physically tested for shoulder rotation expansion, it was evident that a balanced kinesthetic experience had occurred.

> When I began to use this one-side-only technique, I knew nothing of the recent findings about the different properties of the two hemispheres of the brain ... It is easier to attend to the details of a movement when working on the right side ... and transfer this learning to the left side only mentally, in one's imagination ... Moreover, the

> left side achieves greater fluency and ease than the hardworking original side (Feldenkrais, Elusive 77).

The result of these A.T.M. exercises is structural or functional integration with all body parts working ideally together to economically accomplish intention to action. Eventually the Feldenkrais student will be able to stand in a position of "zero effort", dynamically maneuvering gravity with minimal effort. This will result in the potential for economical reversibility of action in any of the six cardinal directions (Feldenkrais, Body 109). Feldenkrais went further with this method by identifying the psychological benefits and the link between self-image and body-image. In The Elusive Obvious (1981), he expands on the concept "you are what you think:"

> Our internal processes, provoked by present external influences, or by forgotten, painful previous experiences of the outside world, change our intentions to act as well as the way we act. You are as good as you wish; you are certainly more creative in imaging alternatives than you know. If you know 'what' you are doing and even more important 'how' you use yourself to act, you will be able to do the things the way you want. I believe that the world's most important advice, 'know thyself' was first said by one who learned to know oneself (70).

As mentioned earlier, Feldenkrais created his method from a sound foundation in neurology, anatomy, and physiology. He worked very closely with eminent neuro-scientists like Karl Pribram (46). All of his published work links the techniques of his system directly to the physiological and neurological mechanics of the body. In

the heat of the neuroscientific debate addressing localization of function versus the synergic interaction of brain and body, Feldenkrais was strongly against making finite assumptions based on what was known. He felt that the issue was quite complex and that there was a need for a more "imaginative scientific approach to understanding the whole interrelated functions of all aspects of ourselves, rather than just being content with some idea of localized function" (47). He did acknowledge the successes of research on localization of function by different laboratories, further validating Wilder Penfield's "homunculus." [3]

Like Alexander, Feldenkrais also took steps to introduce his method of A.T.M. and "Functional Integration" (i.e., leverage work with non-invasive touch on a one-to-one basis) into the education of performers. Feldenkrais' work with the Habima Theatre company in Israel led to several invitations from the Tisch School of Performing Arts, from the Esalin Institute, and from the Carnegie Mellon Institute during the 1970s to conduct workshops with acting students. Through these workshops and the propagation of his techniques by such Feldenkrais-trained instructors as

[3] Penfield's "Sensory homunculus" is a cartoon-like sketch of areas of localization of function in the neocortex found in most honored texts on neuro-psychology (Wilder Penfield and T. Ramussen. The Cerebral Cortex of Man. New York: Macmillan, 1950)

Michael Johnson-Chase, Barbara Leverone, and Kirstin Linklater, the Feldenkrais method has also begun to permeate the acting-movement curriculum across the U.S.

> A violinist, an actor, a writer, or whoever, who is not aware of the importance of the way one directs oneself in acting or functioning in life will stop growing the moment he achieves what he considers to be the right way of doing ... Improvement of talented people comes from their freedom to choose their mode of action (Feldenkrais, Elusive 96).

Richard Schechner's interaction with Moshe Feldenkrais in 1966 clearly had an impact on his work with the Performance Group and Tisch School of the Arts. In an interview with Feldenkrais, he had the opportunity to address the traditional duality of mind and body in acting theory versus Feldenkrais' belief in unity--the mind and body being an inseparable whole. He also had the opportunity to address the concept of spontaneity in acting, suggesting that if the actor expands his awareness of self, that spontaneous response may be curbed by Feldenkrais' techniques. Feldenkrais' reaction was, "If you look at it properly, what we mean by spontaneity is just to be an idiot ... But when the actor is well-trained, aware of his body, his mouth, his eyes, his volitions, and has full contact between the outside and the inside, he can pick his own way" (Morris 123). Schechner also inquired about Feldenkrais' connections with Lee Strasberg and his other work with the theatre. Considering the many contemporary training programs which have incorporated Feldenkrais

training, Schechner's earlier observation that, "It would be very interesting to see a generation of actors, ten or fifteen or twenty actors, fully trained in this technique" turned out to be quite prophetic (126).

Kristin Linklater was also deeply affected by Feldenkrais' work. During her work with the Tisch School of the Arts' actor-training program in the 1970s, she had the opportunity to work with Feldenkrais directly. Her experience led to many important break-throughs in her own voice/movement work. She believed that the introduction of Feldenkrais to actor-training programs reflected an "important change of emphasis in the area of movement training for actors ... The choice, put simply, is between training the body to perform skillfully as a well-exercised, aesthetically pleasing physical instrument, and freeing the body of its habitual tensions and programmed patterns of behavior so that it can respond uninhibitedly to impulse, and genuinely reflect individual imagination and emotion" (Linklater, "The Body Training" 23). The impact of Feldenkrais' visit to Tisch was varied. According to Associate Dean, J. Michael Miller, it affected Linklater's work more than anyone else's connected with Tisch. Once she left the institution, interest in the Feldenkrais method as a part of the self-use training at Tisch faded and Alexander Technique was adopted in its place.

In preparation for this study, a general letter was sent to the editor of the Feldenkrais Guild Newsletter in Spring 1992 inquiring about the use of the Feldenkrais Method in actor-training programs. The one significant response to this inquiry came from Professor Barbara Leverone who has been the movement specialist for Asolo Conservatory Center for Actor Training at Florida State University since 1985. In the past three years, she became one of the leaders of a faction encouraging the incorporation of Feldenkrais into "process-oriented actor training." During the summer of 1993, she taught a workshop focusing on "Feldenkrais For Actors" at the Webster Movement Institute Workshop in St. Louis. In addition she participated in an intriguing debate on "Alexander and Feldenkrais: Are they Mutually Exclusive?" at the ATHE conference in Philadelphia. The results of this debate are discussed at length in Chapter III and IV of this study. Leverone has taken many steps to encourage the use and training of Feldenkrais techniques in contemporary actor pedagogy. Her work integrating Feldenkrais with Alexander training conducted by instructor/ director, Michael Costello, resulted in an experimental production of "The Homecoming" by Harold Pinter during Spring of 1993 at Asolo Center conservatory. A comprehensive discussion of exactly how Leverone has synthesized her Feldenkrais techniques into the Asolo movement training

is offered in Chapter III of this study.

Although the Feldenkrais Method is not presently found in actor training programs as pervasively as the Alexander Technique, it offers great promise. This method is of growing interest to theatre practitioners. Most serious actor-training programs in 1993 have incorporated mind/body systems like the Alexander Technique or the Feldenkrais Method into their self-use training for actors. Many specialists in self-use training are certified in several mind/body systems usually including both Alexander and Feldenkrais. Michael Johnson-Chase of the Professional Actor Training Program at the University of Wisconsin-Milwaukee embodies this multi-faceted training. In his research (1992) addressing neuropsychological studies of emotional expression and actor training, he explores the actor's expression of emotion using the concepts of F.M. Alexander and Moshe Feldenkrais. He compares these two systems with the recent innovations of neuropsychologist, Dr. Susana Bloch:

> This outlook suggests that we may need to rethink our application of the Alexander Technique in actor training. If good use alone limits the boundaries of emotional expression, then those of us who work with actors may become better teachers by addressing ourselves to the teaching of self-use in every possible form. Such a viewpoint invites us to become masters of poor use as much as masters of good use, focusing our explorations of the use of self on 'all that humans can do' in place of what humans do most efficiently (Johnson-Chase 364).

[C] IDEOKINESIS IN SELF-USE TRAINING FOR ACTORS

> Whatever the explanation of how emotional and bodily changes are linked, it is profoundly true that we are as much affected in our thinking by our bodily attitudes as our bodily attitudes are affected by the reflection of our mental states. (Todd 250).

Another mind/body method that is becoming quite prominent in the area of self-use training for actors comes from the field of dance. As early as the 1930s, Mabel Todd from the faculty of Columbia University developed a method of "body re-education based on the use of visualization" and the "psychophysical" response (Myers 17). Her movement theory dealing with neuromuscular re-education using the power of the imagination was based on a solid foundation of anatomy, physiology, and neuro-scientific information available in her time. The goal was to realign and re-educate the performer's body for efficient movement through the use of imagery, visualization, and breathing patterns versus physical manipulation. In the 1970s her student, Lulu Sweigard of the Juilliard Dance Division, took this theory of "muscular repatterning" for self-use training a step further, expanding its neurophysiological basis and carefully substantiating the guiding images with bio-mechanical and anatomical research. In the past ten years, her system of "Ideokinesis" involving "visualized movement

without conscious voluntary direction" has permeated most serious dance programs and some actor-training programs. Ideokinesis is introduced via guiding images provided by a professional instructor who is well-versed in anatomy and neurophysiology. Working from one of the many "constructive rest positions" (offering neuromuscular and anatomical availability), students are asked to "see the exact location of the movement", to "see the direction of the movement", and then to "think it, not do it." All of this imagery is designed to follow the nine lines of action which will bring the "skeleton into optimal efficiency" (Myers 18).

Irene Dowd, one of Sweigard's successors, acknowledges the need for performers to have a strong understanding of neurology and anatomy for such visualization to work. "Visualization is a way of warming up the neurological pathways--but only if the movement is imagined perfectly on your own body" (17). Dowd's own work as an instructor of functional anatomy and neuromuscular recoordination at Columbia's Teachers College is a keen example of the benefits that can be reaped from an interaction between neuroscience and performer training. Like the Alexander Technique and the Feldenkrais Method, Ideokinesis is grounded in firm neuroscientific data. It capitalizes on the current information in neuropsychology

--on the fact that the "activity of the nervous system is what produces the process we call mind" (17).

At Michigan State University's Department of Theatre, this visualization/alignment therapy is actively utilized. In theatre dance and movement courses specifically designed for actors, Sweigard's Ideokinesis is the first step in alignment re-education. This writer had the opportunity to experience the effects of this mind/body system firsthand and noted marked changes in her own alignment orientation and kinesthetic awareness, as well as a marked change on several classmates.

OTHER PERTINENT APPLICATIONS

Up until her death in 1987, Irmagard Barteneiff, pioneer and disciple of Labananalysis, provided another vehicle for self-use training for actors which is intricately connected to current neuropsychological data. Barteneiff's work with Rudolf Laban's codified study of the succession and interaction of body parts in movement was combined with her training as a physical therapist at the Albert Einstein Medical Center to culminate in her "Barteneiff Fundamentals." Bartenieff Fundamentals uses Laban's system of effort/action analysis (Laban 1960) along with concepts from the Feldenkrais Method and the Alexander Technique as the vehicle for addressing dynamic alignment, body attitude, initiation of movement, and weight transfer. This "evolving

series of movement sequences deals with mobilizing the body efficiently in its environment--and prepares it to perform as wide a range of movement qualities and shapes as possible" (Myers 5). It acknowledges the unique physical qualities and experiences of each student. Bartenieff's certification program at the Laban/Bartenieff Movement Institute (1978) has helped to propagate the use of Laban's Effort/Action system in self-use training for actors. The Laban Effort/Action concepts and terminology found in Barteneiff Fundamentals can also be found in many contemporary actor-training programs and in most viable acting texts (Bendetti 34-36). Bari Rolfe, author of many books and articles on movement training for actors, cites the Laban Effort/Actions as a vital component of theatre movement exploration (Rolfe 5).

A similar movement system which has begun to find its way into contemporary self-use training is Dalcroze "Eurythmics." Like Laban's work with effort/shape, Jacques Dalcroze's experimentation with the human body and rhythm and with Delsarte's scientific system of expression resulted in a codified system of rhythmic expression called Eurythmics. Eurythmics focuses on the human body as a musical instrument. It explores inherent internal rhythms and refines the organism's capability of "realizing" (physically interpreting) externally imposed rhythms. His ultimate goals of "plasticity of expression" and of

developing "a rapid physical reaction to impulse" parallels the effort/action principles of Laban. Dalcroze's insights on the excitability of the nervous system and on the complimentarity of cognition and rhythmic muscular expression was prophetic considering current neuro-psychological research (Dalcroze 48-61).

Several innovators have adapted Eurythmics to self-use training for actors. For a period of time, Dr. Robert Abramson, an expert in Eurythmics at the Juilliard School of Music, was asked by the Drama Division to work with the acting students. In a personal interview (1992), Abramson described his adaptation of Eurythmics to his course in theatre movement and acting. Abramson believes the organic "realization" of tempo/rhythm helps the actor get in touch with the rhythm and subtextual life of the script. He cited the work of Jo Pennington's The Importance of Being Rhythmic: "A dialogue between the actors, the one of whom must interpret the other at certain points, would gain immensely in strength if the actors first walked the rhythm of their respective speeches in counterpoint so that they could feel, nervously (neurologically) and muscularly" (Pennington 107).

Dr. Paullette Cote-Laurence of Brock University's Department of Physical Education currently utilizes Eurythmics in her work with athletes, dancers, and actors to get them in touch with their own rhythmic impulses.

Her own doctoral research included the neuroscientific use and effect of Eurythmics on the human organism. In a 1992 workshop at Michigan State University, she acknowledged the many parallels between the aforementioned self-use systems and Dalcroze Eurythmics. "It is not surprising that there are so many parallels between all of these 'systems' ... They are basically within the same organism. There's just so much you can do with the human organism" (Personal Interview, Spring 1992). In her workshop, she demonstrated her unique synthesis of rhythmic physical phrasing with acting work. For example, she asked the acting students to move freely to a prescribed tempo rhythmn which she beat out on a drum for four different phrases: one count of eight, two counts of four, four counts of two, and eight counts of one. Groups of four students each then explored their individual movement phrases in a sequential and then a simultaneous manner, ultimately creating justified scenarios based on the original rhythmic sequence.

In comparing the self-use systems of Alexander and Feldenkrais with the analytical adaptations of Laban and Dalcroze, the integral connections between mind and body made by each innovator should be emphasized. Central to each of their systems is the muscular interaction with thinking, and each of these early movement systems has foreshadowed the research of present day neurologists. "Since muscular action is neurologically controlled,

changes in coordination involve alterations in the functioning of brain networks. As performers make changes in their movement patterns, they experience their bodies differently. Experience, in turn, leads to further modification of movement patterns" (Myers 4).

PROVING STANISLAVSKI RIGHT: A NEUROPSYCHOLOGICAL POINT OF VIEW

Russian neuropsycholgist, Pavel W. Simonov (1986) acknowledges Sperry's information on hemispheric specialization and localization of function to explore his own theories on the "superconscious" as applied to Stanislavski's "Method of Physical Action." Simonov's concept of "Ideomotoric action" supports the idea that the formation "of an image mobilizes the 'whole many-leveled structure' of the actor's nervous system." In his discussion comparing the "superconscious" to Stanislavski's concept of "super-purpose," Simonov identifies the primary position of functional asymmetry of the cerebral hemispheres, particularly as they relate to memory and the creation of new images. "Superconscious" to Simonov is the combined activity of the left hemisphere's categorization of past experience and future probability (based on what's already known) with the right hemisphere's nonverbal intuition, combinational capabilities, and gestalt processing. "In the neurophysiological plan, the

mechanisms of creativity (a product of the higher level Superconscious), must not be understood as a process of direct reflection of the brain, of connections between objects in the surrounding world. This activity takes place more likely according to the principles of 'psychic mutagenesis', according to the principle of new neural connections, essentially already developed in the brain" (Simonov 212). This concept of "Superconscious" can be closely related to the contemporary "Parallel Distributed Processing" (PDP) theory described earlier in this chapter. The hypothesis is that new neural connections are created synchronically, resulting in a completely new idea. But capturing these new images created by the "superconscious" is not possible through direct volition. Rather one must deal with the psychophysical aspects as Stanislavski prescribes in his method. "One can only 'till the soil' for inspiration and artistic creativity to grow in" (208). Simonov links this neurophysiological concept with the "superconscious" to Stanislavski's definition of the "super-purpose" or the "super-objective" in acting a role. The "super-purpose" is the essential idea, the core of a play around which and to which all thoughts, actions, and feelings of an actor must converge.

> You cannot reach the super-objective by means of your ... mind. The super-objective requires complete surrender, passionate desire, unequivocal action. The most powerful stimuli to subconscious creativeness ... are the through

> lines of action and the super-objective ... they are the principal factors in art (Stanislavski 137-138).

Like Simonov, Richard Groetzinger (1986) considers the neuropsychological aspects of Stanislavski's method of acting. His research addresses the use of fantasy and imagery in organic acting technique as well. Consideration of research in hemisphericity and fantasy leads to some solid conclusions regarding the use of fantasy and imagery as a tool for conscious control of the actor's physiological reactions in performance. Within his study, he also identifies the interaction of mind and body in connection with the brain and neural activity.

> Not only does the neural activity associated with the sensations of sight, sound, touch, and others, appear on conscious content, but conscious content can and must, in turn excite neural activity. Without this reciprocal relationship, the emotions and feelings engendered by the sub-text will not manifest themselves in the physical performance (20-21).

SUMMARY

In the past two decades, the use of imagery has become a viable tool not only in psycho-therapy, education, counseling, and continued brain research

(to name a few areas), but also in self-use training for actors. As knowledge about hemispheric activity and visceral integration continues to grow, "the capacity to create and manipulate mental images is being used increasingly as a teaching and performance aid in athletics and in the performing arts" (Pinkard 20). More and more research is being documented regarding the physiological reaction to imaging, particularly on the autonomic nervous system. And in turn, current research has revealed that altered motor patterning will also stimulate modified behavior.

From Sperry's original discovery that the nonverbal right hemisphere was indeed an active participant in the thinking and creative process to the current neuropsychological data on "systems" research, the mind/body philosophy has gained credibility and value in both science and art. As a result, training for actors has undergone a major change in the past twenty-five years. Eric Morris, a noted acting teacher/theorist of the 1990s, encapsulates this change with the advice: "Put the icing on the cake after you've baked it" (Mekler 195). The idea that students must "know what they are doing, before they can do what they want" has led individual acting theorists and entire actor-training programs toward the incorporation of holistic mind/body systems such as the Alexander Technique, the Feldenkrais Method, Ideokinesis, Bartenieff Fundamentals,

and organic voice/movement systems like Kristin Linklater's and Arthur Lessac's. A student who has been provided with a strong foundation in awareness and in techniques honing ideal self-use like these will head into his/her career with confidence, with a truer self-image contiguous with his/her body image, with the ability to select economical action which succinctly and creatively relays his/her intention, with a stronger, more flexible and energetic apparatus, and with an ability to assimilate and manipulate many different expressive styles.

In the next chapter, three specific examples of contemporary acting theorists who have actively utilized this research in neuropsychology are examined. Ramon Delgado, Susana Bloch, and Arthur Lessac are three specialists who believe that "educators must analyze principles from many areas of research, integrating concepts from the sciences with those from traditional practice in the performing arts " (Myers 4).

CHAPTER II

CONTEMPORARY INNOVATORS IN THE APPLICATION OF NEUROPSYCHOLOGICAL RESEARCH TO ACTOR TRAINING

In a 1991-92 comprehensive search for contemporary examples of specialists who have actively and openly applied research in neuropsychology to self-use training for actors, three particular individuals stood out: Ramon Delgado, Susana Bloch, and Arthur Lessac. In the following chapter, the development and the philosophy underlying the unique actor-training systems of these three innovators are detailed. Excerpts from taped personal interviews provide the different innovators' views about their work and about the use of neuropsychological research for training performers in general.[4]

RAMON DELGADO: ACTING WITH BOTH SIDES OF YOUR BRAIN

Ramon Delgado has been a professor of theatre at Montclair State College for fifteen years. In that time, he has taught five of the six levels of acting courses in the B.F.A. program in Montclair State's School of Performing Arts. Delgado's text, entitled Acting With Both Sides of Your Brain (1986), was designed as a manual for training

[4]For a sampling of the questions used to interview these innovators please refer to APPENDIX I.

beginning actors. It is specifically based on Sperry's original research on hemispheric lateralization and specialization of function.

> Recent research on right and left brain hemisphere functions provides a metaphor and possibly even a physical explanation for the dual nature of the performing experience. Investigations by psychologists and neurologists suggest that the creative, non-verbal functions of the right hemisphere of the brain are equally important to our balance as whole personalities as is the dominant left hemisphere of the brain, long believed to direct logical and verbal functions-- It is this balance which permits actors the simultaneous experience of emotional release and emotional control. Further study convinced me that the right brain/left brain approach was indeed a very useful way of organizing the development of the creative processes (Delgado x).

Although Delgado was first motivated to explore the application of research on hemispheric lateralization and specialization of brain function to actor training after he read Betty Edwards' Drawing On the Right Side of the Brain (1979), his earlier training with Paul Baker at the Dallas Theatre Center and with Juanita de Laban at Baylor University had already equipped him with a holistic pedagogy and philosophy. Delgado describes Paul Baker and his work on Integration of Abilities (1972) as the pioneer of this whole area. "He was doing the kind of work that we're now into way before there was any right and left brain concept to put it into. I mean his (work) came from intuition and from trying..." (Delgado. Personal Interview, 23 November 1992). Baker's exercises were focused toward training the "entire creativity" of his acting students. Coloring exercises,

drawing exercises, writing exercises, abstract movement exploration, and creative journal keeping allowed the student to discover "whether he was strongest in words, line, color, sound, rhythm, movement, space, concept, texture, etc." (Baker 17).

Delgado's keen interest in the creative development and "process of teaching actors" is apparent in his own work, which includes many of the innovations designed by Baker. At the time that he decided to write his text synthesizing neuropsychology with actor training "people were already thinking in this direction--although it had not been put together under the metaphor of hemispheric thinking" (Delgado 1992). When he experimented with Edwards' drawing exercises in 1984, it suddenly occurred to him that he had been doing many of these types of things in his acting classes for years.

> Now I know from my background in speech that even back at the turn of this century, the Broca's Area had been identified and that was associated with speech. That was the left brain. So that was the precedent well established already but what about those other things that are directed by the brain? Where are they located and how might they be applied if they are located in those places? I was acting largely on intuition and the initial kinds of scientific materials that were leaking out through these various published resources. So I read some key articles and so it simply confirmed things that I had already been doing. It helped me more tightly organize and conceptualize which functions might be thought of as right brain and which functions might be thought of as left brain in terms of the application in theatre (Delgado, 1992).

What Delgado is careful to stress regarding this acting approach is that the right brain/left brain emphasis is

more of a metaphor than a scientifically defined technique. Throughout his text, Acting with Both Sides of Your Brain, Delgado also emphasizes that acting requires both hemispheres in training and in performance. At least one third of his text and his actor training pedagogy is devoted to honing ideal self-use utilizing the right brain/left brain emphasis. Self-use to Delgado is "getting in touch" and then being able to "communicate what you get in touch with to others" (1992).

In the beginning of his actor training sequence, referred to in his text as "The Creative Perspective", Delgado introduces the brain hemisphere research to the acting student and then synthesizes it with traditional theatre influences such as those of Stanislavsky and Vakhtangov. Part One of his text includes an unusual picture of a "two-headed turtle." Delgado uses the picture to kick off a discussion on man's dual nature, the dual hemispheres, and the dual challenges of being an actor.

> It is a perfect image for any creative artist--a soft, sensitive nature, a tough outer shell, one head for creation and the other for self-criticism. The recent research into left brain/right brain functions by psychologists and neurologists has confirmed the validity of this two-headed turtle image. For nearly a century, the left hemisphere of the brain has been associated with verbal and logical processes. But it is only in the last three decades that serious attention has been given to the more elusive, nonverbal, and creative functions of the right hemisphere. The new research provides a key to unlock some of the mysteries of the creative processes involved in acting. This text focuses on the development of these processes (Delgado, Acting With 2).

An illustrated graph of the two brain hemispheres and the specific cognitive functions which each hemisphere was thought to oversee supports this opening sequence. Warm-up exercises which focus on left hemisphere cognition including writing assignments such as "Expressing Attitudes in Adjectives" and which focus on right hemisphere cognition such as "Expressing Attitudes in Tempo-Rhythm" (19-21) begin this self-use exploration--getting the voice and body in touch with inner impulses. "It is that inner impulse and your ability to express it through your voice and body that we explore in this process" (14).

By employing techniques which focus on left-brain analytical processes and right-brain spatial/abstract qualities, Delgado guides the acting students to "examine (their) equipment" via unique relaxation exercises, imaging exercises, and awakening the senses. His chapter on "Touching Both Sides of Your Brain" synthesizes his "poor man's" Alexander background with his other training and research in creative exploration. Delgado's training in the Alexander technique has been in the form of scattered workshops, but he has found that even what he refers to as his "poor man's" version works wonders with the self-use training of his student actors (Delgado, personal interview 1992).

The opening part of his actor-training sequence is designed to help the student achieve the following self-use goals:

> 1) To increase sensitivity to yourself, to your environment, and to your fellow performers.
> 2) To eliminate unnecessary tensions and habitual mannerisms which years of social conditioning may have inflicted on you.
> 3) To provide you with a starting place, a "zero line" from which to begin your creative work as an actor.
> 4) To help you recapture the freshness with which you viewed yourself, the world, and others before you were entangled in the prescribed perceptions of your culture.
> 5) To show you a way to renew your creative resources continually despite the pressures on which you tend to distract your attention and dissipate your time and energy (25).

Similar to his mentor, Paul Baker, Delgado also stresses the importance of the journal in this type of approach to assist in processing the student's experiences in this type of training.

Following this intensive exploration of self-use, the traditional "levels of craft" dealing with action, words, unconscious role playing, conscious role playing, emotion, and aesthetic distance are introduced. "I like to think of the levels of acting in terms of action level--that which is done. The level of conscious role-playing, that is when an actor imitates another person or another character. The level of unconscious role playing, that the characters are playing roles that the characters are not aware of...The word level itself, you know, the sounds of the words, the meaning of the words, the word-level and all the implications there"(1992). Delgado views the craft levels of his actor training pedagogy as parallel to Stanislavski's method of physical actions. Like Stanislavski's work in the

latter part of his life which Delgado refers to as the "Outer Gospel of Stanislavski", he stresses that emotion should be a product of the action. "I think that the feelings that the actor experiences should come as a result of the actions that the character is instigating rather than the actor feeling the emotion and then finding the physicalization of the character and emotion" (1992). Delgado goes so far as to state that the "Emotion Craft Level" is something to be explored and solidified, but by the time of performance the actor should already have found the actions that express the emotions of the character. "By going through the e-motions, they communicate the line of the character reaction to the audience. The audience never knows whether the actor is feeling or not" (1992).

In addressing the concept of process versus product in performance, Delgado again applies the metaphor of dual cognition. The performance encompasses the "character result," the codified, rehearsed, and refined character product with the coinciding artistic creation of the moment. "In addition to what the rehearsal process and previous performances have brought to the development of that character, there still needs to be that spontaneous wriggle room for actors to play off of each other in the moment" (1992). Even as a director, Delgado uses this hemispheric metaphor in production work. "Sometimes if a student is not getting some aspect of a character or is having trouble with a scene, I use some kind of exercise from the hemispheric

work to open them up to new possibilities" (1992).

Although Delgado is the first theatre professional to publish a work applying neuropsychology to actor training, he has not followed the developments in neuropsychological research as fully as he would have liked. He still actively utilizes his original actor-training pedagogy but now acknowledges the synergic relationship of the two brain hemispheres with the body more fully. "If I were to redo this (text) now, I may not even use the terms right and left brain but functions" (1992). His recent research on the interaction of hemispheric activity has lead him to explore the various cognitive functions which oversee tempo-rhythm, emotional expression, vocal expression, and physical action. Howard Gardner's theories on "multiple intelligences" and lyricist teacher, Sheila Davis' texts on lyric writing have motivated Delgado to re-evaluate some of his exercises and pedagogical choices. This re-evaluation was most apparent in his panel presentation dealing with personality analysis and psychotypes in the 1993 ATHE panel on "Intercommunication Between Neuroscience and Actor Training". His approach to actor training now includes systems of perception and modes of thinking derived from the theory of psychologist, Carl Jung.

Delgado attributes a fading interest in his 1986 acting text to the advances in current research on brain cognition and to an overwhelming right brain fadism. "It

was associated with the fadism idea of rigidity in right brain and left brain functions" (1992). At the time that Acting With Both Sides of Your Brain came out, several universities including Michigan State University and the American University, experimented with it as a textbook for their acting courses. Most professional organizations responded to it quite favorably as well. But Delgado cites an interesting phenomenon that has occurred among his students who have worked with this technique. When he first began working with this approach, there were a few students who weren't able to assimilate the more "far out " exercises (1992). But now the "incoming students, because it's kind of established, don't really resist it anymore... (They) see things freer, sort of an M.T.V. kind of mind that we're meeting" (1992).

Delgado's liaison with American University in Washington, D.C. has continued to be quite fruitful. He cites the actor-training approach of Gail Humphries at American University as one of the three contemporary actor-training programs which he believes to be quite successful. Humphries synthesizes Delgado's acting concepts with those of several other innovators to create a "personal development approach" (1992). The work of Bill Esper at Rutger's University is also high on the list of successful programs to Delgado, particularly due to Esper's expansion of the Meisner technique. Finally, Florida State University's

Asolo Center Conservatory for Actor Training is included in his list of successful programs. The in-house professional Asolo theatre provides the student actors with opportunities for practical experience. "I don't know about individual teachers in that program but they have a reputation" (1992).

Regarding current applications of research in neuro-psychology to actor training by innovators like Arthur Lessac and Susana Bloch, Delgado is complimentary but a bit wary. "I think there's a valuable connection that (Lessac) emphasizes between the voice and the body. (But) I think his approach is roundly criticized and some of his students exaggerate the forward thrust. But...any system can be so over-emphasized that it comes out as mechanical patterning" (1992). Delgado was also very interested in the "Emotor Patterning " work of neuropsychologist, Dr. Susana Bloch. Acknowledging parallels to Delsarte's earlier "scientific" system of expression, he did, however, express some concern about the actor's use of codified facial, respiratory, and postural patterns to stir pure emotion. "Actor's are not biomechanical robots, but complex human beings responding to the real or imagined stimulus in the play, their partners, and themselves...there was a certain robotic-ness about this" (1992). He foresees a positive outcome resulting from this new synthesis of neuro-psychological data and actor training pedagogy.

> I suspect that they may simply confirm a lot of the things that we have been experimenting with

> and drawing our own conclusions about, in an observational kind of way...in the classroom situation without the benefit of invasive or even non-invasive measuring tools of the laboratory. But I would hate to see the day when we turn acting classes over to machines to measure blood pressure, glands, and that sort of thing" (1992).

Delgado views the intercommunication of neuroscience and actor training as a profitable enterprise as long as it continues to support efforts toward artistic creation.

> If they are confirming with their experiments through volunteer actors, whether trained or untrained, the validity of the integration of systems or functions that we have been working on either separately or in an integrated collective fashion, then I think it can be reassuring to those of us who have made those observations in our classrooms. It gives some respectability to our experimentation...In a way, it may validate the scientific-ness of the art. But I certainly don't want us to come to the point where we start putting electrodes on audience members and measure the success of the production, success for the actors, (and) success for the audience by how high a charge the audience registers on the machine (1992).

ARTHUR LESSAC: BODY WISDOM

Arthur Lessac, author of The Use and Training of the Human Voice (1973, 1994) and Body Wisdom (1981), can be labeled a "modern-day synthesizer" of these contemporary self-use systems and of current neuropsychological research. At eighty-four years of age, Lessac has gathered an impressive list of credentials from his work with Eastman School of Music and with State University of New York's (at Binghamton) Department of Theatre to his current enterprise, "The Lessac Training and Research Institute" in

Santa Monica, California. He is a master teacher whose expertise is sought by professional theatre organizations such as the Southeastern Theatre Conference and the American Theatre in Higher Education. His work is also respected by professional theatre training programs throughout the U.S. An active researcher and advocate for interdisciplinary training, Lessac has most recently directed his attention and research energy toward the cybernetic interaction of body and mind, what he calls the "Principle of Generalized Physicality." Combining his background in anatomy, neurology, and psychoanalysis with his training in Alexander Technique, the Feldenkrais Method, Labanalysis, and Grotowski's "Poor Theatre" techniques, Lessac has created a unique synthesis of vocal/body "NRG" exercises designed to serve self-use training for the actor and to serve human performance in general (Lessac, Letter to the author. 24, August 1992). To Lessac, self-use is the "kind of organic instruction that you use to teach yourself."

> When you teach yourself you can ask questions, and when you ask questions you can teach yourself better...and then you know you are learning. (I am) opposed to anything that means you learn anything by simply repeating it and/or imitating it" (Lessac, Personal Interview, 28 August 1993).

The key principle to his approach is "systems integration" based on the synergic relationship between body parts, body alignment, gravitational pull, and breath.

> It is incredible to me how Lessac's journey through the body touches the core of current

> research. Increasingly, science is focusing on systems complexity, not on cause and effect minutia: but on the interrelatedness of things which make a system a system. Lessac's Body Wisdom movement system focuses on the principle that "systems stability with more balanced elements requires fewer separate elements" (Lowen v).

Evidence of the self-use systems of Alexander and Feldenkrais is apparent in his "Perceptive Awareness Principle" which encompasses a synthetic, "harmonic over-tone" sensory system in the body, in his "Habitual Awareness Principle" which involves continual awareness of physical output and input similar to Feldenkrais' Awareness Through Movement exercises, in his "De-Patterning Principle" which parallels Alexander's inhibited habitual behavior, and in his "Curvo-Linear Principle" which identifies ideal dynamic alignment (Lessac, Body Wisdom 8). In a recent phone interview, Lessac emphasized that he was not consciously influenced by the Alexander Technique or the Feldenkrais Method in his original work, but that he had rediscovered certain universal truths through pre-scientific means.

> I just rediscovered as I worked. (But) if I have any favorite giants, it's Alexander and his work. His original work talks a great deal about how he got his healthy voice back by dealing with the posture of his head, neck, and shoulders, and part of his back. Well, for me I realized that was already a small part of my total feeling and teaching and development regarding the "C-Curve." It's exactly the sort of thing that Alexander concentrated on except that for me it is simply an extension of something larger and bigger (Lessac. Personal Interview, 28 August 1993).

Working from a "systems integration" principle that all body parts working together create energy, Lessac developed exercises exploring seven different "body NRG states" or energizers: buoyancy, radiancy, potency (strength), inter-involvement (motivation), consonant, tonal, and structural. "When I talk about the body NRG states, I'm talking about something that provides me with new body languages, new body art forms, new body synergy agents, new body builders, new body aesthetics versus anesthetics, new body relaxer energizers, new proprioceptive or homeostatic activity and the healthy functioning of the immune system of the body" (Lessac. Personal Interview, 28 August 1993).

Lessac defines buoyancy, potency, and interinvolvement as "bio-psycho-neuro-emotive" areas that are "non-derived as primitive actions." For example, buoyancy is breath-charged or oxygen-related. It "feels like dynamic relaxation and moves Tai-Chi-like, in a sustained, extended flow" (Lessac. "Theatre Training More Than Technique" 25). It involves three different aspects: rising against gravity, floating, and settling down. Radiancy is "electricity-related and nerve-impulse related." It is conveyed in four separate "dialects": vibrancy or vibration, anticipation, agility or "nimbleness" and body humor or clowning. Lessac likens the NRG of radiancy to our modern conception of spontaneity (25). Potency is a "muscle yawn"

which exhibits the organism's maximum strength and power. "For us actors, potency NRG helps to explore the character and personality of sheer ecstacy, fierce intensity, and optimal power." Finally, inter-involvement is a self to other relating experience which is "instinct related and emotionally charged." It is more related to motivation and instinctual need than muscle awareness (25).

The consonant, tonal, and structural vocal "NRG" states occupy a primary position in Lessac's current experimentation and investigation (Lessac, Letter to author. 24 August 1992). These three "NRG" states are derived or learned. The structural NRG action is related to facial, neck, and head posture, and is primarily kinesthetically-oriented. Ideal facial posture developed through inner sensation (acknowledging emotion) and outer adjustment provides a more flexible, resonant, colorful voice. "The voice can never function without being in a one to one relationship with the emotional experiencing system" (Lessac, "Theatre Training..." 24). Voice placement, resonance, color, emotional expressiveness, and phonation are all elements of the vibratory tonal NRG action. Lessac uses the metaphor of musical instruments to examine the spoken rhythms, music, and timing in ideal consonant NRG action.

Similar to Rudolf Laban's "Effort Actions," these energizers are combined with body shapes: sphere, extended

sphere, crescent, and c-curve to explore kinesthetic awareness and expansion. Lessac then goes further by adapting these body energizers and body shapes with movement tasks particular to the performer.

> Why can't this common "Principle of Generalized Physicality" apply to physical characterization, physical communication, physical stamina, physical endurance, physical cues and signals, physical grace and agility, physical balance and rhythm, and physical projection, so mandatory for every performer in every stage of his/her art? (Lessac, Body Wisdom 278).

In addition to his synthesis of the earlier movement systems, Lessac addresses the unique ensemble focus of actor training. It is one thing to be aware of oneself, to be able to maneuver and control one's "self" in individualized tasks, and it is quite another to maintain proper self-use in interaction with others. In a workshop with Lessac in the summer of 1991, this writer had the unique opportunity to be his partner in the application of these body energizers to group interaction. The emphasis on weight, balance, rhythm, communion, and inter-involvement not only required extra concentration but also demanded attention on the "means whereby" and on the collective cybernetic energy loop called "ensemble." Lessac's work provides practical steps for the move from ideal self-use to "expressive-use" in the performing arts.

Although Lessac refers to this "Bio-Psycho-Neuro-Emotive" systemic research as "pre-scientific", he openly capitalizes on current research revealed in the field of

neuropsychology and the broader field of neuroscience. As he has explored the psychological and physiological implications of learning through sensation and feeling--through the "inner harmonic sensory system", he has found scientific support in areas such as bio-feedback, hemispheric research, and systems research. Since the brain has become a frontier for active exploration, Lessac has suggested that the rest of the body in conjunction with the brain deserves equal attention. "It's the least explored frontier and it has everything to do with what's happening in split-brain research." His bio-sensory and tono-sensory "feeling" approach fully acknowledges the body/brain interrelationship. "All areas of our brain, not just the hemisphere's we're conditioned to use, become active in the process of realizing optimal condition" (Body Wisdom 3). For example,

> To train the voice, you must learn to override the auditory mechanism and rely instead on a new sensitivity to and new concentration on other perceptions: the vibratory, kinesthetic and tactile sensations that travel principally by way of the facial and motor cranial nerves. The auditory cortex of the brain also plays a part in this action. The most vital and fundamental training comes from your developing awareness of the stimulation of the sensory cortex (Lessac. Working Draft of newly revised The Use and Training of the Human Voice. 1993, 11).

The above discussion clearly demonstrates that Lessac believes that the application of research in neuroscience and neuropsychology has been and can be of benefit to the actor, especially in the area of holistic

self-use training. Like Feldenkrais, he believes that there are potential "Caruso's, Pavlova's, and Olivier's who are lost to conditioned anxieties that block instinctive organic instructions to the body and place the body's languages into competitive conflict with one another. As soon as we begin to worry about how we look, how we want to perform, how we need to win, or how we dread losing--all self images that derive from the outer, not the inner environment--our body is in conflict with itself" (3).

Lessac notes that current pedagogical and scientific research leads away from this external focus. In fact, he views theatre as the all-embracing field for this application, capable of implementing and nurturing integration and collaborative interaction between research in the sciences and human performance. Theatre training "can also assuredly, function most productively as a creative, innovative problem-solving resource in such areas as: human systems research, education, physical training, language training, body ecology, leadership training, social sciences, humanities, and others" (Lessac, "Theatre Training More Than Technique" 22). But he does qualify this view with certain stipulations. Although he views the exploration and application of universal scientific information as "healthy experimentation," he emphasizes his feelings against classification of any kind. Universal assumptions can be based on structural similarities such as brain anatomy, and mind/body interaction. One cannot deny the

universal truths uncovered by such scientific exploration and application. They can aid in the development of actor-training pedagogy but one must not deny the "experiential differences between one human being and another." Experiential differences must be taken into account when creating actor-training pedagogy. For this reason, Lessac is wary about such neuropsychological research as Susana Bloch's "Alba Emoting." "Such rigid classification of emotion and patterning seems to negate individual idiosyncracies" (Lessac, personal phone interview, 21 June 1993). He also suggests that practical application of neuropsychological research is more valuable than theoretical. Research that can provide new and practical steps toward visceral learning, an "on-going self-improvement" is more worthwhile. "Like riding a bicycle, even after many years of dis-use, the visceral or wired-in learning will retain the physical knowledge." This is the kind of useful training that must evolve from this application of research in neuroscience, not the kind of temporary knowledge that focuses on rote processes such as learning a foreign language which is never actually put to use. "Training that focuses on the heuristic, on the familiar event will be translated into visceral, more permanent terms" (Lessac, personal telephone interview. 21 June 1993).

> If it is true that we think of "theatre arts training" as a "basic learning skill" that can be felt, then let it teach the rest of us how to feel

> that "theatre-art" in science, education, and technology. A science devoid of the "art-feel" will generally frown on "art"; but feeling the "art" in the sciences arouses the very nature of curiosity...bridges the hemispheres of the brain and presents a new creative ingredient to exploration and implementation of the sciences (Lessac, "Theatre Training..." 27).

SUSANA BLOCH. EFFECTOR PATTERNS OF BASIC EMOTIONS: A PSYCHOLOGICAL METHOD FOR TRAINING ACTORS

Of all the resources, innovators, and institutions explored herein, no other better exemplifies the potential benefits of an intercommunication between neuropsychology and actor training than the work of Dr. Susana Bloch. Bloch is currently a senior neuropsychologist with the Institut de Neuroscience at the Universite of Pierre et Marie Curie in Paris. As an "experimental psychologist" and a neuroscientist, she has been concerned primarily with human brain function, animal learning, and visual perception. In the past twenty years, her research has been mostly devoted to the psycho-physiological study of human emotions. She has developed with her colleagues "a method that can help actors enter into emotions and control emotional states" which she has called "Alba Emoting" (Susana Bloch, personal interview, 1992)[5] This unique method involving conscious control of facial, postural, and respiratory "effector" patterns to evoke pure emotion in acting technique was very recently

[5] This technique has been named after the play, The House of Bernarda Alba by Frederico Garcia Lorca. Several scenes from this play were used by Dr. Bloch to demonstrate the impact of this psycho-physiological technique.

introduced to theatre specialists at the ATHE conference in Seattle, Washington (1991).

Bloch's work parallels and capitalizes on many of the current findings on emotion and the brain. As mentioned in Chapter I, "emotion" was not considered a viable territory for exploration in the sciences until the early 1970s.

> We would study the chemical work, animals, but emotions? People don't study those things. How can you understand the brain functions? Now people who have been studying cognitive functions in the brain absolutely acknowledge it. Unless you understand how emotions are constructed, you cannot understand cognitive function. You can't! Your cognitive function will be colored by your emotions. Now people are beginning to accept that they have to study emotion" (Bloch, personal interview, 3 August 1992).

Cognitive scientists are now referring to emotion as "hot cognition." Current neuroscientific data on the synergic relationship between the brain and the body has led to a holistic embracing of emotion. Researchers are beginning to understand that emotions have a profound impact on memory, on motivation, on judgement, on learning, on the immune system, and on "self-use" in general. In fact, all of our cognitive processes are regularly colored by our emotions. More evidence in the area of hemisphere research has begun to discount an exclusive division of labor in the area of emotion. Rather, signals for emotion are first organized and sent up to the neocortex through an entirely different channel--via the amygdala. The amygdala is a tiny fingernail-sized, almond-shaped portion of the old brain which is now considered " 'emotion central' because when

there's a need for a quick emotional response, the cortex is by-passed altogether" (Robert Barton, address, "New Emotional Freedom For Actors," ATHE Convention, Georgia, 4 August 1992). Contemporary research on emotion by neuro-psychologist, Joseph LeDoux, ties primitive emotions to the limbic system or "old brain" which includes the hippocampus and the amygdala.

> The hippocampus has connections that go up to the cortex and down to the effector muscles. The amygdala has direct connections and they have shown it in anatomy, direct connections with the effector patterns...The amygdala is capable of making a rough judgement, a rough estimation of the situation and send immediate information without going up to the cortex. That's something very new" (Bloch, personal interview, 3 August 1992).

Bloch's work on "Emotor Effector" patterns closely connects with LeDoux's research on primitive emotions and the old brain. She perceives emotion as a "functional state of the entire organism--intuitively holistic" (3 August 1992). She has divided the study of emotion into three levels: "physiological" dealing with visceral, endocrine, chemical, molecular, and autonomic respiratory reaction; "expressive" dealing with somatic, muscles, posture, gestures, facial, vocal, and controlled respiratory movement; and "subjective" dealing with internal, affective, personal, and "what we call feeling." She is careful to note that emotion and feeling are not one and the same, rather feeling is a product of emotion. In addition, a human being is always experiencing an emotion, always feeling. These three levels of emotion are always interacting and reacting to

each other. "The connections of these three...are always going in all directions, and now as scientists we know that there is not anymore a brain function that goes up in a hierarchical way...we know now from anatomy, from neurochemistry that the connections go from one place to the other, back and forth" (Bloch, lecture, "New Emotional Freedom For Actors", ATHE Convention, Georgia, 4 August 1992).

In her work, Bloch acknowledges Paul Eckman's groundbreaking work on facial expression and emotion. Throughout her work she includes examples of facial expressions of "pure emotion" as recorded by Eckman. Eckman has successfully studied actors using emotional memory techniques to stimulate and document emotional expression, but Bloch argues that facial expression is only part of the story. She also questions the "purity" of an emotional expression that is instigated by an emotional memory. Her research has revealed that most actors do not know what they are feeling or how to express a pure emotion using emotional memory.

Susana Bloch's interest in both theatre and neuropsychology began when she first entered college at the University of Chile. She shares with pride the fact that she was accepted by both their renowned school of theatre and the school of psychology. She opted for a career as a neuropsychologist, but never relinquished her love for the theatre. Her early research on emotion which eventually

evolved into her "Alba Emoting" system of actor training, began during her work as a graduate teaching assistant with the school of psychology at the University of Chile. In the early 1970s, she was invited by the school of theatre to teach a basic psychology course to actors. In her efforts to come up with a more innovative way of teaching psychology to actors, she decided to design an interdisciplinary research study, a "workshop" on emotions using the actors as participants. "I was doing it in Chile where anything is possible--and the world was open to interdisciplinary research of any kind" (Bloch, personal interview, 3 August 1992).

With her neuropsychologist colleague, Guy Santibanez-H, and with one of the "most brilliant directors in Chile," Pedro Orthous, Bloch created a series of projects dealing with pure emotion and acting. At first they worked with conditioning exercises in the Pavlovian tradition. For example, they cast two student actors in a brief scene from The Seagull by Anton Chehov. The scene was between Madame Trepleff and her son. The scene involved the son entering the room and saying the line, "Mother, can you give me one thousand roubles?" Then Madame Trepleff would briskly retort, "I am an actress, not a bank!" In order to stimulate a pure "startle response" from the actress playing Madame Trepleff, the researchers added a loud noise whenever the word "roubles" was said. This evoked a natural startle

reflex. Later when the scene was played, the word "roubles" still evoked the conditioned startle response, even without the loud noise. In their goal to evoke pure emotions in a rehearsed, recreated situation like acting a scene, many similar experiments such as the utilization of onion juice to create tears were used to continue their search "in a very stimulus/response kind of conditioning paradigm. But it didn't work. We threw it away!" (Bloch, personal interview, 3 August 1992).

> One of the problems that is shared by actors who need to express emotions and scientists who want to study emotions is how to provoke certain conditions that will allow the observation. What will we do? We cannot go in the streets with electrodes and machinery, and seeing somebody crying, plug him in (Bloch, lecture, 4 August 1992).

After this initial series of conditioning experiments, they decided to try to measure what happens when someone is really experiencing a pure emotion. For a period of two years, they measured the heart rate, blood pressure, temperature, breathing, facial and bodily postures of professional actors and students of psychology using both Stanislavski's emotional memory techniques and deep hypnosis. Electrodes were connected to the stomach, arms, and legs to measure bodily tension while the students were experiencing an intense emotion. Concentrated observation was also available from video recordings of the experiments. In analyzing the data from these studies, they began to recognize specific repeated patterns of breathing, facial

expression, body tension, and postural behavior. They also noted that these measurable patterns were repeatable. One could initiate and control the contraction of the muscles at will. The most significant data from this early experimentation was that by returning to these controllable patterns, by physically reproducing them in a relatively mechanical manner, one would start to feel the actual emotion. This was an "emotional induction." Links were made between the amygdala's ability to by-pass neocortex activity in primitive emotions and these emotor effector patterns. "It's based on voluntarily or intentionally activating certain peripheral effectors. Effectors are what we have in the muscles. Afferent is what comes into the body. Efferent comes out. (So this is based on) voluntarily or intentionally activating certain peripheral effectors with patterns which are specific for each basic emotion" (Bloch, personal interview, 3 August 1992). An even more valuable discovery was that just as the emotor effector patterns could trigger a pure emotion, a different effector pattern could neutralize the emotional experience, allowing the subject to "step out" of the emotion.

This research further substantiates the concept of the cybernetic feedback loop mentioned earlier in this study (Goldfarb 1990). The feedback mechanism utilizes efferent neural pathways to trigger the emotional system and the emotor patterns capitalize on this unconscious route of basic emotions using the old brain.

As the research progressed, Bloch and her colleagues isolated the emotor effector patterns for six basic emotions: Anger, Tenderness, Eroticism, Fear, Joy, and Sadness. Although the other researchers like Paul Eckman have shown that physiological changes could occur by producing just the "facial prototype of a basic emotion" (Bloch,"Commentaries" 202; "Effector Patterns of Basic Emotions" 17), Bloch (et al) took this one step further by proposing that "it is the performance of the respiratory/postural/facial patterns of an emotion that evokes the corresponding subjective activation or feeling in the performer as well as in the observer" (18).[6] The facial, postural, and respiratory patterns of the six basic emotions are categorized by facial tension especially around the eyes and mouth, by postural tonus and direction (fig. 1, following page), and by "composed" versus "saccadic" or staccato breathing patterns.

[6]Although Paul Eckman supports the reproduction of facial and respiratory patterns to generate emotions in Bloch's actor training system, he disagrees with "their choices of emotions and the specification of the particular facial expressions which characterize each emotion. Few emotion theorists or researchers characterize eroticism and tenderness as emotions" (Bloch, "Commentaries" 202).

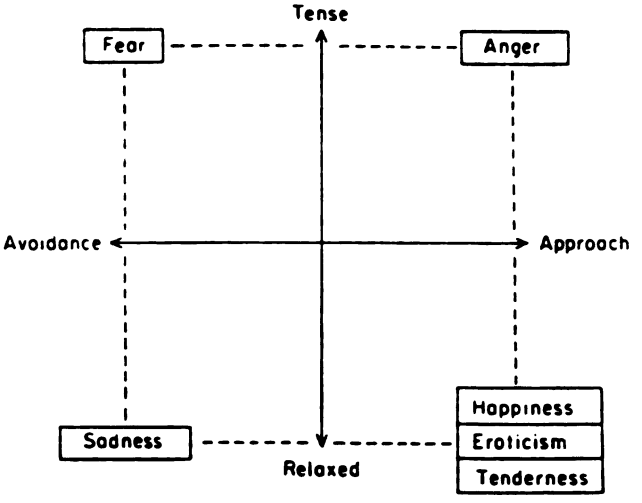


Fig. 1. Representation of the six basic emotions in terms of postural tension/relaxation and approach/avoidance parameters

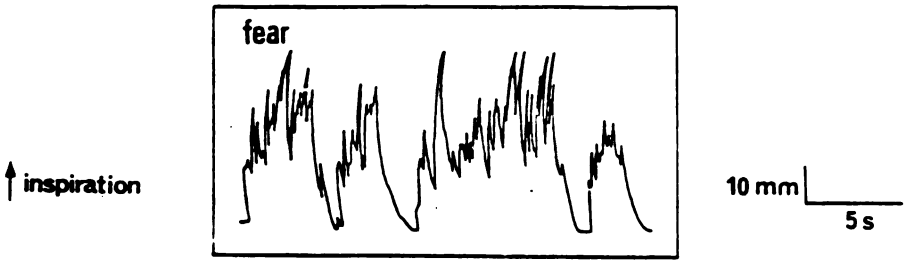
[Bloch (et al), "Effector Patterns of Basic Emotions" Journal of Social Biological Structure 10 (1987) 4]

Of all the controllable effector patterns for basic emotions, the breathing pattern is the key stimulus in the Alba Emoting method. Anger, eroticism, and tenderness are all made up of a "composed" breathing pattern. "Composed" breathing is characterized by a single, main cycle which follows a regular rhythm and tempo. But the frequency and volume of the "composed" breathing pattern is very different for each of these three basic emotions. For anger, the breathing is at a high tempo, a high amplitude, and done primarily through the nose because the facial muscles are tense. The lips are pressed tightly together and the eyes are semi-closed. The torso which is prepared to attack exhibits a high level of muscular tonus or tension. Although eroticism also uses the composed respiratory cycle,

the frequency and amplitude increases with the "intensity of emotional engagement" (Bloch et al, "Effector Patterns of Basic Emotions" 6). Contrary to the postural and facial patterns for anger, the muscles of the face and torso are relatively relaxed. The mouth is open, the eyes are closed or semi-closed and the head is tilted backwards, exposing the neck. Tenderness shares certain characteristics with eroticism, in that the facial and postural muscles are in a relaxed posture of approach. The mouth is slightly open and the head is slightly tilted to the side, but the breathing cycle is at a low frequency and maintains an even, regular rhythm.

The basic emotions of joy, sadness, and fear all exhibit a more "saccadic" type of respiratory pattern. Saccadic breathing involves an uneven series of short staccato inspirations or expirations. The respiratory pattern for joy is characterized by abrupt and full intake of air followed by a series of saccadic expirations until all of the air is expelled. The posture is relaxed with a strong loss of tonus in the "antigravitational" muscle group. The eyes are relaxed and semi-closed, and the mouth is open with the upper teeth exposed. Sadness is characterized by the exact opposite breathing pattern of joy. The saccadic pattern occurs on the inspiration and sometimes even continues into the long expiration. Like joy, the posture is relaxed with a tendency to "give in"

to the gravitational pull. The eyes are semi-closed or even tensely closed with the eyebrows contracted together to create a frown. The rest of the face is relaxed, literally drooping. Of all the basic emotions, fear has the most complex breathing, postural, and facial patterns. "The respiratory pattern consists of a period of inspiratory hyponeic movements followed by passive incomplete exhalations, and sometimes an expiratory-inspiratory 'sigh-like' phase" (Bloch, "Effector Patterns of Basic Emotions" 6). The posture and facial expression is characterized by extreme tension, with protective avoidance gestures, with eyes wide to increase peripheral vision, and with the mouth open wide (fig. 2).



[Bloch (et al), "Effector Patterns of Basic Emotions]

Figure 2

A prototypical example of the emotional effector pattern of *fear*. The tracing corresponds to the recording of corresponding respiratory movements.

After subjects in this study were fully trained in the use of these emotor effector patterns, they were taught how to control the level of pure emotion. With this knowledge, they were then able to mix different levels of the emotor effectors from the separate pure emotions to evoke "mixed" or "blended" emotions such as irony, jealousy, or ambition (16). For example, jealousy consists of a mixture of anger, fear, and eroticism. "The actor was told to contract the body while breathing with the anger pattern, and at the same time to open the eyes so as to give part of the facial pattern of fear. According to the situation, a degree #1 breathing of eroticism was alternated with anger breathing" (11).

Along with the experimental application of these effector patterns of pure emotions, Bloch (et al) discovered a technique for "stepping out" of the emotional experience. The development of the simple procedure was motivated by the observation that subjects had a tendency to stay with, almost luxuriate, in the induced emotion. By producing at least three "slow, regular, and full breathing cycles" and by altering the facial/postural positions, the subject can bring him/herself to a neutral state, freeing him/herself from "emotional hangover" (Bloch, "Alba Emoting" 8). For the psychological and physiological health of the subject, the "step-out" is now an integral part of Alba Emoting.

> Step-out has been our real contribution. A return to normal breathing and relaxed posture. I don't

> mean dead, but just again, centered, clearing the head...Centered again, breathing normally, so 'step out' induces by brain function an immediate return to a neutral state" (Bloch, Lecture 4 August 1992).

In addition to the data collected on the emotional induction of pure emotions via effector patterns, laboratory research was simultaneously conducted on the emotional impact on those observing. Following a series of tests using naive observers, Bloch (et al) deduced that a correctly executed emotional effector pattern is indistinguishable from a real or spontaneous emotion. To emphasize the powerful impact of the effector patterns on the observer, Bloch recounts a time when a very simple Indian fellow attended an "Alba Emoting" class session with one of her students. The basic emotion explored was joy.

> He didn't know we were practicing laughing... He was so relaxed that he started laughing in a second, and then as I was watching him, he got scared...The man suddenly found himself laughing and there was no reason. So strong is the method that it will make you laugh. That is for me a good example of the truth of it, of how it works" (Bloch, personal interview. 3 August 1992).

In a "Breath and Emotion" workshop exploring Alba Emoting techniques (1992), the empathetic response experienced by observers was overwhelming. Dr. Bloch noted that the people observing would often get caught up in the emotor effector patterns that only a few participants were asked to try. For instance, the

sadness pattern turned the atmosphere of the room into tears and depression to the point that all observers were asked by Dr. Bloch to do the "step-out" techniques. "This is quite good evidence that in order to appear 'natural' or 'true' on the stage, actors do not need to feel the emotion they are playing but must produce the correct effector-expressive output of the emotional behavior" (Bloch, "Effector Patterns of Basic Emotions" 15).

After a two-year period of experimentation, the original test subjects became quite versatile at controlling and switching the basic emotor effector patterns. They were even capable of controlling their own subjective response while still correctly enacting the patterns. With actors as subjects and participants, this experimentation soon evolved into what is now referred to as Alba Emoting, a unique psycho-physiological method for training actors. Bloch soon traveled to Denmark to introduce this new method to actors at the Teatre Klanen with director, Horacio Munoz. "It was like a center for theatre investigation and we did a school where they had the Alexander Technique. They had Roy Hart for voice. They had Gerda Alexander's (Eutony) training, and they had this work on emotions. The school was based on emotions" (Bloch, personal interview, 3 August 1992). Her experience with the student actors revealed that several preliminary steps were needed before they could actually apply these emotor effector patterns in characterization and

scenework. She noted that most actors were not able to show a pure emotion and that they were often incorrect in labeling what they really felt. "They don't know what they are talking about in emotional terms" (3 August 1992). Because of the sensitivity and physiological "danger" of manipulating breath, students were guided through a series of self-use exercises. For example, the warm-ups for the two "Alba Emoting" workshops conducted at the ATHE conference (1992) in Atlanta were primarily Alexander-based, but also included vocal and movement "disinhibition" exercises. In the long-term intensive training program for Alba Emoting which spans eight months to a year, actors must first develop "perfect control of their breathing." They must be able to "modulate it with different rhythms and intensities." They must also learn to "control their body musculature with correct, localized tensing/relaxing modulations of different muscle groups" in order to accurately adopt the facial/postural effector patterns (Bloch, "Effector Patterns" 14).

> Considering that the actor's body is his performing instrument, it appears to us as a surprise to realize that actors...are unaware of their body-expressive possibilities. For example, at the beginning of the general training, actors would very often contract both arms when specifically asked to contract only one shoulder. The capacity to dissociate different groups and to combine such postural modifications with different breathing rhythms is very important as a preparation for the work with "mixed emotions." The newly acquired skills therefore complement the physical training

> normally imparted in theatre schools...This general preparatory work also taught the actors to relax better, to develop the correct balance and excitatory and inhibitory neural processes which helps them to cope with stress, stage fright, and shyness (14).

Once the student has arrived at some level of ideal self-use, the Alba Emoting techniques are introduced and synthesized with continued self-use training and other acting requirements. To Bloch, training in Alba Emoting provides the actor with a tool for identifying the specific emotions at the moment he/she needs them. "The technique allows actors to control at will the expression and communication of their emotions in an objective and unambiguous way" (Bloch, "Alba" 11). In response to a question regarding the robotic or even "puppet-like" circumstances that such manipulation of emotional response may create, Bloch emphasized the freedom that such control of emotions could provide to the actor. According to Bloch, the actors at the Teatre Klanen who have been trained in "Alba Emoting" have expressed great freedom, knowing that the emotions that they will need in a role are always available. "It's like the arpeggio's...if I am a pianist...You have to have the technique to be free" (Bloch, personal interview, 3 August 1992). Bloch's neuro-physiological approach frees the actor from relying solely on the traditional emotional memory techniques found in the early Stanislavski method of acting and in Lee Strasberg's adaptation. "You don't have to worry about feeling or remembering your mother's death so that you

are sad enough or whatever--you have to have (emotional) freedom in the same way that your body knows exactly how to move" (Bloch, personal interview, 3 August 1992). She views "Alba Emoting" as a synthesis of Diderot's objective appearance of emotion, and Strasberg's subjective experience of emotion, neurologically stimulating true emotion while safeguarding the actor against psychological trauma, and "emotional hangover." It can also safeguard against stage-fright as well.

In addition to providing the actor with a personal tool for evoking pure emotion, Bloch (et al) have applied the techniques to text analysis. The actor and director can create an "emotional melody" for a character, scene, or play production. "An emotional baseline can be outlined for each scene, on top of which an 'emotional melody' of particular emotional reactions stand out. This is done by a rigorous dissection of the play, leading to a system of notation..." (Bloch, "Effector Patterns" 17). Bloch uses the first balcony scene from Romeo and Juliet to describe how such an "emotion" analysis works. One could label it a "love" scene, but she identifies ten or more emotions going on:

> It is love, the basic thing, but you cannot say to the actor, "play love." How do you play love? You go line by line. First line, what's the emotion? Well, he's saying....Romeo is saying, "I wish I were the sky to cover your beauty." Whatever he's saying. Something very romantic, but that is an

> abstract sentence, so it's tender maybe and it could be elation. It could be joy. But then he says, "I wish I were a glove to be on your hand." What emotion is that? Immediately...suddenly you go from tender to erotic, and the actor has a score to play with" (Bloch, personal interview, 3 August 1992).

Such an emotion notation system might be compared to Rudolf Laban's movement notation system. This method has also provided a workable, "graded" language for emotion. It allows the director to more clearly communicate in emotional terms. For example, if a director wants the actor to be more angry, he/she can ask for "anger #2" and the actor will know how to achieve exactly that intensity.

> The method described here...results from considering acting as a particular form of behavior: acting behavior. As such, it implies the application of psychophysiological findings. This kind of approach brings the study of acting--up to now an almost exclusive domain of the arts.. into the field of neuroscience (Bloch, "Effector Patterns" 17).

Two years ago, when Dr. Bloch attended the ATHE conference in Seattle (1991), her presence represented a new beginning in actor training. For the first time, a neuro-psychologist was describing in great detail a scientific approach to bringing about emotion in acting technique. Furthermore, she and her colleagues had systematized this neuroscientific information into a unique actor-training method. Since that time, theatre professionals in the U.S. have taken two separate stances in reaction to this controversial information. Many specialists in actor training stand in defense of traditional techniques,

questioning why they should have to know about neuro-physiological connections and why they should have to breathe in a certain way when they already know how to be emotional, how to read a script, and how to act it. "I find that American actors, even beginners, usually have few problems with the sort of emotional expressivity aimed at being developed with this approach; they need a lot more work in other areas of technique" (Bloch, "Commentaries" 203). This faction suggests that "Alba Emoting" treads dangerously near an external, almost robotic, behavior. They fear that such analysis and practice of emotor effector patterns can result in a stifled imagination and muted creativity, nurturing cliches and stereotypes by reducing complex subtextual coloration down to a few "pure" emotions.

Parallels have been made between this system of codified facial/postural/respiratory gesture and Delsarte's nineteenth century codified "System of Applied Aesthetics" (Bloch, "Commentaries" 208). Some fear that the vulgarization and cliche-coining that occurred with his system of expression in the early 1900s will inevitably evolve from this system of outward expression, however scientifically-based. "There's a big danger of totally externalizing... without using the inner self, why would anyone care to act? Actors are not bio-mechanical robots, but complex human beings responding to the real or imagined stimulus in the

play, their partners, and themselves" (Delgado, personal interview, 23 November 1992).

In a workshop introducing the "Alba Emoting" techniques ("Breath and Emotion," ATHE, 2 August 1992), an interesting phenonmenon occurred which highlights the afore-mentioned concerns. A general lack of interaction or even of attention from one actor to another became apparent when they were utilizing the emotor effector patterns. When instructed to speak a singular line in a scene while using one of the six basic patterns, participants were focusing on feeling the emotion versus affecting their scene partner. The couples were each engrossed in their own effector/ emotional experience with little or no attention to the actor opposite them. This may be attributed to the newness of the experience or to the level of general performance experience that the participants had already gathered.

Some acting teachers have expressed further concerns regarding the emotion notation system, worrying that spontaneous "in the moment" responses would be by-passed in service to a pre-programmed "emotional melody." Bloch insists that this training in emotor effector patterns and this scriptual notation of emotion will not hamper the performance anymore than pre-planned blocking of movement does. The emotor effector patterns do not negate responses "in the moment." They do not negate the need for careful characterization analysis or commitment to the inner life

of a role. Rather, this system is to be used as a tool to assist in emotional truth, specifically for emotional high-points in a role. With this system the actor is aware of one more aspect of him/herself. Alba Emoting provides one more tool, a physiological and organic tool, for creating truth on the stage. Knowing how one expresses a specific emotion and which emotion it is, brings the actor one step closer to ideal self-use with an informed response to expressive-use. The actor has a firmer grasp on the outcome of a role instead of having to depend on the director's guidance and vision alone.

> One must not forget that here I am talking of a technical support for the actor that in no way affects his creativity and imagination. Quite the contrary, the technique acts as a trigger by activating an emotional network that elicits corresponding images and subjective feelings, sustaining them in a controlled way for longer periods of time than can be achieved by other means. Whatever the actor's choice, it cannot but be of help to know that a slight change in aperture of the eyes, for instance, will modify his facial expression, or that in a state of anger the body is in preparation for attack, or that it is impossible to feel or express joy or tenderness without being very relaxed...(Bloch, "Alba Emoting" 12).

To those specialists in actor training who believe this technique runs counter to the objectives of the Stanislavski method, Bloch cites her interaction with Sonia Moore and other eminent disciples of Stanislavski. They have assured her that what she is doing is not going against Stanislavski. "It's just their mis-interpretation. (It) was said by

Stanislavski at the end, in the last stage of his life, (that 'emotional memory') produces hysterical actors" (Bloch, personal interview, 3 August 1992).

> I believe that Susana Bloch's work is one of the direct answers to the request made by Stanislavski when he was first putting together the "method of physical actions." He became more and more disillusioned with direct access to the psyche and increasingly throughout his work maintained that emotion could not in fact, must not be summoned directly, but the body is the pathway and that in essence, the muscles are more reliable than the mind. I think she'a a direct answer to the request of Artaud, that an actor become an emotional athlete and that breath is an enormous sense of power for the actor (Robert Barton, Introduction to Lecture on "Breath and Emotion," ATHE)

She utilizes the prophetic words of Artaud on breath and emotion to further defend the pertinence of her "Alba Emoting" to contemporary actor training.

> Now this was said by Antonin Artaud who was a genius as we all know in the theatre in France. He was a genius but of course he was proposing a question: 'The breath accompanies the sentiment ...and you can enter into the feeling by breath... with one condition, that we are able to discriminate in the breath which is the one that corresponds to the proper emotion.' He didn't have the answers...We have systematized and found the patterns of breathing that will correspond to the basic emotions" (Bloch, Lecture on "Breath and Emotion", 4 August 1992).

Many more specialists in actor training applaud the advancements that Bloch (et al) have created through this intercommunication between neuroscience and theatre. The area of emotion has often been considered by the acting

teacher as some mysterious by-product of the mind. "We didn't exactly pick up the bull by the horn...a number of people have taken the superstitious hands-off approach to emotion instead of really daring to take it and look at it under the microscope" (Barton, address, 4 August 1992). Bloch has been described as a visionary in this new "emotion science" both by eminent professionals in neuroscience and in theatre. For example, Wolf Singer, a neuroscientist from the Max Planck Institute for Brain Research, lauds Bloch's contribution to the scientific evidence which challenges the "classical concept of a hierarchically organized and essentially stimulus-dominated brain." Her work with emotor effector patterns substantiates the cybernetic feedback loop or "systems" theory.

> It turns out that there is no unifying, decision-making center in the brain which could occupy the top position in a pyramid of sub-ordinated centres and which could be made responsible for a centralized co-ordination of state transitions. Neuroanatomical and neurophysiological data rather favor the notion that the brain is a highly distributed system consisting of many specialized modules which are massively interconnected with each other through reciprocal connections and function parallel (Bloch, "Commentaries" 208).

In the field of theatre, renowned director/theorists such as Eugenio Barba of the International Society of Theatyre Anthropology and Peter Brook of the Centre de Recherches d'Etudes Theatrales (Bloch, "Alba" 13), have

invited Bloch to conduct demonstrations and intensive training residencies with their actors. She has brought Alba Emoting to theatres in Denmark, Brazil, Germany, Spain, France, Switzerland, and now to the United States. Several actor-training specialists in professional actor-training programs and in general theatre programs in the U.S. have recognized and have already utilized the significant contributions that Bloch has made (Rix, "Alba Emoting" 139-145). Besides the practical use of the effector patterns for emotion induction, they are particularly intrigued by the Step-Out technique created to offset "emotional hangover" (Geer, 1993). Richard Geer, acting theorist and director of the Swamp Gravy company, identifies a need for Bloch's Step-Out techniques to complete the actor's performance cycle as a sort of debriefing session. He believes that this Step-Out technique along with the emotor effector patterns could become an integral part of self-use training for the actor.

> I think when people come into...an introductory acting class, they need to have the Step-Out training right from the beginning. That's where they are working with the bodies. But when you are working with the heads, they need to understand the cycle of performance. They need to understand what their bodies and their emotions and their imaginings, their cognitions are going through (Geer, personal interview, 4 August 1992).

Geer, who has worked closely with Dr. Bloch in the past few years, views Alba Emoting as the "single most important thing that has happened in the course of training since Stanislavski" (Geer, 1992). Michael Johnson-Chase of

the Professional Actor Training Program at the University of Wisconsin--Milwaukee also values these innovations on breath and emotion. Within the past year, he has worked to sponsor an intensive training program in Alba Emoting conducted by Bloch. In October 1993, he traveled to Chile with an entourage of acting specialists to undergo an intensive training program in Alba Emoting. "Chile was great! Alba Emoting is very effective, interesting, and powerful, as well as provocative in a good way. Among other things, it stimulated some very interesting discussions about the nature of theatrical activity in general" (Johnson-Chase. Letter to the Author. 30 November 1993). Following this intensive training, Johnson-Chase took the initiative to arrange for a similar training program scheduled for August, 1994 in Chicago.

In discussing the utilization of Alba Emoting in self-use training for actors and of the future of such inter-communication between neuroscience and actor training in general, Bloch is careful to emphasize the dangers of such strong neurological/emotional manipulation. She worries about untrained individuals who experiment with this emotor effector system without the use of Step-Out and proper guidance. She does see great promise in the future of Alba Emoting in actor training as intensive training programs in this technique are set up throughout the U.S. She views this work as just the beginning of an unexplored treasury of possibility resulting from a continued intercommunication.

> Theatre is one of the few disciplines...that has been so kept aside from science information. There's a number of people in music (that) have used what the physicists can give about sound. At M.I.T., they have interactive T.V. where there is a visual arts center and they have done connective art...I mean they have integrated knowledge that comes from different disciplines, scientific disciplines into art forms. Except the theatre! And theatre is behavior. Behavior is something that we psychologists are studying. We know about behavior...we know more than we knew twenty, twenty-five years ago (Bloch, personal interview, 3 August 1992)

CHAPTER III

SELF-USE SYSTEMS IN ACTOR TRAINING CURRICULUMS

> All training programs, like all theatres, are in a constant process of evolution. Changes in the aesthetic environment, fresh discoveries of ways to guide the growth of the individual actor, a deeper personal commitment to humanistic values, even the exhaustion of certain pedagogical principles can open doors to growth and development in the faculty and the curriculum (Miller, "Overview").

The above statement by J. Michael Miller, Head of the Theatre Program at Tisch School of the Arts, encompasses the pioneering spirit of all three professional actor-training programs to be explored herein. The conservatory settings at the Tisch School of the Arts, the Juilliard School of Actor Training, and the Asolo Center Conservatory for Actor Training have provided a fertile atmosphere for experimentation with many of the self-use systems identified in the earlier chapters of this study. Utilizing these three settings as models, the inquiry into how actor training, specifically dealing with self-use, has changed in the past twenty-five years can be aptly addressed. Excerpts from taped personal interviews with actor training specialists who are actively working in the area of self-use training for the actor provide insight into the development of each institution's initial training philosophy, pedagogical evolution, and apparent application

of neuropsychological data to its actor training curriculum.[7]

TISCH SCHOOL OF THE ARTS: A PIONEERING CONSERVATORY

Designed by Theodore Hoffman and Robert W. Corrigan and funded by a grant from the Rockefeller foundation, the N.Y.U. Tisch School of Performing Arts was started in two little buildings (one a catering hall) on Second avenue in July of 1966.

> One of the reasons that a school like this was started is because the only other viable training situations were in proprietary schools like Stella Adler's school or Lee Strasberg's shop...Those schools each had idiosyncratic approaches but they were essentially acting classes. They didn't have the whole range of development, no vocal development--just basically acting classes (Miller. Personal Interview, 6 May 1993).

One of fourteen schools started between 1965 and 1968 to supply a pool of well-trained actors to the growing regional theatre system, Tisch School of the Arts (hereafter referred to as Tisch) maintained a vision to cultivate and encourage students to reveal "via Art" their own unique expression--to "discover their own voices" (Segel 48). N.Y.U. was the first to take the step in gelling a conservatory/professional training ground within a traditional university setting.

[7] For a sampling of the questions used to interview these actor training specialists, please refer to Appendix II.

> Hopefully, what occurs here is an educational process that goes beyond how to say something to help students develop something to say. In other words, an environment where Shakespeare and Shakespeare's biographer would both be welcome (Segel 45).

In keeping with a pervasive experimental energy and a new commitment to produce versatile actors, the first faculty of Tisch exposed the students to many different philosophies and approaches, some of which contradicted each other. Students were expected to pick out and combine in an eclectic manner the techniques that they thought were most useful to them. Although the faculty represented diverse views, New York city in 1966 was ablaze with a new "Experimental Theatre" movement, and the collective group of artists at Tisch was propelled by a disdain and/or lack of interest for traditional theatre. Tisch faculty and student were either re-inventing or de-constructing. Leaning heavily on internal method acting backgrounds, they paid little attention to text or to playwrights' intentions; rather the focus of their attention veered towards the exploration of self and "process" over "product." "This school was going to turn out visceral, muscular, emotionally-connected actors. Imaginative actors, not bound by the conventions of British training...Students were trying to 're-invent' things that they never really learned first of all, and never really understood" (Van Lieu. Personal Interview, 6 May 1993 and New Generation 352).

According to Tisch students of the sixties, like Ron Van Lieu and Joan MacIntosh, character acting had a bad name. It was full of cliches and stock attitudes. What was emphasized by Tisch faculty members like Lloyd Richards, Olympia Dukakis (of the Actor's Studio), Peter Kass, Omar Shapli, Hovey Burgess, Kristin Linklater, and Richard Schechner was the development of and the presentation of one's own personality, "just being yourself and getting everything from your own biography and self" (Van Lieu, New Generation 352).

In 1966, the faculty member with the most traditional approach to acting and directing was Lloyd Richards. Working from a solid Stanislavskian background, Richards provided the student actors with a methodical, scientific approach to characterization. He pressed home the importance of character creation, but he encouraged students in a "round-about" manner, letting the students find the solutions themselves.

Olympia Dukakis, a devout disciple of the Strasberg method, provided the beginning students with techniques to bring about emotional truth on the stage. They were encouraged to be "alive and true," to create "honesty," to "let go the flood gates" and most importantly, "how to bring 'oneself' on the stage" (353). Her colleague, Peter Kass, re-inforced Dukakis' work by teaching the students what it meant to "play" an objective. According to J. Michael Miller, Kass' work was central to the Tisch program.

"Peter was constantly taking you back to your own personalized feelings. Peter would focus on your emotional availability...and your ability to reproduce" (Miller. Personal Interview, 6 May 1993).

Supplementing this self-exploration and self-expression, Omar Shapli and Hovey Burgess provided improvisational and physical expansion. Highly influenced by Viola Spolin's game theories, Shapli's class focused on the spontaneous life of the actor, helping each student to re-explore his/her sense of play and to develop the ability to come on stage ready to deal with the circumstances at hand. "There wasn't anyone who taught in our school, that wasn't trying to prepare you to find a way to play a character...but how do you give that character a life if you don't know how to do it yourself. If you can't experience the moment on your own, truly live in the moment, how is the character going to be alive?" (Miller. Personal Interview, 6 May 1993).

Hovey Burgess is the first professional circus performer ever included in a theatre training program in the U.S. After working with Jacques LeCoq for a period of time, he was hired by Tisch to initiate the first circus course ever created specifically for actors.

> One thing is quite certain and that is in this country we hadn't really developed anything along the lines of physical training for actors. Life and acting had become quite un-physical by the late 50s...I think there was some attempt to define movement as opposed to dance per se.

> Circus is really an extension of very natural movement, where dance, I think something like balancing on your toes, can be very unnatural (Burgess. Personal Interview, 6 May 1993).

This experimental addition to the professional training program was so intriguing to other influential training schools such as the Juilliard School of Drama and A.C.T. in San Francisco that they also hired him on an interim basis to initiate similar circus training courses. "In contemporary theatre, where there are (few) strong character roles, the actor must become more like the circus performer. Drama schools realizing this, have added circus to their curriculums" (Felner 1977, 40).

Burgess believed that circus could provide a broader spectrum of movement training than specialty classes in mime, fencing, or dance. Furthermore, the kind of theatre that was popular in New York during the late sixties and early seventies (such as environmental theatre) reinforced the presentation of self in activity, which is precisely what a circus performer does. His circus training encouraged the actors to trust their own physical instincts, increasing balance, and developing a wider kinesthetic awareness. It helped students to confront and conquer fear (often linked to emotional blocks rather than physical blocks), recognize their potential and find avenues to work around deficiencies.

> Within two years of my work, I remember seeing Kevin Kline on the subway long before his film career started or before he did "Pirates of

> Penzance." I think he had just gotten a Tony award for "On the Twentieth Century" or something...and I said hello to him. He recognized me right away. He couldn't wait to tell me how the circus had helped him. He said "You know, you really gave me courage. Do you know what it is like to be backstage in the wings of a Broadway show ready to go on? That is scarier than going on a trapeze but that's what I think of." He says, "I can do this!" So he felt that was a thing that helped him (Burgess. Personal Interview, 6 May 1994).

Burgess was also keenly aware of the new developments in neuropsychology (i.e., the mind/body connection) and believed that the juggling and balancing techniques he emphasized could educate and/or awaken an awareness of the strong and weak sides of the body, thus developing/ expanding the weaker side. "A lot of circus things you do there is a harmony involved, a left and a right side. You can't ride a unicycle with your right foot and you can't juggle with just your left hand" (Burgess 1993).

Burgess describes an initial exercise he has used since his beginning work at Tisch involving balancing a cue stick. This often reveals the dominance or "sidedness" of his students. "The physics of balancing a cue stick are no different on my left foot than on my right foot... no different from my left hand than from my right hand. I've got to do the same physical thing, but I have even noticed in myself that I had a bias in my right hand...but the more I learned things with both hands then I was able to expand myself. Partly I'm theorizing and partly I'm going for results" (Burgess 1993).

In addition to the standard circus techniques honing equilibrium such as contortion, juggling, and trapeze, Burgess also utilized many of the theories he had gathered from Jacques LeCoq. Students were encouraged to focus on the use of breath in gesture or movement, using LeCoq's breathing techniques to get actors from an "un-inspired" state to an "inspired" one.

The inclusion of circus techniques into the original "Tisch" curriculum can also be attributed to the innovative activities in experimental theatre by N.Y.U. performance theorist, Richard Schechner.

> The theatre is more artistic because it creates illusion. Circus is quite real. Contemporary Avant-Garde theatre is going toward this reality. At Richard Schechner's "The Performance Group," I expect to see something really happen. This is the opposite of Stanislavski's sense of reality. One is authentic, the other is authenticity (Felner 1977, 46).

Schechner worked in conjunction with Tisch in the very beginning of the program and instilled a fiery interest in experimentation and "environmental" theatre. He created an in-house experimental theatre workshop with many of the Tisch student actors. Schechner's theories on and techniques of acting reflected the confrontational atmosphere of the late sixties and early seventies in the U.S.

Highly influenced by Gestalt psychology and psychoanalysis (random expression of inner states), Schechner believed that the "artificial" approach, what he referred to

as acting as a character, only reinforced a society webbed in artificial communication systems. What was needed was a "natural" approach to acting, a presentation of "self" in order to mean something, to change lives or at least people's percepts and concepts of it, to touch the "zones in which savage thought, like savage species, is relatively protected" (Schechner, Ritual 80). To him, performance was like a ritual process--not frozen or pre-determined, and the actor needed to develop the courage to lay aside the mask and "show himself in the extreme situation of the action he is playing. Not 'as if' but 'what is' "(Schechner, Environmental 126).

Schechner's acting theories were ever-changing, often absorbing the work of colleagues such as Kristen Linklater's experimentation with panting and body/voice unity, but no one influenced Schechner and the entire Tisch training school during the sixties more than Jerzy Grotowski.

> He gave a series of public talks that we went to. Everybody was inspired by the incredible extremity of what was described. The idea of people working long stretches of time alone in a room with him in order to break down a specific area of resistance. We would hear reports of how after twelve hours or so, some actor would undergo an incredible transformation...A lot of it was about the amount of time needed to break down resistances and barriers so that people could change. It was usually about the body...something happened and what was implied, as it connected to the work we were trying to do, was that an important event in release took place (Van Lieu. Personal Interview, 6 May 1993).

During the Tisch school's second academic year, Grotowski and his Polish Laboratory Theatre group conducted a four-week intensive workshop, turning the established techniques of faculty and students upside down. Grotowski's "Poor Theatre" exercises focused on the actor's body as a temple. The actor's job was to reveal the "inside", the greater essence of himself in order to create Art--"not a replication of everyday details, but going past the everyday to represent the 'essential man' " (Schechner, Environmental 125). The only way one could express this "essential man" was through rigorous and disciplined development of the body, burning away the mask--always connecting to the inner self and diffusing the ego through the body. "The actor is a human being who has dis/covered and un/covered himself so much that he re/veals (unveils) something of man. He is the miracle" (128).

Through Grotowski's influence, much of the training at Tisch became focused on the "center" of the actor or the spine, believing that all impulses for thought, action, movement, voice, and the nervous system came from the same place. His "Poor Theatre" techniques helped to pave the path toward a new focus on mind/body unity. He was even accused by psychologists of reducing the "mental" aspect of the acting process to a "secondary epiphenomenon arising out of the physical. Thus, if one discovers all there is to the physical, the mental will account for itself" (Brecht

28). The Tisch training adopted this "Poor Theatre" focus on physical being, moving deliberately away from focus on intellect.

> Reconnecting the body...so many teachers, particularly people growing up in the late sixties and early seventies took Feldenkrais workshops, Grotowski workshops, whatever. All of them put together their own gestalt. But it wasn't through listening to psychology, it was about what works for you to find the process of a really free voice, and a free, fully connected instrument. Their work is based now on how successful they can communicate with another person who is trying to get their body together to function as an actor (Miller. Personal Interview, 6 May 1993).

Master voice teacher, Kristin Linklater was keenly influenced by the Polish Laboratory's unique use of vocal rhythm, pitch, and tonality in relation to the body. "Contact does not exist if it does not exist in the body. The word is part of a process of human association between internal actions and external response" (Brecht 24). In recalling his training with Linklater, Ron Van Lieu experienced the influence of Grotowski's visit first-hand. "Kristin's work initially was all about release of the natural voice and reclamation of the natural patterns of breath. She taught a class which combined voice and movement together...the idea was to put the physical release with the release of sound together. To not have sound be a separate event disconnected from movement or physical impulse" (Van lieu. Personal Interview, 6 May 1993). Linklater's work at Tisch was experimental and controversial. According to Van Lieu, her classes were a

laboratory setting for the development of innovations in vocal pedagogy synthesizing landmark scientific research with the pioneering efforts of acting theorists such as Grotowski.

> We always thought they are making this up as they go along. What we're doing here is not based on decades of experience and analysis, they're making this up and we're making this up along with them which was an interesting thing to do (Van Lieu, 1993).

By the late seventies, the demand from both the dominant film industry and from regional theatres was for good professional actors who could do it "all" and then some. With the need to develop actors versatile in the experimental theatre's "non-acting" techniques, in traditional theatre's "character" techniques, and in the holistic philosophy of mind/body unity, Tisch adopted an eclectic manner of training the acting students via workshops which represented these alternative approaches. Michael Kirby of the N.Y.U. Performance Studies department discusses this move toward eclecticism:

> During the past ten years, theatre has undergone a more complete and radical change than in any other equivalent period in its history. Every aspect of performance has been affected, including acting. As recently as the Fall and Winter of 1964, The Drama Review could devote two complete issues to Stanislavsky; now the 'method' no longer has the absolute dominance it once did in this country, and certain alternative approaches are attracting great interest. Everyone now seems to realize that acting does not mean just one thing--the attempt to imitate life in a realistic and detailed fashion. Thus, eclecticism or diversity in the approaches to acting is one aspect of the recent change in American Theatre." (Kirby 11)

The rise of workshops as training became an important aspect of Tisch's new eclectic philosophy. Workshops by Viola Spolin, Jerzy Grotowski, Lee Breuer, Andre Gregory, Charles Ludlam, the Bread and Puppet Theatre, and Moshe Feldenkrais (to name a few) provided young actors with the opportunity for exploration into alternative forms and with the chance to expand their own marketability. In contrast to the acting class, the workshop became a primary way of learning skills or exchanging ideas within the genre. The spontaneous "smorgasbord" atmosphere enabled participants to explore the new techniques and skills with dogmatism and judgement suspended. "It was a chaotic time! Ted's (Hoffman) idea was that he had very talented young people and they ought to be exposed to all the kinds of training available....faculty and students were constantly changing" (Miller. Personal Interview, 6 May 1994).

Ron Argelander, head of the "Experimental Wing" at N.Y.U. categorized this workshop training into three types: "Special Skills," "Production-Oriented," and "Para-Theatrics" (a term coined by Grotowski). The "Special Skills" workshop dealt with learning a specific craft such as clowning or juggling which could be absorbed and then interpreted in whatever way the performer found useful. The "Production-Oriented" workshop provided participants with special skills and theories which were appropriate and effective only in relationship to the aesthetics of a

specific group such as Charles Ludlam's. Thus these workshops would teach the skills required to present a concluding performance.

"Para-Theatrics" or self-exploration workshops were by far the most popular during this period. These intensive self-examination or "Self-Use" workshops focused on human values--"reversing the de-sensitization process that produces dead skin which keeps one away from contact with life"(Argelander 17). These self-exploration workshops varied from psycho-analytical/group therapy sessions to explorations of the mind/body connection.

The concept of Self-Use evolving from these initial workshops in "Para-Theatrics" became a focal point for actor training at Tisch. A division was created between the actor's "Self-Use" and his/her "Expressive-Use." As a result, the Tisch school sponsored several pioneers in Self-Use during the seventies, all of which worked from the same mind/body unification philosophy (grounded in ongoing neuropsychological research). One of these pioneers was Moshe Feldenkrais with his theories on "Eutony" and "Reversibility." "I Think that Feldenkrais was just profound, but how it translates to acting, supportive acting, is a whole other question. We didn't change and hire a Feldenkrais person to the faculty or add to the curriculum. It's very specific work. Basically the work is about healing the body. Reconnecting the body." (Miller 1993).

At Tisch, Feldenkrais offered process-oriented exercises designed to "establish or re-establish connections between the motor cortex and the musculature that have been short circuited or re-routed by bad habits, tensions, and psychological or environmental influences, etc." (Linklater, "Body Training" 24). With his emphasis on spinal alignment and strengthening the mind's intrinsic understanding of how the musculature works, he headed the actor towards the goal of maximum efficiency with minimal effort.

Kristin Linklater was also highly influenced by Feldenkrais' mind/body work and utilized many of his concepts in her own "voice/body" theories, especially focusing on the strength of back muscles which "take away from the complex, delicate structure of abdominal muscles, leaving them free to allow natural, relaxed breathing" (26).

The interest shown in Feldenkrais' mind/body theories reflected an increasing change of emphasis in the area of acting technique, veering toward a more holistic approach. Attention on spinal alignment and functional integration soon led the way for disciples of the Alexander technique, of Rolfing (involving deep and painful manipulation of "blocked" muscles which cause structural imbalance), and of the Lessac method of vocal training. Tisch became noted as a center for innovators, a home for collaboration and experimentation.

By the early 1980s, this eclectic approach to performer training, although influential in many ways, caused the Tisch program to weaken and become disoriented.

> Before it was, "Try all these things. You'll eventually make up your own way out of all these things." Which was fine for older people, I was twenty-six when I came in then, but I think it was a little bewildering to eighteen year olds. ...There is an attempt now to try to create a program which has more of a logical sequence to it from the day that you enter to the day that you leave. There's a faculty that works more collaboratively and is more aware of working from the center. So sequentially, there is a real beginning, middle, and end to the arc of training (Van Lieu. Personal Interview, 6 May 1993).

In a 1990 article in Variety, David Oppenheim described Tisch's new acting students of the eighties as more pragmatic, "less idealistic, willing to learn everything with a practical plan for how and what they will do" (45). With students who had such detailed and solid goals in mind, Tisch was in need of a complete over-haul, and someone vital to organize and implement a system of actor training.

In 1987, that someone was Zelda Fichandler, founder and producing director of the Arena Theatre in Washington, D.C. Fichandler was not a new face to Tisch when she was appointed to revive the drifting Acting program. She had worked very closely since 1960 with Richard Schechner and other innovators at N.Y.U. With a solid understanding of exactly what professional regional theatres were looking for, Fichandler outlined an intensive three year program

in which the graduate performers would study six days a week, approximately twelve-thirteen hours a day. The curriculum, which involves performance in at least nine major productions a year and a final audition day in front of "two hundred of the most powerful figures in theatre, film, and television" (Conniff 56), focuses on developing the "character" actor--that is, on creating an actor capable of transformation in addition to representation.

> A lot of this has to do with Zelda, because when she came in, she was very clear about the sense that acting was first and foremost a physical art. That it began and finished with the body...and that even when she auditioned actors for the program, she paid most attention to what their physical life was like. Whether they seemed to be able to have a spontaneous life, whether they seemed to be connected to their bodies or not, whether things moved through them or whether they just made gestures. (Van Lieu 1993).

With Fichandler's guidance, the faculty focuses on teaching actors how to live another person's life on stage, a hundred different kinds--not just a "type" that one plays over and over. According to Fichandler, in order to transform into a character, one has to "excavate the self--release the natural voice, the relaxed body, the instincts, and the enormous amount of information stored up in the body" (Conniff 58). "Transformational Acting" provides the actors with an artistic philosophy, a theatrical foundation on which to base their work, and an "ideal to turn to when they go out into a business that often cares most deeply about P. and L. (Profit and Loss) or T. and A."(61).

Although equipped to provide the student actor with

the versatility of one trained in many styles and genre, "transformation" and "character" acting now dominate the Tisch curriculum. "The middle year is a lot about character creation, and how to deal with life and cultures and times in which you don't exist...or how character is determined by the understanding of the psychology or the wants of that person that you are playing. So it's a reminder that people exist as products of their culture--part psychology and part anthropology" (Van Lieu 1993).
In the three-year system, the performing student follows a carefully outlined sequence of courses including "Ancient Greece", "Edwardian England", speech and voice/body training, circus, dialects, languages, neutral and character mask-work, Alexander training, auditioning classes, and of course, a rigid sequence of acting classes.

The first year of this more organized system focuses solely on the "Self-Use" of the actor with circus classes and theatre games to free the actor's imagination and spontaneity, helping him/her to pretend on the deepest level--"if he can't believe in a character's circumstances, he doesn't have the imagination an actor needs" (Mekler 348).

> In most people that means preparing the instrument to act...working on your body to release long held areas of tension, to re-close the connection between breath and sound, and breath and movement, the exercise of the imagination so that you can learn to live, to create, so that you can live imaginatively under imaginary circumstances. It isn't an exploration of your own biography so that you can reduce every role to yourself (Van Lieu 1993).

Intensive classes in the Alexander technique, freeing the actor's vessel and making him/her an "inner observer" of personal mannerisms, and in basic vocal training, eliminating accents and personal mannerisms in order to achieve a neutral American stage speech, precede any work with a script or characterization. "It was Zelda that brought the Alexander into the program. They have Alexander all three years" (Van Lieu 1993). There is a general consensus by all the Tisch faculty that the Alexander training, led by Troup Mathews (founder of the Institute for Research, Development, and Education in the Alexander Technique), has become a central synthesizer of the various disciplines within the Tisch training curriculum. According to Head of Movement, Jim Calder, the Alexander core has encouraged a " nice symbiotic relationship with all the instructors. There is really a feeling when we get together in a room...it is amazing how connected the discussions are about a particular student" (Calder. Personal Interview, 6 May 1993). For the students, it has also provided a point of connection.

> Through Alexander, they understand better what we're trying to do with voice, what I talk about in class when I say release something, Beverly's trying to work on when she talks about alignment or their lack of alignment. Troup Mathews once said, I love this, I asked him what he thought the application of Alexander was to actors, and he said, "Poise." I said, "Poise? What does that mean to you?" He said, "It's the ability to do the most difficult things without engaging one unnecessary muscle." (Van Lieu 1993).

Fichandler's own acting class focuses primarily on the use of the imagination or "as if." "It's the lever that pries open the magic box" (Conniff 61). At Tisch, she is lovingly noted for her flowery expression of the actor's job and often quotes famous writers and artists to get her point across.

> Habit devours objects, furniture, one's wife, and the fear of war...Art helps us recover the sensations of life. The technique of Art is to make things unfamiliar"(62).

Her emphasis on "transformation" stretches beyond the traditional approach to character, and to casting in general. Fichandler's concept of theatre as a universal game (believing in meaning and possibility), confronts the stereotyping of student actors by themselves or by casting directors in the U.S. Although students should commit completely to transforming into character, they should not limit themselves to what they could "realistically" play, but stretch beyond that.

Tisch alumnus (the second class) and now, Head of Acting, Ron Van Lieu also believes in the return to character and in an inner approach to text analysis; finding inner rhythms, biographies, meanings, and objectives, before ever actually taking on the character. The core of "transformation" is rooted in the actor's imagination. As a result, almost all of his acting training focuses on the development and versatility of imagination. The first step in allowing this imagination

expansion is by providing a positive and supportive atmosphere for creativity. He believes that a lot of actor training sets up the actor for skepticism and a self-defeating kind of energy. Comments like "I don't believe that" or "You're not ready" make the student feel inadequate, and the kind of imaginative and scenic faith necessary for "transformation" can't be fostered in the midst of such critical analysis.

> Things are different for this generation of young actors. When I began teaching, everyone was wildly emotional, experimenting with all sorts of things and the last thing one wanted to be was conservative and conventional. I find that what I have to do is help students break up their need to be right all the time, to be correct. Students are not rebelling any longer. They are desperately trying to make it within the conventional mold and they try to figure out what that is rather than focus on what they are experiencing--I find this generation of students more intelligent and when that intelligence gets tapped, the students are emotionally richer than I or my peers were (Mekler 359).

Van Lieu believes that the seeds of any character or experience are within the actor and all he/she has to do is to imagine, or "daydream" about the character and let go of critical control and self-awareness. One of the "transformation" exercises that Van Lieu gives involves a spontaneous, abstract interaction with a partner, tossing an imaginary ball and slowly allowing a concrete situation and relationship to evolve and then to be explored. He stresses that exercises like this are difficult because students continue to get caught in a "left-brained" analysis of what

is stereotypically correct. "When it doesn't work well, it is because one actor is trying to control, is trying to be playwright, refusing to live in the moment and afraid to accept where his imagination will take him" (Mekler 350).

In a discussion addressing self-use and the impact of research in neuropsychology on our current understanding of the mind/body connection with this author, Van Lieu acknowledges the power of the Alexander technique and the general trend toward physical development as a reflection of this new knowledge. He went on to cite the Suzuki method of voice/movement training at the University of Delaware as an example. "It's based on the investment of tension and strength, and driving the energy very strongly down to the earth" (Van Lieu 1993). Van Lieu likens this work to that of Grotowski in that it requires complete immersion and it is also based somewhat on the EST movement. Regarding the future of intercommunication between neuroscience and actor training, he envisions great possibility in such interaction.

> I'm at a funny point in my own evolution of teaching. I think I'm at a point where I feel that I have relied a lot on what I know for a long time, and I'm ready to sort of know more. If a figure emerges who can help integrate it and apply it, like a Feldenkrais or an Alexander. If somebody can help put that together that really understands the art of acting and the center from which acting springs, I sure think there would be (great possibility). Because we are all hungry for what would be helpful, for what we don't currently know...But I think that seems to come along from a single person, an innovator...(Van Lieu. Personal Interview, 6 May 1993).

Along with the new system of training at Tisch, new faces have also appeared in the faculty ranks to reflect this new focus on self-use and physical expression. In the area of self-use and movement, Jim Calder was invited into the program by Fichandler about six years ago. Although his official title is "Head of Movement", Calder hesitates to narrow what he does down to a single discipline.

> I hesitate to call it movement. There is a confluence and a interrelationship between things so as soon as you start dividing it up with words, it does damage to what you're doing. I probably accentuate a lot more of the movement but it's always a misnomer because people don't just move onstage. It has to do with the connection of emotion, movement, and body...I work a lot from improvisation, because when you work from improvisation you discover connections inherently between the voice, the movement, the gesture, and the intention (Calder. Personal Interview, 6 May 1993).

Calder's work reflects his intensive training with Jacques LeCoq in Paris and in the commedia d'elle arte tradition. He emphasizes the interdependence of things, the "system" of things. "You realize it first physically and then intellectually" (Calder 1993). His pedagogical philosophy clearly reflects the "Via Negativa" techniques rooted in the Jacques LeCoq and Jacques Copeau tradition. "Once you do the physical exercises, it becomes very apparent what the person is doing to not listen. It is also about finding out or discovering what it is <u>not</u> (in order to) propel you to what it <u>is</u>" (Calder 1993).

In a discussion addressing research on the mind/body connection and breakthroughs in neuroscience, Calder

stated that although he had heard of this current research, having read a report by Bill Moyers, he had not actively pursued this research or knowingly applied it to his work. He did feel that what science has finally codified, the arts had identified and utilized intuitively for centuries.

> There has always been a mind/body connection. What surprises me is that it took until 1966 ...if we would wait for science to tell us what was real, we would really be in trouble....I think it is the other way around. I think a certain life force may have influenced everything. We are all going in a direction. Because if you were to interview some fifteenth and sixteenth century commedia dell'arte players from Italy, they would just laugh at you. They would say, "This is understood. Why is there a problem here?" (Calder 1993)?

Along this same line addressing the "Life Force," Calder believes that the systems research in neuroscience merely parallels a movement which has already permeated the arts and creativity in general. The intercommunication of neuroscience and actor training is insignificant to Calder in lieu of this larger force which will head the human species in this direction anyway. "You will always get more money to study an actor than you will to pay the actor to do what you are studying. It's ridiculous...all these huge constructions for actors coming in touch with themselves, thereby coming in touch with an audience" (Calder 1993).

J. Steven White continues the Tisch focus on "transformation" and "process" in his stage combat classes.

Not only do the students learn the basics of "safe" combat, but also how to apply full characterization as well. "The idea is never merely to master the technique. If you're going to kick someone in the face, you must do it the way your character would kick" (Conniff 66).

In the midst of all the change and improvement, Hovey Burgess continues his classes in circus and clowning, finding that students need, now more than ever, the versatility, daring, physical development, and "right-brained" expansion that his training emphasizes. In the sixties, Burgess' class of circus techniques was an innovation, a little extra. Now, with a new understanding of how the lateralized mind works in connection with the body, this expansion past "programmed and limiting" responses is precisely what the modern acting student needs in order to transform (Burgess 1993).

The Tisch School of Performing Arts is now one of the most respected, competitive training schools in the U.S. It has become a model for other professional actor training programs. From its rebellious and loosely structured beginnings in the sixties focusing on invention, "collective" art, and "non-acting", to its tightly organized yet eclectic system of script analysis, process-orientation, "transformation", and marketable actors, Tisch has remained a leader in the field.

David Oppenheim, recently retired Dean of Tisch, attributes their good reputation to developments and changes

in perception of the Arts in general. Theatre schools used to be thought of as trade schools, but more and more, cognitive science is proving a need for the holistic impact of the creative arts. As a result, attitudes of academia regarding the worth of theatre in curriculum have changed. Because of its malleability, Tisch maintains its reputation for excellence in performer training. As society evolves, it too will willingly evolve to better serve the art of Theatre.

> We are a faculty who believe that all "results" in acting evolve naturally out of the process through which the actor works. Consequently, we offer you a way of working which--if you do it deeply, honestly, and allow yourself a personal sense of freedom--will permit you to transform into a character and to live moment to moment within the imaginary world of the play. That is our process or "technique", if that word makes more sense to you.
>
> One of our most important goals is the integration of one teacher's work with that of another. All our teachers are gifted, demanding and individual in their approach. But all class work springs from the same understanding of the actor's process, and the same principles apply from class to class. This integration is the result of evolving a training sequence over many years and of finding just the right people to further the program's goals (Van Lieu, Letter to Prospective Applicants 1993).

THE JUILLIARD SCHOOL OF DRAMA

The evolution of Juilliard's actor training program is much less variable than Tisch's. From its beginning in 1968, the model constructed by Michel Saint-Denis and implemented by director, John Houseman, was distinctly

different from the eclectic, traditional American training found at the Tisch actor training program in the 1960s. Inherent in the four-year intensive training structure was an initial year of "Discovery," devoted entirely to the exploration and the expansion of self-use. The curriculum design created by Saint-Denis in 1968 remains relatively untouched today. It appears to be almost prophetic in terms of its ability to answer integrated actor-training needs today.

In his text, Training For The Theatre (1982), Michel Saint-Denis details the development and the curriculum content of the Juilliard School of Drama. With the same financial impetus as Tisch School of the Arts, the Juilliard School of Music was offered a Rockefeller grant in 1958 to expand its program in order to include theatre and actor training. This expansion, entitled the "Lincoln Center Project," would include a new studio building connected to a new theatre facility which would serve as a professional outlet for artists trained at Juilliard. Because of the four successful acting schools he had developed throughout Europe and Canada, Saint-Denis was invited by Rockefeller and other Juilliard officials to design a curriculum and ultimately, to direct this school. Faced with the task of developing a distinctly American actor-training program, Saint-Denis set out to visit drama departments in colleges

and universities to capture the American tradition of actor training. In this exploration, Saint-Denis was dismayed to discover that the American training "seemed to consist primarily of discussions and explanations about acting and various theories of acting...This sort of discussion makes a young actor too conscious of the problems of acting instead of inducing him to experience acting with spontaneity. I often had the feeling that teachers were training other teachers rather than actors" (Saint-Denis, Training 66).

Following his tour of drama departments, Saint-Denis set up a series of objectives and guidelines around which the Juilliard curriculum would revolve. One of the guidelines was that the selection of students would be highly competitive. A second guideline was that each select group would enter the four-year intensive training as a small company, training together for the entire time. "Through that intimate knowledge of one another which grows with constant collaboration over a considerable length of time, students can create a theatre that can promise and realize the best" (Saint-Denis 68). To Saint-Denis, the main purpose of the Juilliard School of Drama would be to develop an American theatrical tradition, involving a marriage between American realism and classical style.

From the very beginning, Saint-Denis' systematic curriculum design and focus on integration of the various

acting disciplines reflected his own organic training with Jacques Copeau in Paris. Saint-Denis was suspicious of finite methods or techniques. He emphasized the process of acting, and the "actor/improviser" rather than the "actor/interpreter" (83). He was keenly aware of the mind/body connection and the need to synthesize the vocal, emotional and physical aspects of actor training from the very beginning:

> The emphasis throughout is on helping each student to discover the potential of his instrument--his body and his voice--and to liberate his imagination. It seems vital to me to train, simultaneously from the beginning, the mind, the body and the spirit of the actor to serve the imagination..a constant interrelationship of the three disciplines--movement, voice, and emotion... The student will discover how each serves the other and how the integration of all these elements makes for a strong overall impact" (85).

The Juilliard training schedule that Saint-Denis originally set up reflects the above philosophy quite consistently. As previously mentioned, the first year of training is referred to as the "Discovery Year." The "Discovery Year" involves exploration of the self--the vocal, physical, and imaginative potentialities. In this opening year, students begin a four-year sequence of Alexander Technique, abstract physical exploration, along with developmental work in acting via improvisation. The second year is referred to as the "Transformational Year." It is the time when the actor begins to move from exploration of the self to expressive-use of the self. "He is transformed

and learns how to transform....he learns how not always to be himself" (Saint-Denis 85). The student is asked to mesh technique with his newly-found imaginative powers. The third year is entitled the "Interpretation Year" and involves the application of expressive-use to the interpretation of different styles of classical and modern plays. Finally, the "Performing Year" is the fourth year and involves rehearsing and performing as many different plays as possible in front of many different kinds of audiences.

One main feature that has helped the Juilliard program to be successful seems to lie in its consistency of curriculum content and structure, and in its consistency of faculty and staff. Experienced teachers/directors such as Michael Kahn, Judy Leibowitz, Edith Skinner, Moni Yakim, and Harold Stone have remained connected to Juilliard from its inception. Michael Kahn now heads up the program as "Director of the Drama" division. Since his recent promotion, he has encouraged much more collaboration between the disciplines. His presence has also influenced a move toward including more liberal arts in the actor-training curriculum. "Our new director, Michael Kahn, said that our actors need to be well-rounded people, well-versed in culture --not only the artistic and cultural values but the total picture...including cross-casting, cross-cultural" (Serota, Personal Interview, 23 November 1992). As an acclaimed

director, Kahn has also had the unique opportunity to work at both the Tisch School of the Arts and the Juilliard School of Drama simultaneously. He describes the difference between the two institutions and their traditions in the following passage:

> NYU is in transition from having been a sort of radical and successful alternative theatre school in the 1960s to training actors to be able to work in the regional theatres--which was the original goal of Juilliard. The student who comes to Juilliard knows that the training he gets there will focus on meeting the challenges of classical theatre...I found that I am full of admiration for the amount of vocal and text training that goes on at Juilliard (Mekler, 341-342).

Harold Stone, Administrative Director of the Juilliard actor-training program, has watched the original program evolve, grow, and refine. He came to Juilliard in 1973 as a free-lance director for the "Rehearsal Projects" and he has ascended the administrative ranks under the leadership of John Houseman, Allen Schneider, Michael Langham, and now, Michael Kahn. He believes that although the program has remained faithful to the original goals established by Michel Saint-Denis, the methodology has indeed changed in the past twenty-five years. The type of students that now attend Juilliard are not only older and more seasoned, but also less informed in the area of dramatic literature and theatre history than their counterparts in 1968. "The basic training for the actor involving Alexander and mask-work with an emphasis on speech training and voice training is very much what it was when Saint-Denis started. (But) we now

have got courses in Theatre History which we didn't used to have because we didn't need it" (Stone, 23 November 1992).

In a discussion addressing the integrated curriculum at Juilliard and possible influences by a growing body of research on learning and the mind/body connection, Stone stated that he felt that the best teachers have always known that one can't really learn by rote. "I think the talented teacher had an instinctive understanding of that which is now being reinforced by scientific research. Science is catching up to art in that sense. So that everybody is now aware of this and not just people who happen to have those insights" (Stone 1992). Stone identifies this "instinctive" quality in the faculty who have worked at Juilliard. He attributes this large dependence on intuition to the fact that most of the faculty were recruited from the professional rather than the academic ranks. For example, he recalls his first experience with Judy Leibowitz and the Alexander Technique with Bill Ball at the American Conservatory Theatre--before Juilliard ever came into existence. She revealed to Stone the value of the Alexander Technique in performer training before it was so widely accepted or scientifically validated. He attributes Bill Ball with the insight and initiative to connect Alexander to theatre training in general...but it was Judy Leibowitz who actually experimented intuitively

with its unique application to actor training and performance. For approximately twenty years at Juilliard, Judy expanded on her own experimentation while actively acknowledging the research on learning and brain cognition that was evolving. Before she died of cancer in 1990, she bequeathed her unique system of Alexander Technique in actor training and in performance which she called her "Energy Work" to her student and colleague, Carolyn Serota.

As mentioned earlier, the students at Juilliard are still exposed to Alexander Technique at the very beginning of the "Discovery Year." The fact that the program has a four-year sequence rather than Tisch's three-year sequence offers the extra time required for focusing on process. "It means devoting yourself to how you do it, not just to where you want to be when you're finished. In a sense the whole four years is discovery and growth and so on. It's that first year in which that emphasis is laid in and laid in and laid in. Everybody is saying, 'Take your time and don't rush. Let's find out " (Stone 1992). The first year of training is especially devoted to stripping things off... getting rid of old habits, most of which have to do with going for results. Similar to Tisch, the whole program at Juilliard now embraces the Alexander philosophy. Stone noted that he has repeatedly found that when a student is having trouble with the Alexander, he/she is probably having trouble with all the work in the program.

> When they make a break-through in Alexander, chances are they are going to make a break-through in all the other things very soon too. They go together. It's just a question of learning how to leave yourself alone even while you are learning how to speak and breath, and how to do all of the technical stuff, to put all that together with not getting in your own way is very hard. Once you learn to do it, it is very positive (Stone. Personal Interview, 23 November 1992).

Stone proudly takes responsibility for increasing the amount of Alexander training in the program throughout the past twenty years. Sparked by Leibowitz's innovations such as incorporating the Alexander training right into the rehearsal process, Stone insisted that the Alexander offerings be expanded whenever new money was available. In addition to increasing the Alexander element, the Juilliard program has also continued to expand its other offerings in movement and physical development. Moni Yakim continues to offer a "rigorous and strenuous" movement program:

> A rigorous drill to increase stamina and the capacity for endurance; to develop physical coordination and naturalness; to coordinate movement with breath, to attain uninhibited physical expression through connection with inner rhythms, instincts, and emotions; to explore physical character transformations (Juilliard School Catalog, 1992-1993, 77).

Hovey Burgess (from Tisch) also continues to offer master classes in circus training, and for a period of time, Bob Abrahmson, from the Juilliard School of Music, offered Dalcroze Eurythmics to the actors. "We had a couple of demonstration classes (in Eurythmics) and they looked useful and interesting...and then we found that it seemed

a little too rigid, a little too didactic. The actors did it better than the dancers, which was interesting enough... (but) Eurythmics just seemed too impersonal" (Stone 1992).

Regarding the recent move toward intercommunication and interdisciplinary teaching in Juilliard's acting program, Stone attributes it to a constant re-evaluation on the part of the faculty rather than to what's going on in terms of systems research. "We are always re-examining. There's constant comparing of what happens in this class to what happens in this class and this class in order to see how we can make them connect" (Stone 1992). Stone does acknowledge an awareness of changing pedagogy catalyzed by current research in neuropsychology. "I think we are aware of it, but it isn't a question of saying, 'Oh, we have to do something about that.' What we do in the way of changing or expanding or trying comes more in terms of what we are seeing our actors able or not able to do" (Stone 1992). Stone does see a parallel between a growing understanding of research on learning and cognition, and a move to synthesize the training at Juilliard. He definitely believes that there is a great potential in an intercommunication between the areas of neuroscience and actor training.

> I'd be surprised if there wasn't a future in that. I think the people who are particularly involved in (this) sort of training are going to have to be aware of what's going on. It seems to me a huge amount of it is bound to be applicable, just as

> the Alexander has almost accidentally been integrated into this. Alexander is the result of painstaking and painful study with exactly what you are talking about. This is bound to continue to have applications. I do think that you always have to be careful that the science is used for the art and not imposed on it...To be creative is to be as free as possible, and freedom comes from knowing things...So I think there is a very definite link" (Stone, 23 November 1992).

Along with her colleague Amy Kitahata-Sporn, Carolyn Serota took on the legacy of Alexander training developed by the late Judy Leibowitz. Serota was invited by Leibowitz to teach in the Juilliard program four years ago. As mentioned in Chapter I of this study, Serota began her training at ACAT (the American Center for the Alexander Technique) in 1983. By 1987, Serota was working with Leibowitz on the ACAT faculty, and then followed her to Juilliard. According to Serota, ACAT has become a center for progressive research in Alexander training as well as a place for professional training and certification. She has been an active researcher in Alexander Technique at ACAT, particularly in the area of psychology. Her original research dealing with energy blocks and "Directions in Exercise" coincided with the "Energy Work" developed by her mentor, Judy Leibowitz. "She developed a special use of the Alexander Technique...an expansion of the Alexander principles but specifically for use on the actor" (Serota, Personal Interview, 23 November 1992). According to Serota, Leibowitz's unique application of

Alexander to the four-year program was connected to the use of language in conjunction with kinesthetic touch. She emphasized "the importance of the verbal and intellectual understanding and its link with the experiential and the kinesthetic--or energistic" (Serota 1992). Serota has continued this tradition of "energy work," at times incorporating Bartenieff fundamentals and Laban concepts into the self-use lesson. She refers to these techniques as "organizers." Through a photo-record, measuring the individual students for three or four years, she has pinpointed tremendous change. "It's not just the Alexander. I mean the voice work, all that feeds into the same thing."

Serota ascribes these recent changes in pedagogy and philosophy to Michael Kahn's new leadership. "Everybody seems to be very process-oriented here...and the different disciplines really support each other and move together. This year we're doing more interdisciplinary work, co-teaching in acting and movement classes. I've been collaborating with the voice teacher, trying to get that kind of interaction going on so that students learn to integrate all of their different technical training classes" (Serota 1992). Serota has also seen a profound change in the pedagogy of her colleagues in acting as a result of this collaboration. The emphasis of Serota's work is on choices and relationships...the acting teachers can ask their students to "redirect" and then it clicks, "Oh yeah, I can make a choice here. I can change my thought

to change my action and movement. I can change my thought to change my posture. It's very much about giving them greater possibility, greater choice" (Serota 1992). In a discussion of the ever-expanding use of Alexander Technique not only in collaboration within other actor training courses but in general through-out the U.S., Serota emphasizes the impact of systems technology on the psycho-physical being.

> Our whole range of movement is becoming less and less as we get more and more so-called advanced. More and more stimuli are coming at us. Our fight or flight reflex is getting more and more cramped ...We need these things more--there is a greater need (Serota, Personal Interview, 23 November 1992).

In response to a question regarding the future of intercommunication between neuropsychology and actor training, Serota was enthusiastic about the possibilities but not without certain reservations. She felt that there is a danger of over-labeling and of getting rigid within a system or method. There has to be an openness there in spite of the fact that we all learn and behave in systems. According to Serota, Alexander technique is about links and relationships, but not about labels.

> I think that my work is a lot about that. It's about getting the conceptual, the emotional, the experiential, the verbal, and the logistic--all of those functioning together...It's always good to have the scientific basis. It's interesting to me though that most of the actual work gets done intuitively...and then people spend a lot of time later proving it, which is great...that opens a lot of doors for people who have written it off

> up to that point. And I have had that happen to me before (Serota 1992).

On a larger scale, the academic administration at Juilliard has recognized the strong "vocational" focus with which Juilliard graduates have traditionally left the institution. Recognizing a need for more well-rounded, culturally-informed performers, James Sloan Allen, Vice President For Academic Affairs, has implemented a line of liberal arts courses into the general education of the Juilliard curriculum. In his article entitled, "Educating Performers," Allen addresses the cognitive processes of the student creators and performers. "The intuitive or cognitive patterns of performers tend to match their art forms--musicians responding most alertly to sounds, dancers to visual configurations, actors to emotional images...They make practice pay off as an analytical exertion of mind and memory that constitutes nothing less than learning how to learn" (Allen 203). Allen's argument deals with the imbalance of cognitive duties catalyzed by a program which focuses on the practical "how to do" training of performing artists. The liberal arts addition, incorporated six years ago, is present to expand the student's ability to "grapple with questions (of life)...linking subjectivity and objectivity, feeling and thought, reaction and form, self and incident--a passage that teaches them to be critical observers and thoughtful interpreters, not of art alone but of everything" (Allen 207).

THE ASOLO CENTER CONSERVATORY OF PROFESSIONAL ACTOR TRAINING

The Asolo Center Conservatory (hereafter referred to as Asolo) at Florida State University (FSU) is the youngest and the smallest of the three conservatory programs examined yet probably the most daring in relationship to this study. In keeping with the idea that an institution is only as strong as the people working for it, Barbara Leverone, assistant professor of movement, and other daring innovators on the Asolo faculty have helped to forge a reputation for Asolo as one of the leading actor-training programs in the U.S. As a result of their efforts, this program remains at the forefront of extensive breakthroughs in self-use training for actors. Evidence of their collaboration and experimentation is found in the many panel presentations and workshops that the Asolo faculty have jointly conducted in the past three years. Presentations such as "The Integration of Feldenkrais Technique into Process-Oriented Training" at the 1992 ATHE Conference in Atlanta, Georgia (examined in Chapter I of this study) and "Alexander and Feldenkrais: Are They Mutually Exclusive?" at the 1993 ATHE Conference in Philadelphia, Pennsylvania demonstrate the initiative of the people connected with this actor-training program.

The program was not always as cohesive as it is now. Only in the past nine years has such growth and unified pedagogical philosophy instigated a true "process-

oriented" training sequence. As an offspring of the FSU Department of Theatre, the Asolo Center Conservatory of Professional Actor Training was conceived in the early 1970s. Like Tisch, the program offers a three-year MFA degree in Acting whereas Juilliard offers a four-year BFA degree in Acting. From the very beginning, there was an acknowledgement of the benefits of process-oriented work, but there was no identifiable methodology. The Conservatory's connection with the Asolo Theatre company made it a prime training ground for experiential work and interaction with professionals.

> In 1980, the "head of Acting" position was filled by Manuel Duque and the Asolo Theatre hired John Ulmer as artistic director. Both men were solidly Meisner-based in theory and practice. Our current acting faculty, Michael (Costello), Brant (Pope), and Jim Wise are all Stanislavsky or Meisner-based teachers. Dr. Ruby Allen, our voice and speech teacher has been here over fifteen years. Her background includes Yoga, Alexander, and Linklater training, and she is currently working toward another Ph.D. in Transpersonal Psychology and certification in Bioenergetics. She was greatly influenced by the Biofeedback research of Elmer and Alyce Green at the Meninger Clinic and Carl O. Simonton in "Getting Well Again." The Conservatory movement program, however, was primarily fitness and dance-oriented with several teachers and too many approaches. Of course, this is a major problem in most movement for actor programs (Leverone. Letter to the Author, 26 September 1992).

Since its inception, Asolo has prided itself on its process-oriented philosophy and curriculum. But this philosophy was not fully supported in the area of self-use until the movement program incorporated the Feldenkrais

Method in 1985. At the time that Barbara Leverone with her Feldenkrais expertise was invited to join the faculty, Asolo had gone through several movement teachers. The content and pedagogy of the previous teachers were oriented towards modern dance and musical theatre, with very little attention to the self-use concepts of alignment, centering, and efficiency of action. As the school was moving more and more toward American Realism based on the Meisner method which focuses on being able to work off of your partner, talking and listening, and riding on the impulse of the moment, the need for self-use systems such as the Feldenkrais Method became evident. "I think they knew that everything else wasn't working...That there was something missing, something fundamental--before all the other work that needs to happen. They were not really sure what it was" (Leverone, Personal Interview, 7 August 1993). Leverone suggests that it was co-director Ruby Allen, with her own understanding of Alexander Technique, of the Feldenkrais Method, and of Gestalt Psychology, who initiated the move to include Feldenkrais in the Asolo movement program. At the time, the move seemed like a risky undertaking and the administrators of the Asolo program were hesitant, but with Allen's urging, Leverone was given a one-year trial. Since that initial year, the Feldenkrais component has grown and has now become

integral to the process-orientation at Asolo. Dr. Ruby Allen has continued to be a key supporter as her own research and background in psychology, neuroscience, and mind-body studies have evolved. Leverone has become a valued member of the five-person Asolo Center Conservatory faculty.

> Ruby encouraged me very much to go on with this training...(but) I bet you if I asked the acting teachers in my conservatory what they know about whole learning and Howard Gardner, I bet they wouldn't have a clue. I bet they have not read any of that. But see, Ruby and I have stayed in school. I'm working on a graduate degree. She's working on a graduate degree. Both are in the fields of counseling and gestalt psychology. We are looking and learning and listening to what's happening, and we have encountered some gifted teachers like Dr. Pinkard (referred to in Chapter I of this study) for me, and her people out in the Bay area (Leverone, Personal Interview, 7 August 1993).

Barbara Leverone's background as a professional dancer and actress combined with her extensive training in Feldenkrais made her a prime candidate for this position. Alignment problems and injuries caused by misuse in her own dance career led her to seek therapeutic help from a Feldenkrais practitioner in 1979 when Moshe himself was first introducing his work in the U.S. Since her initial year at Asolo, Leverone has experimented with the Feldenkrais Method not only as a tool for awareness of the actor's self, but also as a tool for expressive-use such as characterization. Leverone has proven to the Asolo acting faculty the compatibility of the Feldenkrais philosophy and techniques with the Meisner focus on process,

impulse, and repetition. "I'm facilitating. I'm not teaching. I don't think of them as having something that needs to be fixed. I offer them choices, so their nervous systems can make the sensory discrimination, that's the key" (Leverone, Personal Interview, 7 August 1993). According to Leverone, the transition from Feldenkrais to Meisner is quite clear. In both, the job is to bring the students to a place where they can work off their impulses spontaneously. "It becomes freedom of choice and we move to a biologically-efficient place where you can go in any direction at will...and that is Meisner working off of impulse" (Leverone 1993).

Within the past three years, Leverone has experimented with several collaborations between the Feldenkrais method and improvisational acting. One exercise which she has continued to develop with her colleague in acting, Michael Costello, is referred to as the "Animal Exercise." In this exercise which will be detailed later in this chapter, Leverone meshes specific Feldenkrais ATM (Awareness Through Movement) exercises with the development of different kinds of animals. Through the creation of different environments, these "animal-characters" are then encouraged to work improvisationally to hone spontaneous interaction (in keeping with the Meisner technique). This past year, Leverone invited Michael Purcell, president of the Feldenkrais Guild, to introduce her students to a new technique for actors dealing with the "Dyad." "He takes specific Awareness

Through Movement lessons and works with the actors in two's, the Dyad, to try to get that balanced readiness, that listening and working off the environment, person to person. The environment that you are working off becomes the other person. (He then) translates that experience to scenework" (Leverone, Personal Interview, 7 August 1993). Leverone's direct application of Feldenkrais to acting continues with her focus on breath. She routinely integrates ATM's focusing on breathing with Ruby Allen's voice work and with the singing instructor in three-way (team-taught) workshops.

> We use the physical window, the movement window to bring the actor to that point, to know what it means, to know what it feels like, and to translate it to working off of the other in voice work or in scenework. As Moshe said "There is no way if you are doing something physical that you are not also doing it with your emotions and with your thinking and with your voice (Leverone, Personal Interview, 7 August 1993).

The first year of the Asolo training is basically devoted to the awareness and expansion of the actor's self-use. Leverone's movement class holds a primary position in the first year's curriculum. The first eight weeks are devoted to "tons and tons of ATM's. I love the notion of empowering the student to find their own learning process" (Leverone 1993). Four ninety-minute classes a week devoted to Feldenkrais ATM's provide the acting student with a vocabulary to work from while functional and structural analysis is also begun. As Leverone works with

the students in those first eight weeks, she is careful to focus all additional movement work in each class to the particular part of the body that might have been impacted by the ATM lessons. Following this initial exposure to the Feldenkrais in a physical way, Leverone introduces the cognitive aspects, involving anatomy charts, and a model skeleton. She encourages structural and functional analysis of self-use as each student explores using Feldenkrais ATM's.

> We teach the students how to read bodies--which shoulder is higher, which hip is more forward, what's the gait, what's the tempo and what does that suggest to you?..What kind of sensation do you get when you see this person walking? Do you think this person is depressed?...So right away we're doing character analysis (as well) (Leverone, Personal Interview, 7 August 1993).

Leverone is careful to tie her first two outside assignments to the structural and functional exploration encouraged in class. Their very first assignment is to bring in the alignment and movement patterns of another classmate. The second is to bring in the alignment and movement patterns of someone off of the street. In this way, she believes the actor can explore self-use and expressive-use simultaneously. In this same period, she also calls in a professional rolfing teacher, Michael Oglby, to assist the students in "reading bodies." She keeps a photo record at regular intervals to assess the alignment and structural progress of each student. "We concentrate on structural adjustments and whether that changes the body in space (Leverone, Personal Interview, 1993).

Following an intensive exploration of the Feldenkrais method and philosophy, Leverone focuses on breath and how breath relates to characterization. At this time, she also provides her students with in-depth information on holistic nutrition, on injury prevention, and on the holistic aspects of fitness. By the end of the first semester, the students begin each class session with individual exploration of ATM's depending upon their needs that day. The rest of the class-time is devoted to "play-time movement ...a lot of very typical movement improvs. based on energy, space, and time" (Leverone, Personal Interview, 7 August 1993). Even with these "typical" movement improvisations, the Feldenkrais notion comes into play. For example, she will have the students establish a neutral way of rolling using ATM's and then she feeds in improvisational situations "to up the stakes, putting in a relationship, a conflict, still doing that simple movement from side to side" (Leverone 1993). All along, students maintain a journal, noting structural and functional adjustments that were made throughout each experience.

At the beginning of the second semester in the first year of Asolo training, the actors are led through neutral mask-work in order to explore different emotional centers. After five or six weeks of mask, the students are introduced to the aforementioned "Animal Exercise," using the Feldenkrais ATM exercises as the foundation. Using crawling

ATM's, exploring initiation and sequencing, the students are guided to explore reptiles, four-legged crawling creatures, winged creatures, and then primates. Each of these animal stages are explored in an environment which eventually culminates in the creation of an "Animal/Human" character. "From these four, they can choose only one to fully develop into a character" (Leverone, Personal Interview, 7 August 1993). As mentioned earlier in this study, this process of character development was recently applied to an experimental production of "The Homecoming" directed by Michael Costello at the Asolo Theatre. In a recent ATHE presentation describing this Feldenkrais application, Leverone emphasized that the animal work was "based on developmental movement patterns that lay a groundwork for more complex movements." Leverone also quoted Bonnie Bainbridge-Cohen, director of the School for Body-Mind Centering, using the following in support of her integration:

> When we internalize a movement pattern, it becomes subcortical and then we are able to open up the cortical, the imagination. We work at all these subcortical levels so that we can efficiently carry out our imaginings... our inspirations (Leverone, "Feldenkrais and Alexander" ATHE Conference, 6 August 1993).

In the last part of the first year, the students are introduced to short segments of different dance idioms while always coming back to the Feldenkrais foundations. Leverone is careful to emphasize the theatrical signficance of the

dance exploration, requesting each student to arrange the choreography into a dramatic scenario or fragment with a beginning, middle and end. Leverone and other Asolo faculty, like director Brant Pope, find that the Feldenkrais core makes the exploration of dance technique or dramatic text so much easier to absorb for their students. The second and third years of the Asolo program direct the student into more traditional and structured acting experiences. Leverone continues to utilize the Feldenkrais in coaching the student actors for production. She considers her primary task as a coach to decifer "whether they have found a position of balanced readiness within which they are going to approach their character and (to assist) with whatever character adjustments (structural and functional) are needed for this role" (Leverone, Personal Interview, 7 August 1993).

The student response to the Feldenkrais work has been very positive at the Asolo Center Conservatory. "Even those that are reluctant to work in a subtle, non-goal-oriented way at first, eventually (discover) the pleasure in it...By their second year, they can't wait to hit the floor and do ATM's" (Leverone, Personal Interview, 1993). Through Michael Costello, assistant professor of acting, the students have also been introduced to the Alexander Technique in a variety of situations. Recently an Alexander trainer was invited to lead the Asolo students through a workshop.

Leverone participated in it and found that she was often hitting contradictions in philosophy and method between the Alexander and her own Feldenkrais training. "I'm so inbedded in my own process of discovery that I would rather be confused and not know the answer than think that someone knows something that I don't know...and they are trying to move me and shove me until I supposedly get there"(Leverone, Personal Interview, 7 August 1993). The Asolo students' reactions to the same Alexander experience seemed to be split between the first and second year students. The first year students found it difficult to assimilate the vocal and physical instructions of the Alexander trainer, but the second group thought it was "kind of neat...and now I've got the ATM where I can get on the floor and be there, or in another situation I can feed in this cognitive stuff ...and get the same sensation from a different way of entry" (Leverone 1993).

The answer to the question addressing the future of intercommunication between neuroscience and actor training is an obvious one at the Asolo Center Conservatory of Professional Actor Training. As mentioned earlier in this chapter, two out of five faculty are actively researching in this area. Barbara Leverone's research most specifically exemplifies the benefits inherent in such intercommunication. In this year, she has worked quite closely with Larry Goldfarb whose neuropsychological

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research on the Feldenkrais Method is explicated in Chapter I of this study.

> His understanding of the Feldenkrais work as a cybernetic learning theory gave me a solid intellectual grasp of the work...It has affected my teaching style dramatically in that I am continually seeking to provide ways for my students to explore movement (as a window to learn about the "self") from which I gain further information from them on what intervention or variance of approach should be presented next. As Larry told us: "A mediocre teacher teaches what he knows or how he learned it. A good teacher helps the student to learn his own process." So you can see, the developments of neuropsychological research have served to validate what I was doing and to help me create a better teaching approach...I am close to finishing a Master's Degree in Rehabilitation Counseling at the University of South Florida where my belief in the mind-body connection is continually affirmed from the emotional research perspective (Leverone. Letter to the Author, 26 September 1992).

This type of eagerness to learn more, to integrate and synthesize the developing knowledge on cognition and the mind/body connection with actor training, seems to be a guiding principle of the Asolo Center Conservatory.

When examining an institution for pedagogical and philosophical changes, again one cannot escape the fact that an institution is only as good as the individuals that teach at it. The philosophical and practical techniques evolve with the actor trainers who enter and exit the faculty body. In analyzing the sampling of institutions selected for this study, this researcher was continually confronted with the fact that change is up to each one of the individuals connected with each one of these institutions, or perhaps

that change may be catalyzed by a single motivator housed at the institution.

Research in neuropsychology came in through the back door of these institutions, blended in with the philosophy and techniques of such individuals as Jerzy Grotowski, Kristen Linklater, Hovey Burgess, and Troup Mathews at Tisch School of the Arts; Judith Leibowitz, Michel Saint-Denis, Harold Stone, and Carolyn Serota at the Juilliard School of Drama; and Ruby Allen, Michael Costello, and Barbara Leverone at the Asolo Center Conservatory of Professional Actor Training. There is no question that neuropsychological research has affected the self-use training for actors at these institutions. Chapter IV of this study discusses the implications of this intercommunication.

> It still amazes me that so little has been published on the subject of neuropsychological research and actor training whereas so many of us are actively using the work in our teaching. (I) am committed to acknowledging the connection between the scientific background of our work and the art of practicing it. (Leverone. Letter to the Author, 26 September 1992).

CHAPTER IV

CONCLUSION: AESTHETIC AND PEDAGOGICAL IMPLICATIONS

> Try to be one of the people on whom nothing is lost (because) the province of art is all of life, all feeling, all observations, all vision (James,"The Art of Fiction").

The above advice offered over a hundred years ago by the author/theorist Henry James embodies the contemporary philosophy and the growing trend toward interdisciplinary endeavors in the area of self-use training for actors. The following chapter is about this synthesis, this integration, about capitalizing on the benefits inherent in an open intercommunication between science and art. It begins with a detailed description of the events that occurred at the 1993 ATHE Conference held in August where neuroscientists and specialists in actor training were brought together for several dialogues about the implications of an intercommunication between neuropsychology and actor training. It continues with a brief update on several of the innovators and institutions explored in this study, discussing imminent plans for expanding their work and their curricular offerings, respectively. It includes a summary of how developments in neuropsychology have influenced actor training and of how self-use training for acting has changed in the past twenty-five years. By focusing specifically on immediate applications of neuropsychological data to actor training, an overview of

the aesthetic and pedagogical implications is explicated. Finally, the study closes with a call for this intercommunication between theatre artists and neuropsychologists to boldly continue as we head into the twenty-first century.

The general theme for the 1993 ATHE conference was: "Pedagogy: Imaging the Future--Theatre Education in the 1990s." This focus offered the perfect setting for addressing the fruitful implications of an open intercommunication between neuropsychology and actor training. On Friday, August 6, 1993, a relatively new trail was blazed in the area of acting pedagogy when acting practitioners and theorists joined up with neuropsychologist Dr. Susana Bloch, to address the "Intercommunication Between Neuroscience and Actor Training: Aesthetic and Pedagogical Implications." Part I of this two-part panel consisted of the presentation of papers by professionals in actor-training who are actively researching this intercommunication. The presentations dealt with a variety of theoretical and practical applications of research in neuropsychology and psychology to actor-training. After a brief overview by the Panel Chair of what the field of neuroscience encompasses and of three significant events which exemplify this budding intercommunication, Ramon Delgado (interviewed in Chapter II of this study) presented an outline of his application of psychologist Dr. John Oldham's text, The Personality Self-Portrait, to character

development. Utilizing sixteen personality styles or "archetypical roles" deduced from the eleven personality disorders listed in the Diagnostic and Statistical Manual of Mental Disorders, Delgado has created an exercise where student actors can first examine their own dominant personality style and then consider the personality style of the character they will portray. In his presentation, he described other pertinent areas of research that he has been investigating. One of these dealt with matching acting technique with psycho-types. "This topic explores matching compatible exercises to students of different perceptual modes as suggested by Carl Jung's psychological types. It is one area that I hope to explore more fully in the future" (Delgado, ATHE Conference, 6 August 1993).

Mark Olsen, a theatre professor from the University of Houston, examined in detail the theories on consciousness and hypnosis explicated by Princeton neuropsychologist, Dr. Julian James, in his text, The Origin of Consciousness in the Breakdown of the Bicameral Mind. These theories are based on the development of the brain hemispheres and their cognitive individuality and interrelatedness as they deal with stimuli. Olsen's discussion keenly adapted James' concepts on spatialization, excerption, the analogue "I," the metaphor "Me," conciliation, narratization, collective cognitive imperative and paralogic compliance to outside stimuli (making hypnotic induction possible) to the acting teacher/acting student relationship.

John Dolan, a doctoral student from the University of Texas at Dallas, addressed ethical questions and inherent contradictions found in the incorporation of somatic disciplines such as the Feldenkrais Method or the Alexander Technique into actor/performer training. Using the ideas of "prominent neuroscientists/neurophysiologists like Roger Sperry, Oliver Sacks, and Francisco J. Varela," Dolan cited the practical and theoretical conflicts that such holistic practices appear to have with "certain dominant modes of theatrical (re)presentation."

> In recent years, many theatre programs have begun to integrate holistic practices derived from a variety of somatic disciplines into their method of actor/performer training. What I wish to address...are the profound epistemological correspondences between somatic disciplines and contemporary neuroscientific theories of action and cognition...My concern (is to) show that both Feldenkrais' biological, process-oriented approach to learning and contemporary neuroscientific theories of action and cognition raise intriguing ethical questions about how and to what end somatic forms of knowledge are to be applied in institutional contexts. My own perspective is that Feldenkrais' somatic lessons and the work of prominent neuroscientists and neuro-physiologists presuppose a view of human nature, that by its very mutability is in radical conflict...I hope (to) stimulate discussion about the practical and theoretical contradictions of using somatic/neuroscientific approaches to learning in the training of actors/performers. Implicit in my approach is the belief that broaching such contradictions in a collective setting will help us obtain a more self-reflexive awareness of the social values which underpin our pedagogical choices and endeavors (Dolan. Letter to the Author, 12 November 1992).

Theatre professor, Paul Kassel, from Bradley University addressed the fundamental elements that unite all

acting performance whether traditional or new theatre, by examining a synthesis of Suzanne Langer's "Mind: An Essay on Human Feelings" with quantum mechanics and the concept of "homeostasis." Working from Langer's concept of "Act-Form," Kassel traced the energy cycle inherent in the performance process. Utilizing the above scientific concepts, he emphasized the universal physiological need for completing that energy cycle from it's initiation, into its climax, and following through to resolution.

Part II of the panel on neuroscience and actor training dealt more specifically with the psycho-physiological method for training actors called "Alba Emoting" (detailed in Chapter II of this study) developed by neuropsychologist Dr. Susana Bloch. Robert Barton, from the University of Oregon, described his own experience with the Alba Emoting techniques (what he referred to as "Breath and Emotion") within his undergraduate liberal arts setting.

> In the liberal arts setting, everybody is dealing with the question, 'What does life mean and how can I live better?' Whenever there is an intersection between the neurosciences and theatre, in terms of the answering of those questions, whenever ancient Eastern wisdom is being verified by Western modern laboratory research--those seem to me very important components in an undergraduate's life...the use of anything you get as an actor in your life outside the theatre is every bit as important as what you get inside the theatre (Barton, ATHE Conference, 6 August 1993).

Careful to emphasize that he was not fully trained in the effector/emotor techniques, Barton outlined several exercises dealing with breathing and emotion that were enhanced by his preliminary knowledge of the method. For example, a long-term assignment that he gives to his second year acting students is a group observation and analysis of a single basic emotion such as Fear. Students are divided into pairs and asked to observe and record one aspect of the Fear effector/emotor pattern. Two students will observe posture, two the face, two the eyes, two the inhalation of breath, two the exhalation and so on. "Then we come back into the classroom and we put it together like a puzzle...piece by piece. What's astonishing to me is that undergraduates without any training really do come up with what the scientists who are well-trained have come up with" (Barton 1993).

One specific aspect of Alba Emoting that Barton actively uses in his acting classes is the "step-out" technique. "The logic behind it is that it virtually disengages you from the emotion because that pattern in terms of posture, muscular tension, and respiration doesn't match any of the powerful, overwhelming emotions" (Barton 1993).

> What I find useful about teaching in this fashion though, is that it gives students a lot of options. Your performance isn't working so it might have something to do with your relationship to gravity,

> so you can adjust that. Maybe your inhalation is fine but you have forgotten the exhalation pattern. Maybe it is muscular tension here. So it is fine-tuning an engine and I think that it is the kind of option an (acting) student really needs" (Barton, ATHE Conference, 6 August 1993).

Michael Johnson-Chase of the Professional Training Program at the University of Wisconsin-Milwaukee also expressed reservations regarding the application of Alba Emoting until he himself had undergone further training. He also mentioned his intentions to attend a two-week intensive training session with Dr. Bloch in Chile during the month of October, 1993. (This intensive training in Chile is addressed later in this Chapter.)

Johnson-Chase, whose research is mentioned in Chapter I of this study, is an instructor of both the Alexander Technique and the Feldenkrais Method. He described his research interests connecting these self-use systems to emotional expression. "I was interested in learning how scientists might think emotions are communicated...and I was more interested in studies that illuminate how to get there (emotionally) than what it meant when an actor had decided he had" (Johnson-Chase, ATHE Conference, 6 August 1993). He described the impact that Dr. Bloch's research had on him when he first encountered it in a literature search.

> I thought even then that with such an approach that it didn't matter whether a teacher of actors agreed with her thinking on what the primary emotions were or even what the respective patterns

> might be, because her work none-the-less, clearly offers a functional way to train actors toward greater emotional flexibility, on a level that directly addresses the fundamental plasticity and consequent trainability of the nervous system. So it was a way of getting into something that was certainly accessible to me through the work that I did" (Johnson-Chase 6 August 1993).

Not only was he impressed by the scientific substantiation of her work, but he was also confronted by a crucial issue related to emotional expression and the self-use systems he had been using with his acting students. He suggested that the data that Dr. Bloch had gathered regarding universal facial/postural/respiratory patterns for specific emotions may indeed call into question the traditional emphasis on neutrality, alignment, and relaxed availability inherent in "Good-Use" which is a fundamental objective of the Alexander Technique. "The Alexander theory is that an actor can experience an expression of emotion more deeply and more accurately when that actor is using the Technique...and lengthening or expanding into movement. Conversely as 'Good-Use' deteriorates emotional sensation and its expression diminishes in proportion" (Johnson-Chase 1993). In weighing this dilemna of "Good-Use" rooted in this self-use system versus Bloch's scientific theories and techniques of emotional expression, Johnson-Chase was faced with his own history of advising students to release tensions and neutralize breath in order to express emotion more fully. Bloch's research clearly contradicted this "prevailing tenet" of movement and voice teachers.

Johnson-Chase dug further into the research as this contradiction became more clear to him. He found that there was actually "scant evidence for this view that emotion is both experienced and expressed at its deepest level in a state of unfettered neutrality" (Johnson-Chase 1993). Quoting from Feldenkrais' Elusive Obvious, he revealed Feldenkrais' belief that emotional expression was connected to "corresponding personally-conditioned patterns of muscular contractions without which those emotions would not exist." So although Feldenkrais believed that specific muscular tension, posture and breath were required for emotion, it was an idiosyncratic, "habituated" experience and not of a universal nature as Bloch's work assumes.

> "Alba Emoting" suggests that actors are right to equate states of tension they habitually use in expression of emotion with that emotion. I just think that is so critical for those who work with actors to grapple with. It brings relaxation and the Alexander Technique into question...it brings a lot into question (Johnson-Chase, ATHE Conference, 6 August 1993).

In discussing this conflict of self-use training versus the Alba Emoting effector patterns, Johnson-Chase stated that Bloch's work is a definitive example of the James-Lange theory established in 1884. "James claimed that instead of the outwardly apparent signs of emotions such as facial expression, postural and gestural configurations, and visceral reactions being the result of some prior neural signal, our feelings of these bodily

changes as they occur are the emotion" (Johnson-Chase, "Neuroscience and Actor Training", ATHE Conference, 1993). Johnson-Chase expressed a sincere concern regarding the traditional use of Alexander and Feldenkrais in self-use training for actors as a result of his exploration of Bloch's Alba Emoting techniques and related scientific research. To him, this is an area for more intensive investigation on the part of specialists in actor training and neuroscientists alike.

> I may be teaching my students how to access some emotional states while I am also teaching them to diminish the experience of other emotional states if I am applying the Alexander Technique in the conventional way...Actors need to have full access to the entire palate of human emotions, no matter how dark or potentially frightening an emotion may be. An actor's job is to explore what it is to become more human, if that means using oneself poorly as well as using oneself well in order to have a genuine and authentic access to the full range of human emotions and their expression, then so be it (Johnson-Chase, ATHE Conference, 6 August 1993).

Claudia Anderson, from Southern Methodist University, addressed Alba Emoting, dealing specifically with its impact on voice work. Like Barton and Johnson-Chase, her personal experience with Alba Emoting has been minimal, but she expressed her keen interest in the application of scientific research to actor training in general.

> I have a positive attitude toward this dialogue between scientific research and theatre practice. I always wanted to be a biologist and practitioner at the same time. I have always been interested in both of those. I think that we learn from the research about the nature of human behavior. I think that insights from science inform our work and enlarge the possibility of expression...There

> is specific research which I think supports what we have been using as artists for a long time. I believe that research that challenges our assumptions and makes us take a new look at what we're doing is important (Anderson, ATHE Conference, 6 August 1993).

In the beginning of her presentation, Anderson gave an account of the organic voice-work that she has learned from her mentor, Kristen Linklater (cited in Chapters I and III of this study). After detailing the "sound anatomical and psycho-physical principles" inherent in the Linklater system, she noted that the primary objective of this work is to "release habitual controls of tensions, to expand the range of expression," and most importantly, "to shift from external controls to internal psychological controls." She raised some pertinent practical and theoretical questions regarding organic connection to breath and text versus external manipulation of face/posture/breathing (outside in). Her main concern was with the apparent contradiction or conflict between the controlled breath-work of Alba Emoting and the released breath-work grounded in Linklater. Could these outside-in and inside-out approaches co-exist or converge, or would they work in contradiction with each other?

> In Kristen's words, the idea of the breath work is, "that conscious control of the breath will destroy its sensitivity to changing inner states and severely curtail the reflex between breathing and emotional impulse." You can see where I am coming from is vastly different from what at least I am reading from Susana's (Bloch) work (Anderson, ATHE Conference, 6 August 1993).

Her observations of the usefulness and effectiveness

of Alba Emoting for actor training were motivated by her own brief experience with the technique in the "Breath and Emotion" workshop at the 1992 ATHE Conference in Atlanta. She cited "clear identifiable emotions" in herself and an "appearance of subjective experience." She found that this work would allow actors to select from nature, supporting the notion that acting is a series of choices--a selective process. She envisioned that Alba Emoting techniques could be quite useful for the actor's emotional preparation, enlarging the emotional impulse and the emotional vocabulary. "Perhaps the actors you are working with are more available to certain emotions than others and this work might make them more available to the particular emotions that they don't have access to" (Anderson 1993). Finally, Anderson cited the value of the "Step-Out" technique and the prescribed emotor patterns for the therapeutic benefit of the actor, reducing or negating the possibility of "Emotional Hangover."

Anderson concluded by suggesting areas for further clarification and future application. These areas addressed the potential conflict or connection between the emotional breath rhythms found in Alba Emoting techniques and the rhythms inherent in verse forms, and the impact that preconceived emotional scoring may have on organic interpretation of text. "Kristen would say that language should drop in and you impregnate the word. Then the word comes out mixed somehow with you. To me, if you score the

text before that happens then you are putting something on it" (Anderson 1993). Anderson noted that until these issues were dealt with she would not "dare to take this back to work on it with (her) students." She suggested that the dialogue between the voice community, the movement community, and Susana Bloch's team of researchers remain open. "What does she need from us to continue the work, and what do we need from her? I believe the real question is whether Alba Emoting actually makes better actors" (Anderson, ATHE Conference, 6 August 1993).

As respondent, neuropsychologist Dr. Susana Bloch emphasized the importance of intercommunication between science and theatre. "We have all these territories. The more we get together, the more we talk together and work together, maybe we can pull these things together in the very same way" (Bloch, ATHE Conference, 6 August 1993). As mentioned in Chapter II of this study, she believes that scientific findings such as Alba Emoting can be of great value to actor pedagogy. "If we are people on the street, it doesn't matter if we don't know what we are really feeling, but if you are an actor you had better know about it" (Bloch, ATHE, 1993). Her closing remarks included a demonstration using co-presenter, Mark Olsen, of exactly how one could combine the universal emotor patterns with another acting exercise.

This beginning attempt at interchange between neuroscience and actor training proved to be quite successful.

Attendance at both panels was outstanding with members from both fields represented. Presenters offered intriguing questions, and the response revealed that this is an area of continuing interest and promise. The aesthetic and pedagogical questions posed by both presenters and observers led officials of the Acting Forum of the ATHE to arrange for another two-part panel presentation for July 1994. The panel entitled " Alba Emoting and the American Actor-Teacher" will address the impact of incorporating Alba Emoting techniques into American actor training curriculums. The first part of the panel will involve presentations by the four American acting specialists who underwent the two-week intensive training in Alba Emoting last October in Chile. The second part will be a "Think Tank" involving an open dialogue with Dr. Susana Bloch and session participants. The questions dealing with practical, technical, and ethical issues can be dealt with more thoroughly in this open atmosphere.

Another example of the keen interest in this meshing of neuropsychology with actor training was the outstanding response to an impromptu workshop in "Alba Emoting" at the 1993 ATHE conference. After thirty-seven participants were admitted, several interested specialists in actor training offered to pay extra to be allowed into the room. As a result, a full-day workshop in Alba Emoting has been scheduled for the 1994 ATHE conference in Chicago. This

workshop entitled "Comprehensive Exploration of Alba Emoting: A New Approach to Breath and Emotion in Actor Training" will offer a deeper look at Bloch's Alba Emoting techniques, and will serve as a feeder for the more intensive two-week training seminar scheduled to follow the ATHE conference. Similar in content to the training in Chile, this Chicago training is entitled "Alba in America." The training seminar which will be lead by Dr. Bloch and certified Alba instructor, Joan Povlsen, will be limited to a select number of participants, equally divided between specialists in actor training and professional actors.

Roxanne Rix, a professor of acting at Villanova University, attended the Alba Emoting training in Chile along with Michael Johnson-Chase and has helped to propagate an interest in this integration of neuro-psychology and actor training. "We all came back from Chile amazed--and are only more so as we continue to work with Alba" (Rix. Letter to the Author. 8 April 1994). In addition to her active participation in the preparation for the upcoming 1994 ATHE panels and workshops on Alba Emoting, she has recently published an article entitled "Alba Emoting: A Preliminary Experiment with Emotional Effector Patterns" in the September (1993) issue of Theatre Topics which was devoted primarily to Bloch's new offering to performance training. In her description of Alba Emoting, she identifies the "approach as a logical

extension of known psycho-physiological techniques, as well as...a scientific clarification of what many acting teachers have been doing intuitively for years" (Rix 139). Rix's article describes her preliminary attempts to explore Alba Emoting techniques with a group of volunteer actors. Her experimentation followed only a short workshop she had taken with Dr. Bloch and though she was excited by what she experienced, she remained skeptical. She wondered if the Emotor patterns would work without the dynamic personality of Dr. Bloch, and without phrases which relay the experimenters' expectations of the subject's emotional response. "Wondering if the technique would work without the presence of the creator, I constructed a small test...I tried to keep my language and demeanor as neutral as possible and the physical manipulations very small. I did not include the third phase, facial manipulation, at all" (Rix 140). Rix tried to follow the model that Bloch had explicated in her published writings about Alba Emoting, but removed facial expression in order to decifer the power of the breathing and postural effector patterns on the recreation of pure emotions. She reveals the results of her experiment in the following passage:

> The power of the feelings and vividness of the images evoked in this brief exposure to just part of the ALBA techniques were impressive and suggested to me that the breathing patterns, particularly, have strong potential as a tool

> for emotional work...Before beginning to employ ALBA, I would want to learn a great deal more, not only about possible outcomes, but also how to avoid leading students into intense emotional territory for which they are unprepared; what to do when and if that happens; how to teach the technique so that students feel empowered rather than manipulated; how to work with students who can't reproduce breathing patterns; how (or whether) to integrate the technique into existing approaches to emotion, including memory-based ones. These are but a few of the questions raised by this new methodology. I am personally convinced that ALBA EMOTING is worth further exploration (Rix 144).

THE FUTURE OF SELF-USE SYSTEMS IN ACTOR TRAINING

In addition to these landmark meetings addressing the aesthetic and pedagogical implications of an inter-communication between neuropsychology and actor training, several panels and workshops at the 1993 ATHE conference were devoted to the issue of "self-use", including self-use systems like the Feldenkrais Method and the Alexander Technique. One such panel, "Feldenkais and Alexander: Are They Mutually Exclusive?" was chaired by Michael Costello, assistant professor of acting at the Asolo Center Conservatory (examined in Chapter III of this study). The motivation behind proposing this panel addressing these two self-use systems was rooted in an apparent territorialism which has caused practitioners of either system to "align themselves in one camp or the other. (They) don't ever quite cross over. What we're doing is getting in our little boats and going across to the other fortress"

(Costello, "Feldenkrais and Alexander", 6 August 1993). The panel's presenters consisted of Sarah Barker, an expert in Alexander training and a professor of theatre at the University of Pittsburgh, Michael Johnson-Chase, a Feldenkrais practitioner and an Alexander teacher in the Professional Actor Training Program at the University of Wisconsin-Milwaukee, and Barbara Leverone, a Feldenkrais practitioner at the Asolo Center Conservatory of Professional Actor Training. Both Sarah Barker and Barbara Leverone detailed the unique philosophies and techniques of their respective self-use disciplines. Barbara Leverone presented a detailed lecture/demonstration with video excerpts of the "Animal Exercise" (described in Chapter III of this study) with Michael Costello for his production of "The Homecoming."

The most intriguing presentation on these different self-use systems was by Michael Johnson-Chase. As a specialist in both areas, he confronted the idea that these are mutually exclusive systems. "Thinking that they are mutually exclusive is like thinking one is better than the other." Johnson-Chase then went on to describe an analogy of how Alexander and Feldenkrais fit equally into the field of theatre. He likened the pair to Freudian versus Jungian approaches to clinical psychotherapy. Though they embody distinctly different doctrines and clinical techniques, they both still fall under the larger category of Psychology.

"Now it is very common among the best and the worst of clinical therapists to be eclectically trained and eclectically organized...but whether a therapist's approach is based more on Jung's work or on Freud's work, that person is still a therapist" (Johnson-Chase, "Feldenkrais and Alexander," 6 August 1993). Johnson-Chase attributed a lot of the territorialism of practitioners of Alexander or Feldenkrais to the lack of a larger category for these self-use systems. "Few people in theatre quite know where these methods belong. Are they under movement training? Are they for voice training? Are they for character work? This absence of a hallmark or umbrella leaves us to think of them as separate undertakings, even separate fields, isolated and probably in competition with each other" (Johnson-Chase, "Feldenkrais and Alexander," 6 August 1993). He suggested that the favorite umbrella for these areas is the sub-category of voice and movement pedagogy called "Self-Use Training." Johnson-Chase spoke at length about the concept of "Self-Use" as both functional and descriptive. To Johnson-Chase, the heading of "Self-Use" for Alexander and Feldenkrais was closer to a useful vision, providing a view of them as complementary rather than contradictory. He defined "Self-Use" as "biologically-efficient movement." Certain factors such as gravity and our common physiology make "self-use" universal.

> We are all subject to the same laws of efficiency and effectiveness when it comes to moving ourselves around on the surface of the earth. It is my contention that both Alexander and Feldenkrais shared similar views of what biologically effective movement is and although they used a different vocabulary, a penetrating look at their work and their ideas reveal startling similarities ...A question (we) might ask is to what depths do these methods fill in the training of an actor which isn't addressed by other means? (I'd like) to lead into some considerations that both methods have in common--such as the education of our sensory life and therefore our emotional life, refining our kinesthetic sense so we can become evermore physically intelligent, and abetting the membrane between our imagination and our ability to be responsive, thereby increasing the range of our expressive behavior (Johnson-Chase, "Feldenkrais and Alexander, 1993).

To Michael Johnson-Chase, both methods address the self-use needs of the actor, and practitioners in each method clearly agree on what "biologically-efficient movement" is when they see it. As mentioned in Chapter I of this study, the difference between the Alexander Technique and the Feldenkrais Method is a matter of focus on thought versus physical manipulation. Practitioners of Alexander focus on thoughtful intention or "deliberate conscious awareness." Practitioners of Feldenkrais focus on the way we learn as infants. "You probably didn't think about the specific attributes or the necessary sequence that would lead you to walking--but you sure succeeded in figuring out how to do it. Your process was a matter of fulfilling moment to moment needs through moment to moment discoveries" (Johnson-Chase, "Feldenkrais and Alexander", 1993). Using a series of slides for visual support, Johnson-Chase

defended the view that although the two systems work with different methodologies, they do neurologically and kinesthetically affect the actor's self-use in the same way. "So in my mind, both methods seek the same outcome and that outcome is the most effective, good movement possible in any given endeavor, whether it be seducing Lady Anne, holding a spear, or singing a medieval hymn" (Johnson-Chase, "Feldenkrais and Alexander", 1993).

The willingness of specialists in actor training to openly explore neuroscientific research for answers to their aesthetic and pedagogical questions is demonstrated by the aforenoted ATHE Panels and Workshops, by the 1993 "Collegium for Creativity" sponsored by the ATHE Theatre in Liberal Arts Forum (referred to in Chapter I of this study), and by the innovators and representative institutions selected for this study. Now, more than ever before, specialists in this field receive professional and personal credit for their creative work and research exploring the "physiological and psychological impact" on performers and on audiences, for investigating "therapeutic applications," for experimenting with "theatre as a laboratory for research in human psychophysiology," and for analyzing "the biology of performance." (NAST Publication 1993).

The growing interest in such intercommunication and collaboration is also demonstrated by the large numbers of professionals and acting programs exploring new

techniques like those of Dr. Susana Bloch (et al). During a recent tour of the Asolo Center Conservatory facilities in Sarasota, Florida, Barbara Leverone noted the growing number of acting programs who are actively exploring the application of neuroscientific and mind/body research in their curricula. She described the activities of several programs, including Asolo, University of Wisconsin-Madison, and Northwestern University, that are currently wrestling with the task of synthesizing the type of research cited in this study into their acting courses. For example, Leverone noted that the first item on the agenda for the Asolo faculty retreat this Spring is team-teaching and interdisciplinary endeavors, such as meshing the Feldenkrais training with the Meisner work in acting classes. As acting programs continue to tighten their economic belts and move toward the integration of various disciplines in actor training, the ongoing discoveries in neuropsychology can be used to support a more synergic pedagogy.

EXPANDING USE OF NEUROPSYCHOLOGICAL RESEARCH IN RELATED FIELDS

As mentioned in the Introduction to this study, research in neuropsychology and learning theory has touched the world on a much larger scale than ever before. This is revealed through the growing number of fields which are actively utilizing the information

in their own work. Articles such as "In Music, The Whole Brain Gets Involved" published in The Boston Globe in November of 1992, or "Smile and Your Brain Smiles With You" published by The Blade in January of 1994 reveal a growing interest in the application of this research to our everyday lives. The latter article reveals information to the "lay-person" which is strikingly similar to the data unfolded by Dr. Susana Bloch. The focus of this article is specifically on facial expression, utilizing the research of neuropsychologist Paul Eckmann of the Human Interaction Laboratory at the University of California at San Francisco. It cites the results of an experiment dealing with facial expression and emotion, recently published in the journal of Psychological Science. "Our results suggest it may be possible for an individual to choose when to generate some of the physiological changes that occur during a spontaneous emotion--by simply making a facial expression...'smile therapy' could be on the way" (Schwartz 23).

There still is a number of experts who do not believe that research in neuropsychology is anywhere near the stage for application to other fields. Dr. Jimmie Edwards, a chemistry professor at the University of Toledo, insists that the evidence is still too conflicting regarding brain cognition, lateralization, and the mind-body connection to be utilized in other fields. He insists that the data

from experimentation is not definitive and therefore, should not be trusted. Dr. Brust, a neuroscientist from the Department of Neurology at Columbia University, participated in the "Music and the Brain" symposium held in Chicago in 1992. He has struggled with the application of neuroscientific research to music and found that such application to theatre may be even more difficult.

> Music alone is hugely problematical, because it is so many different things--linear and simultaneous, analytical and emotional--and modern studies of musical processing have (wisely) focused on specific aspects such as timbre. To expand such analysis into something as broad as theatre seems to me almost definitionally impossible" (Brust. Letter to the Author. 14 December 1992).

In the face of such conservative opinion, professionals in clinical psychology, in gestalt therapy, and various related fields continue to actively explore the potential of such application. One outstanding example of this application is found in the work of Ilana Rubenfeld. A graduate of Juilliard's School of Music, a trained practitioner in both the Alexander Technique and the Feldenkrais Method, and a student of Fritz and Laura Perls in Gestalt Therapy, Rubenfeld has actively followed developments in neuropsychology and developed from this information a therapy called "Rubenfeld Synergy." Her work synthesizes the somatic disciplines explored in this study with the current data on the brain and the mind/body connection.

> New discoveries from the last part of the twentieth century point toward interconnections

> between many fields of science and art. Research in each separate field demonstrates interrelationships which acknowledge that people must be treated through an integrative (not specialized) approach as whole human beings (Rubenfeld 59).

"Rubenfeld Synergy" works from the principle that the body, mind, spirit, and emotion of a person are interconnected. It synthesizes the physical manipulation through non-invasive touch found in both the Alexander Technique and the Feldenkrais Method, the Functional Integration and Awareness Through Movement techniques of Feldenkrais, and the verbal/intellectual techniques traditional of Gestalt Therapy.

> Many somatic therapists and educators deal with the body-mind as it relates to the inner and outer body image. Most use touch to reclaim physical functioning, to improve posture and balance in relationship to gravity, to change thinking patterns through movement, and to translate their teachings. However, they bypass the limbic brain, the home of the emotions, and concentrate on the neocortical brain, the site of the thinking process (Rubenfeld 59).

Rubenfeld believes that by combining these techniques with a verbal dialogue, the patient experiences a greater therapeutic effect by engaging the limbic system directly.

> Since the sixties, we have witnessed the flowering of neuroscience, cognitive science, and psycho-neuroimmunology. Now that the concept of the body-mind has firmly taken hold, "energy" medicine is emerging as the next frontier (Rubenfeld 59).

Several specialists in theatre and actor training have been certified in "Rubenfeld Synergy" specifically to incorporate it into their work with actors. Kay Miller of

the Somatic Institute in Pittsburgh has incorporated her training in Rubenfeld Synergy into her "improvisational actor training since 1976" (Miller. Letter to the Author, 16 June 1992). Key to her exploration of the "expressive art" of drama are regular presentations addressing the "latest findings in the fields of neuroscience, quantum mechanics, and psychoneuroimmunology...Students confirm the inner connection of feelings and physical process" (Miller. Brochure on CoreSomatics, 1992). Bernie Coyne, founder of the actor training program at the University of Toledo's Department of Theatre, Film, and Dance, has actively applied his background in Rubenfeld Synergy to actor training for over ten years. One of his courses, entitled "Synergy" is a synthesis of the Rubenfeld Synergy with several mind/ body systems including Alexander, Akido, and Feldenkrais. "It's all part of the process to heighten the awareness of actresses and actors" (Coyne, Course Description 1993).

The University of Toledo's Psychology Department has also been impacted by the current interaction between neuropsychology and actor training, especially in the area of emotion studies. During a recent dialogue with these U.T. specialists in cognitive and clinical psychology, the issue of shared research arose. Steps in collaborative research with the theatre department were recently taken by doctoral students in psychology to explore the impact of emotion on group decision-making. For example, doctoral

student Rima El-Hajje, is currently using volunteer acting students to explore the concept of "Stealing Thunder" on group interaction.

During this dialogue, Dr. Susana Bloch's research on emotion was compared to the research of Paul Eckmann. Questions arose regarding human conditioning as opposed to spontaneous and subjective neurophysiological engagement. For example, one psychologist suggested that perhaps an actor could become conditioned to Bloch's emotor effector patterns after repeated use. He suggested that the Alba Emoting techniques could end up following the same "robotic" path that Delsarte's system of expression took at the turn of the twentieth century.

At the end of this recent interchange of U.T. acting teachers with U.T psychologists, several suggestions for empirical research comparing Alba Emoting techniques with the emotional memory work of Stanislavksy were offered. In addition, several cognitive psychologists proposed empirical research applying Alba Emoting to the psychology laboratory, exploring its potential for therapy. This recent interchange between acting theorists and cognitive psychologists can be considered a model for the future interaction and collaboration proposed in this study.

> What is art? Whence does it come? What does, or should it do? Stirred by this curiosity many

> creative artists have penned theories and manifestos expounding upon the metaphysics, psychology, and aesthetics of creativity...The natural sciences formally draw the distinction between theoretical and experimental scientists: theorists speculate about nature; experimentalists test the theorists' speculations empirically. As theorists are to creative artists, free to imagine, to discover, to invent, so experimentalists are to performers: both perform actions, artistically and experimentally (Allen, "Educating Performers" 204).

As this study has demonstrated, the paths of research and exploration in neuroscience and actor training appear to be converging and intertwining as we head into the twenty-first century. The focus in the acting laboratory has become one of synergy, of integration, of inter-disciplinary content, of systems. This integrative focus can be attributed in part to the findings uncovered in the area of brain cognition and the mind/body connection. Paul Kassel, a theatre professor from Bradley University, offers a good example of this new integrative focus in his lecture/demonstration entitled "Performance Synergy: Integrating Voice, Movement, and Acting in the Classroom and Curriculum" scheduled for the 1994 ATHE conference in Chicago. Kassel states that a "synergistic approach to actor training challenges the very notion of separate instruction in voice, movement, and acting....A holistic approach does not prejudice the performer towards a theatre dominated by the verbal, physical or psychological, but instead enables the performer to integrate all three as necessary" (Kassel, "Performance Synergy," January 1994).

Kassel suggests that the move toward integration and synergic training is due not only to growing concerns about budget and about diminishing faculty-resources, but also to the recent research on the mind/body connection and on learning.

All areas of actor training seem to have been impacted by this trend toward synergic integration and self-use training. In the area of voice, a long-term commitment to study learning processes, ways of knowing, and multiple intelligences has been voiced by members of the VASTA (Voice Teachers) organization.

> Terms like psycho-physical awareness, bio-feedback, auditory perception, holistic, synergistic, etc. bring to mind the myriad of components that make up the whole voice/speech work...The Voice and Speech Trainers Association (has) provided an ever-widening menu of strategies for teaching/learning. This is one aspect of the present that must and will remain a part of our future" (Kur 7).

An article written by voice theorist/trainer, William Weiss (1992), cites the value of the Feldenkrais techniques, addressing established neuromuscular patterns and tapping the motor centers of the brain through awareness exercises that deal specifically with vocal production. Weiss suggests that standard vocal training has become a series of acting exercises and improvisations, doing little to alter or train the voice. He suggests that voice training of the future should seek to "enlarge the possibilities of vocal function in such a way that the new

functioning becomes automatic." In the tradition of Feldenkrais, Weiss outlines a series of "Awareness Through Movement" exercises which address habituated vocal responses.

> In the same manner the brain can be educated to act in order to speak louder in an efficient way, to vary pitch when that is needed, to change larynx functioning quickly, to allow the jaw and the tongue to form different configurations effortlessly...It is possible to expand voice and speech production by increasing the movement potential of each body part that participates in speech (Weiss 102).

Weiss' vocal pedagogy focuses on self-use. He uses slow, minimal movements and minimal phonation to disconnect excess tension and sympathetic participation of unwanted body parts. Utilizing the current research dealing with the mind/body connection, Weiss suggests that a student can learn efficient vocal technique to warm-up with little or no real phonation. Fundamental to all of this is awareness.

Another area that has expanded as a product of this intercommunication between neuropsychology and actor training is "theatre and therapy." The psychological health of the performer has recently been an issue of great concern by acting specialists as focus on "Self-Use" has expanded. This concern has recently been demonstrated by a 1993 ATHE panel on "Theatre and Therapy." In this panel, specialists in actor training such as Kristin Linklater and Robert Barton conducted a dialogue with

neuropsychologist Dr. Susana Bloch, and psychologist Dr. Robert Kest about the psychological impact of exploring heightened levels of emotion on the performer. By examining the mental and physiological changes that occur with each emotion, these experts addressed the destructive impact of "residual shame" that often occurs with emotional expression in performance. According to Dr. Bloch, this "residual shame" occurs when the performer links a negative emotion with other feelings such as fear or anxiety of exploring extreme emotional states. Suggestions for dealing with these extraneous feelings of shame were offered through the application of the "Alba Emoting" techniques, specifically dealing with "Stepping Out." Richard Geer, author of the article, "Dealing With Emotional Hangover," also addresses the psycho-physiological impact on the emotional health of performers exploring heightened emotions on a daily basis. Geer identifies an ongoing therapeutic problem for most actors who struggle to "shake" the emotional power of the characters that they are playing. He suggests that "Alba Emoting" techniques may offer a solution to this "emotional hangover" problem.

> Psychologists, social scientists, psychodramatists, all agree that the single most powerful means of preventing damage to individuals engaged in any role-playing situation is awareness. Role players need to know in advance how the performance process may impinge on their ordinary lives. We, as instructors of acting,

> need to teach performance as a holistic discipline, a cycle that has its time of productivity and rest....Bloch's suggestion for dealing with the long-term post-performance problems is much simpler. For actors trained in Alba Emoting, the use of effector patterns and the step-out technique insures that the performance cycle is completed each time the actor walks offstage. If this in fact happens, further cool-down would be unnecessary; re-integration would be complete without aftermath problems. Such a result would lend increased worth to Alba Emoting as a technique for training actors. (Geer, "Emotional Hangover" 156).

Geer takes issue with Bloch's theories and techniques used for therapeutic purposes. In his article, he suggests that perhaps the performer can get so engulfed in the heightened emotional experience that he/she is unable to "Step-Out" as Bloch's research proposes. He concludes that further investigation is called for before therapeutic application of Alba Emoting techniques can be fully trusted.

SUMMARY

In summary, the consensus of all the innovators and representatives of the institutions selected for this study is that integration of the mind/body philosophy and of the self-use systems (such as Feldenkrais and Alexander) to aid in the actor's "expressive-use" has been around for a long time. The neuroscientific research in brain cognition and learning done in the 1960s helped to reinforce and substantiate what they already had suspected. All those interviewed agreed that an open intercommunication would be beneficial to those in the area of actor training,

but only if the neuroscientific techniques are integrated with acting pedagogy in a collaborative manner and not imposed.

Based on the various examples cited in Chapter IV of this study, the aesthetic and pedagogical implications of this intercommunication between neuropsychology and self-use training are quite clear. What has been revealed by neuropsychologists about learning and the creative process is being and can be actively utilized by those in the performing arts. As mentioned earlier, the trend in higher education for the twenty-first century is that of integration and enhanced interdisciplinary endeavors. The fields of neuropsychology and actor training have already begun a sharing of resources and inquiry for mutual benefit. This interaction will continue to alter the nature of self-use training as more discoveries regarding cognition, emotion, and the mind/body connection evolve.

Perhaps with the very recent dialogue between neuro-psychologists and specialists in actor training, a new practice of open collaboration can be established. An unconditional sharing of research, data, and talent can only expand our collective knowledge of the psycho-physiological processes of the creative performing artist. Perhaps it can also teach us how to facilitate the greatest expression of his/her talents. Such interaction may also require and/or lead to an aggressive re-evaluation of

actor-training curriculums in the United states, and to pedagogical development of actor trainers (i.e., informing and training the acting teacher).

A graduate professor at Michigan State University warned that perhaps this "piecing apart," or dissecting of the creative process in acting technique (found in Dr. Susana Bloch's work) could lead to the replacement of Science for Art in theatre. It was in response to comments such as the famous Olivier's "Just act my friend" that people like Delsarte, Stanislavsky, Meyerhold, Strasberg, Grotowski, Linklater, Lessac, Alexander, Feldenkrais, etc. were reacting. True "tapped genius" like Lawrence Olivier's can be singled out as the exception. These "scientists of art" were addressing the multitude of struggling, stifled and stifling actors with which they had to create art. These "scientific" methods (often drawing from the ever-changing and ever-growing fields of neuroscience and psychology) provided pathways toward a more truthful, innovative, spontaneous, holistic and creative approach to acting. The "science" was and can be the stair-step to artistic freedom and full expression.

APPENDIX I

APPENDIX I

Sample Interview Questions for Selected Innovators In Actor Training.

1) Please identify yourself and your position or role in Actor Training.

2) In what way has recent research in neuropsychology or neuroscience, impacted the development of your actor training system?

3) What are the basic tenets of your system? Has it changed at all from the original conception? Why?

4) What are specific requirements for self-use in this actor training system? Why?

5) What do you think about future intercommunication between actor training and neuroscience?

6) Do you see parallels between your work with its scientific validation and the work of earlier innovators in actor training?

7) What actor training systems have influenced your work?

7) What are your thoughts regarding self-use?

8) Can you identify successful actor training programs? Why did you choose these?

[PLEASE NOTE: THESE ARE GENERAL QUESTIONS. EACH INTERVIEW WILL BE SPECIFICALLY DESIGNED WITH POINTED QUESTIONS WHICH ADDRESS THE UNIQUE APPROACHES AND QUALITIES OF EACH INDIVIDUAL AND INSTITUTION IN THIS STUDY.]

APPENDIX II

APPENDIX II

Sample Interview Questions for Representatives from Selected Institutions

1) Please identify yourself and your position or role in this actor training program.

2) Are you familiar with recent developments in neuro-psychology?

3) What are the principle objectives of your actor training program?

4) Describe the content of your introductory courses in theatre training for actors. What is the motivation behind these choices?

5) When did you incorporate the Alexander technique into your actor training curriculum? Feldenkrais Method? Other self-use systems? Why?

6) Has recent research in neuropsychology impacted the evolution of your actor training curriculum?

7) What do you think about the future of inter-communication between actor movement training and neuroscience?

[PLEASE NOTE: THESE ARE GENERAL QUESTIONS. EACH INTERVIEW WILL BE SPECIFICALLY DESIGNED WITH POINTED QUESTIONS WHICH ADDRESS THE UNIQUE APPROACHES AND QUALITIES OF EACH INDIVIDUAL AND INSTITUTION IN THIS STUDY.]

APPENDIX III

APPENDIX III

Permission form to Use Excerpts from Taped Interview Transcriptions in this Dissertation

I grant permission to Pamela D. Chabora to utilize the transcription or portions of the transcription from this taped interview with me in her dissertation describing the application of research in neuropsychology since 1966 to self-use training for actors.

_____ _____

(Interviewer) (Respondent)

_____

(Witness)

APPENDICES IV

A. SIGNIFICANT NEUROSCIENTIFIC THEORISTS AND THEORIES CITED IN THIS STUDY *

1966 1970 1975 1980 1985 1990 1994

1966 Michael Gazzaniga (41)
1966 Jerre Levy: Hemispheric Specialization (42)
1966 Roger Sperry: Pioneer in Hemisphere Research (41)
1970 Moshe Feldenkrais: Body Therapy brought to the U.S. (84)
1973 Howard Gardner: Art and Brain Research (48)
1975 Wilder Penfield: Localization of Hemisphere Function (35)
1978 Marcel Kinsbourne: Cross Functional Coordination (55)
1978 Alfred Kuhn: Theory of RSVR (43)
1978 Benjamin Libet: Consciousness and Voluntary Action (52)
1978 Stefi Weisburd: Merging Art and Science (51)
1979 Frank Pierce Jones: Neuropsychological Research on the the Alexander Technique (78)
1979 Gary Schwartz: Visual Learning and Biofeedback Studies (59)
1980 Paul Eckman: Neuropsychology of Emotion (130)
1985 Geoffrey Samuel: Multi-Modal Framework (56)
1985 Avraham Sweiger: Hemispheric Dominance (46)
1986 James McClelland: Parallel Distributed Processing (57)
1986 Robert Ornstein: Multimind (52)
1986 Pavel Simonov: Ideomotoric Action (99)
1987 Susana Bloch: Neuroscientific Research on Emotion (103)
1987 Howard Gardner: Transystemic Mental Skills (51)
1990 Larry Goldfarb: Neuropsychological Research on the Feldenkrais Method (23)
1990 Itzhak Harpaz: Assymetry of Hemisphere Function and Creativity (48)
1990 Lynn Nadel: Multiple Retrieval Routes (57)
1990 Psychoneuroimmunology (58)
1991 Robert Ornstein: Evolution of Consciousness (51)
1992 Michael Gazzaniga: Interhemispheric Interaction (53)

* Numbers in parentheses indicate the location of initial reference within the text.

B. SIGNIFICANT SELF-USE SYSTEMS AND ACTING THEORISTS CITED IN THIS STUDY

1966 1970 1975 1980 1985 1990 1994

1931 Antonin Artaud: Cabalistic Theory (4)
1932 F.M. Alexander: The Use of the Self (85)
1966 Richard Schechner: On Self-Use in Acting (71)
1968 Jerzy Grotowski: Poor Theatre Techniques/Via Negativa (70)
1969 Judith Liebowitz: Alexander Technique in Actor Training (79)
1970 Lulu Sweigard: Ideokinesi s (93)
1972 Elliott Eisner: Art and Cognition (9)
1976 Kristin Linklater: Freeing the Natural Voice (70)
1977 Jack Clay: Self-Use Theories (67)
1978 Irmagard Barteneiff: Barteneiff Fundamentals (95)
1979 Betty Edwards: Application of Hemisphere Research to Art (9)
1980 Eurythmics in Actor Training (96)
1981 Arthur Lessac: Body Wisdom (114)
1986 Ramon Delgado: Application of Hemisphere Research to Actor Training (104)
1986 Richard Groetzinger: Hemisphere Research and Actor Training (104)
1988 Andrea Shindler: Art and Brain Symposium (102)
1989 Eugenio Barba: Biological Research on Actor Training (72)
1989 Irene Dowd: Visualization and Mind/Body Research in Self-Use (94)
1990 Jean-Marie Pradier: Biological Research on Performance (71)
1992 William Weiss: Feldenkrais in Voice Training (231)
1993 Susana Bloch: Alba Emoting (123)
1993 Nicholas Hall: Research on the Immune System Using Method Acting (59)
1993 Michael Johnson-Chase: Self-Use Systems and Neuroscience (92)
1993 Michael Purcell: Feldenkrais in Actor Training (194)
1994 Barbara Leverone: Feldenkrais in Actor Training

BIBLIOGRAPHY

BIBLIOGRAPHY

BOOKS

Alexander, F.M. Constructive Conscious Control of the Individual. New York: Metheun and Co., 1924

---. The Use Of Self. New York: Dutton, 1932.

Alexander, Gerda. Eutony. California, Feldenkrais Resources, 1990.

Arieti, Silvano. Creativity: The Magic Synthesis. New York: Basic Books, 1976.

Baker, Paul. Integration Of Abilities. San Antonio: Trinity University Press, 1972.

Barlow, Wilfred. The Alexander Principle. London: Victor Gallancz, 1973.

---. More Talk About Alexander. London: Victor Gallancz, 1978.

Barnes, Clive. Theatre Games. London: Metheun, 1977.

Bateson, Gregory. Mind and Nature: A Necessary Unity. New York: Dutton, 1979.

Benson, Frank D. and Eran Zaidel (ed.) The Dual Brain. New York: Holt, Rinehart and Winston, 1978.

Boden, Margaret A. The Creative Mind. New York: Harper Collins Publishers, 1992

Broer, Marion R. An Introduction To Kinesiolology. Englewood Cliffs, New Jersey: Prentice-Hall, 1986.

Brooks, ---. The Neural Basis of Motor Control. Oxford: Oxford University Press.

Brown, Richard P. Actor Training #1. New York: Institute for Research in Acting with Drama Book Publishers, 1972.

Bryden, M.P. Laterality: Functional Asymmetry In The Intact Brain. New York: Academic Press, 1982.

Buzan, Tony and Terence Dixon. The Evolving Brain. New York: Holt, Rinehart and Winston, 1978.

Buzan, Tony. Use Both Sides of Your Brain. New York: E.P. Dutton, 1974.

Cole, Toby and Helen Krich Chinoy. Actors On Acting. New York: Crown Publishers, 1970.

Dalcroze, Jacques. Eurhythmics, Art and Education. New York: A.S. Barnes and Co., 1935.

DeBono, Edward. Lateral Thinking: Creativity Step By Step. New York: Harper and Row, 1970.

---. New Thinking: The Use of Lateral Thinking in the Generation of New Ideas. New York: Avon, 1971.

Delgado, Ramon. Acting With Both Sides Of Your Brain. New York: Holt, Rinehart, and Winston, 1986.

Dimond, Stuart. Double Brain Experiments. Edinburgh: Churchill Livingstone, 1979.

Dimond, Stuart and Graham J. Beaumont (eds.) Hemisphere Function in the Human Brain. New York: John Wiley, 1974.

Druckman, Daniel and Robert A. Bjork (ed.) In The Mind's Eye. Washington, D.C: National Academy Press, 1991.

Eckman and Friesen. Unmasking The Face. New York: Prentice Hall, 1975.

Edwards, Betty. Drawing on the Artist Within. New York: Simon and Schuster, 1986.

---. Drawing on the Right Side of the Brain. Los Angeles: J.P. Tarcher,Inc., 1979.

Eisner, Elliot W. Cognition and Curriculum. New York: Longman Press, 1982.

--- ed. Educating Artistic Vision. New York: MacMillan, 1972.

---. Education, Imagination, Cognition and Curriculum. International Society for Education Through Art, 1975.

Feldenkrais, Moshe. Awareness Through Movement. New York: Harper and Row Publishers, 1977.

---. Body and Mature Behavior. New York: International Universities Press, 1950.

---. The Case of Nora: Body Awareness as Healing Therapy. New York: Harper and Row, 1977.

---. The Elusive Obvious. Cupertino, California: Meta Publications, 1981.

---. The Potent Self. San Francisco: Harper and Row, 1985.

Ferguson, Marilyn. The Brain Revolution. New York: Putnam Sons, 1976.

Fincher, Jack. Human Intelligence. New York: G.P. Putnam Sons, 1976

Gallway, W. Timothy. The Inner Game Of Tennis. New York: Random House, 1974.

Gardner, Howard. Art, Mind and Brain. New York: Basic Books Inc., 1982.

---. The Arts and Human Development. New York: John Wiley and Sons, 1973.

---. The Mind's New Science. New York: Basic Books, 1987.

---. The Shattered Mind. New York: Vintage, 1974.

Garfield, Charles A. Rediscovery of the Body. New York: Dell Publishing Co. Inc., 1977.

Gazzaniga, Michael S. The Bisected Brain. New York: Appleton-Century-Crofts, 1970.

---. Nature's Mind. New York: Basic Books, 1992.

Gazzaniga, M.S. and LeDoux, J.E. The Integrated Mind. New York and London: Plenum Press, 1978.

Ghiselin, Brewster. The Creative Process. University of California: New American Library, 1952.

Goldfarb, Lawrence Wm. Articulating Changes. California: Feldenkrais Resources, 1990.

Goodman, Nelson, Perkins, David, Gardner, Howard, et al. Basic Abilities Required for Understanding and Creation in the Arts. Cambridge: MA, Harvard, 1972.

Grotowski, Jerzy. Towards A Poor Theatre. New York: Simon and Schuster, 1968.

Huston, Hollis. The Actor's Instrument. Ann Arbor: The University of Michigan Press, 1992.

Johnstone, Keith. Impro. New York: Theatre Arts Books,1985.

Jakobson, Roman. Brain and Language: Cerebral Hemispheres and Linguistic Structure in Mutual Light. Columbus, Ohio: Slavica Publishers, 1980.

Jones, Frank Pierce. Body Awareness in Action. New York: Schocken Books, 1979.

King, Nancy R. A Movement Approach To Acting. New Jersey: Prentice-Hall, Inc. 1981.

Kinsbourne, Marcel ed. Asymmetrical Functions of the Brain. Cambridge: Cambridge University Press, 1978.

Koestler, Arthur. The Act of Creation. New York: The Macmillan Company, 1964.

Kuritz, Paul. The Making of Theatre History. New Jersey: Prentice-Hall, 1988.

Laban, Rudolf. Mastery Of Movement. New York: MacDonald and Evans, LTD., 1960.

---. Modern Educational Dance. New York: MacDonald and Evans, LTD., 1948.

---. The Language of Movement. New York: NacDonald and Evans, LTDR., 1948.

Lee, Philip R. (et al) Symposium On Consciousness. AAAS, New York: Viking, 1976.

Leigh, William. Zen Approach-Body Therapy. Honolulu, Hawaii: Institute of Zen Studies, 1987.

Lessac, Arthur. Body Wisdom. New York: Drama Book Publishers, 1981.

---. The Use and Training of the Human Voice.(newly revised) California: Mayfield Publishing, Co., unpublished as of 1993.

Lowell, Marion. Harmonic Gymnastics and Pantomime Expression.

Linklater, Kristin. Freeing The Natural Voice. New York: Drama Book Publishers, 1976.

Maisel, Edward (ed.) The Alexander Technique. New York: Carol Communications, 1989.

May, Rollo. The Courage To Create. New York: W.W. Norton and Company, Inc. 1985.

McGee-Cooper, Ann. You Don't Have To Go Home From Work Exhausted. New York: Bantam Books, 1992.

McLaughlin, John T. Towards a New Era in Arts Education. New York: American Council For the Arts, 1988.

Mekler, Eva. The New Generation Of Acting Teachers New York: Penguin Books, 1987.

Merritt, Stephanie. Mind, Music, And Imagery. New York: Penguin Books, 1990.

Obler, Lorraine K. and Deborah Fein. The Exceptional Brain. New York: The Guilford Press, 1988.

Ornstein, Robert. Evolution of Consciousness. New York: Simon and Schuster, 1991.

--- ed. The Nature of Human Consciousness: A Book of Readings. San Francisco: W.H. Freeman, 1968.

---. The Psychology of Consciousness. New York: Viking, 1972.

---. Multi-Mind. Boston: Houghton Mifflin Company, 1986.

---. The Mind Field. New York: Grossman Publishers, 1976.

Ornstein, Robert and David Sobel. The Healing Brain. New York: Simon and Schuster, 1987.

Penfield, Wilder. The Mystery of the Mind: A Critical Study of Consciousness. Princeton, New Jersey: Princeton, 1975.

Pennington, Jo. The Importance of Being Rythmic. New York: G. P. Putnam and Sons, 1925.

Perkins, David and Barbara Leondar. eds. The Arts and Cognition. Baltimore: John Hopkins, 1977.

---. The Mind's Best Work. Cambridge: MA, Harvard, 1981.

Pines, Maya. The Brain Changers. New York: Harcourt Brace Jovanovich, Inc. 1973.

Popper, Karl R. and John C. Eccles. The Self and Its Brain. London: Springer International, 1977.

Regelski, Thomas A. Arts Education and Brain Research. Reston, VA: Music Educators National Conference, 1978.

Restak, Richard M. The Brain. New York: Doubleday, 1979.

Reynold, ---. On the Evolution of Human Behavior. California: U. of California Press.

Roach, Joseph R. The Player's Passion. Newark: University of Delaware Press, 1985.

Rosenberg, Helane S. Creative Drama and Imagination. New York: Holt, Rinehart, and Winston, 1987.

Rossi, Ernest and David B. Cheek. Mind-Body Therapy. New York: Norton, 1988.

Rubin, Lucille s. Movement For The Actor. New York: Drama Book Specialists, 1980.

Rywernant, Yochanan. Feldenkrais Method. San Francisco: Harper and Row, 1983.

Saint-Denis, Michel. Training For The Theatre. New York: Theatre Arts Books, 1982.

Samuel, Geoffrey. Mind, Body, and Culture. New York: Cambridge University Press, 1990.

Schechner, Richard. Environmental Theatre. New York: Hawthorne Books, Inc., 1973.

---. Ritual, Play and Performance. New York: Seabury Press, 1976.

Simonov, P.V. The Emotional Brain. New York: Plenium Press, 1986.

Spolin, Viola. Improvisation For The Theatre. Illinois: NorthWestern University Press, 1983.

Springer, Sally and Georg Deutsch. Left Brain, Right Brain. New York: W.H. Freeman and Co., 1989.

Stanislavski, Constantin. An Actor's Handbook. Trans. Elizabeth Reynolds Hapgood. New York: Theatre Arts Books, 1963.

Sternberg, Robert J. ed. The Nature of Creativity. Cambridge: Cambridge University Press, 1989.

Stevens, Chris. Alexander Technique. London: Macdonald and Co., 1987.

Todd, Mabel Ellsworth. The Thinking Body. New York: Dance Horizons, 1968.

Torrance, Paul E. The Search For SATORI And Creativity. Creative Education Inc., 1979.

Trevarthen, Colwyn, ed. Brain Circuits And Functions Of The Mind. Cambridge, Cambridge University Press, 1990.

Wellesley, Arthur,ed. Beyond The Scientific. Boulder, Colorado: SSEC Publication, 1978.

Westfeldt,Lulie. F. Matthias Alexander: The Man And His Work. California: Center Line Press, 1964.

Vesey, G.N.A. The Embodied Mind London: George Allen and Unwin LTD, 1965.

Zorn, John W. The Essential Delsarte. New York: the Scarecrow Press, 1968.

ARTICLES

Allen, James Sloan. "Educating Performers." The American Scholar. November 1992.

Argelander, Ron. "Performance Workshops: Three Types." The Drama Review. 24 (1980): 4-15.

Barba, Eugenio. "The Fiction of Duality." New Theatre Quarterly. 5 (Nov. 9 1989): 311-315.

Berry, Jon (ed). TLA Newsletter. Minnesota: Vol. 4, No. 2 (Winter, 1993): 1-8

Blakeslee, Thomas R. "Your Unconscious, Dreamy Brain" Science Digest July (1980): 30-37.

Bloch, Susana. "ALBA EMOTING: A Psycho-physiological Technique to Help Actors Create and Control Real Emotions." Theatre Topics. 3 (Sept. 1993):121-137.

Bloch, Susana. "Commentaries on 'Effector Patterns of Basic Emotions' by S. Bloch, P. Orthous, and G. Santibanez-H." Journal of Social Biological Structure. 11 (1988): 201-211.

---, Madeleine Lemeignan, and Nancy Aguilera-T. "Specific Respiratory Patterns Distinguish Among Human Basic Emotions." International Journal of Psychophysiology 11 (1991): 141-154.

---. "New Emotional Freedom For Actors: Discoveries for Helping Actors Summon and Control Feelings." ATHE '91 Seattle Celebrating Many Cultures--Brochure: 94.

---, Pedro Orthous and Guy Santibanez-H. "Effector Patterns of Basic Emotions: A Psychophysiological Method for Training Actors." Journal of Social Biological Structure. 10 (1987): 1-19.

---. "Rejoinder to Comments on 'Effector Patterns of Basic Emotions." Journal of Social Biological Structure. 11 (1988): 213-214.

---. Respondent. Intercommunication Between Neuroscience and Actor Training. ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

Brecht, Stefan. "On Grotowski" The Drama Review. 15 (1971).

Chabora, Pamela D. "Jump On the Bandwagon." The Beat Vol.1 (1992), 3-4.

---. "Jump On the Bandwagon--Part II: A Summary of the ATHE Neuroscience/Actimg Panel." The Beat Vol.2 No.2 (1993), 1-2.

Clay, Jack. "Self-Use in Actor Training." The Drama Review. 21 (1977): 16-22.

Conniff, Richard. "For Young Actors, Tisch is the School of Hard Knocks." Smithsonian 19 (1988): 56-64.

Coughlin, Ellen K. "Renewed Appreciation Between the Body and Mind in the Arts." The Chronicle of Higher Education, 36 (23 May 1990): A6

Curtiss, Deborah. Brain Hemispheres and Art: An Annotated Bibliography. Unpublished dissertation. Philadelphia College of Art, 1982.

Dolnick, Edward. "The Right (Left) Stuff." Omni 45

Dusewicz, R.A. "Lateral Dominance and Creativeness." Perceptual And Motor Skills. 27 (1968): 826.

Edwards, B. "'Right Brain' Focus: Powerful Teaching Tool for Art." Brain/Mind Bulletin 3 (12/19/77): 3.

Ekman, Paul. "Assymetry in Facial Expression." Science 209 (15 August 1980).

Englebardt, Stanley L. "Are You Thinking Right?" Reader's Digest (February 1988): 41-47.

F.W.G. "Whole-Brain Thinking." Forbes (March 1988): 200.

Feldenkrais, Moshe. "Bodily Expression" Somatics 6,#4 (1966): Spring/Summer.

---. "Bodily Expression." Somatics. 7, #1 (1988-89) Autumn/Winter.

Felner, Myra. "Circus and the Actor." The Drama Review 21 (1977): 39-46.

Fichandler, Zelda. "Casting For A Different Truth." American Theatre May (1988): 19-23.

---. "To The Actor" Tisch School of the Arts: Theatre Program. (New York: NYU 1993).

Findlay, Steven. "The Delicate Dance of Body and Mind." U.S. News/World Report. Vol. 1, N. 1 (2 July 1990): 51.

G.D. "Where are the Einsteins and Picassos?" Psychology Today. (February 1980).

Gainer, R.S. and H. Gainer. "Educating Both Halves of the Brain: Fact or Fancy." Art Education. September (1977): 20-22.

Gardner, Howard. "Are You Creative?" Science Digest. March 1986.

---. "What We Know and Don't Know About the Two Halves of the Brain." Journal of Aesthetic Education. 12 (1/78): 113-119.

---. "The Music of the Hemispheres." Psychology Today. 16 (June 1982): 91-92.

---. "Strange Loops of the Mind." Psychology Today. (March 1980): 72-82.

Garrett, S.V. "Putting Our Whole Brain To Use: A Fresh Look at the Creative Process." Journal of Creative Behavior. 10 :239-249.

Gazzaniga, M.S. "Recent Research on Hemispheric Lateralization of the Human Brain: Review of the Split-Brain." Educator 17 (5/1979): 9-12.

Geer, Richard. "Dealing with Emotional Hangover: Cool-down and the Performance Cycle in Acting." Theatre Topics. Vol. 3, No. 2, (September 1993): 147-157.

Gelman, David. "Body and Soul." Newsweek Vol. 112, N.19 (4 November 1988): 88-94.

Geschwind, Norman. "Specializations of the Human Brain." Scientific American. 24 (1975): 180-196

Gibson, W. "Pioneers in Localization of Brain Function." Journal of American Medical Association. 180 (1962): 944-951.

Groetzinger, Richard Arthur. Fantasy and the Actor: Implications on Acting Theory. Dissertation. Bowling Green State University, 1984.

Hagloch, Susan B. "Basic Lessons in Awareness Through Movement: the Feldenkrais Method." (video recording reviews) Library Journal 114 (Sept. 1, 1989)" 226.

Harpaz, Itzhak. "Asymmetry of Hemispheric Functions and Creativity: An Empirical Examination." Journal of Creative Behavior 24 (1990).

Harriman, Richard. "Moving Beyond Linear Logic." The Futurist. August, 1984

Harris, Lauren Julius. Psy. 851 Neuropsychology (Course Packet), Michigan State University (Fall 1991).

---. "Right-Brain Training: Some Reflections on the Application of Research on Cerebral Hemispheric Specialization to Education." Brain Lateralization in Children. D.L. Molfese and S.J. Seagalowitz. New York: Guilford (1988):207-235.

Hart, Leslie A. "The Three Brain Concept and the Classroom." Phi Delta Kappan. March, 1981.

Hofferber, Michael. "Actors in Motion: A Guide to Movement Specialists." Backstage. 27 (April 18, 1986): 1A.

Jaeger, William. "Filling in the Gaps of the Stanislavski System." Actor Training #1. Richard P. Brown. (1972): 96-109.

James, Henry. "The Art of Fiction."

Johnson-Chase Michael. "Do We Cry Because We Grieve or Do We Grieve Because We Cry?" Direction. Vol.1, No. 9, 361-364.

Juilliard School 1992-1993 Catalog (pg. 77)

Katz, A.N. "Creativity and the Right Cerebral Hemisphere: Towards a Physiologically Based Theory of Creativity." Journal of Creative Behavior. 12 (1978): 4, 253-264.

Keller, Jon and Bonnie Freer. "His Methods May Seem Bizarre." People Weekly. 16 (Sept. 7, 1981): p.87.

Kirby, Michael. "On Acting and Not-Acting." The Drama Review 21 (1977): 3-15.

Knox, Richard. "In Music the Whole Brain Gets Involved." The Boston Globe. 23 November 1992.

Kur, Barry. "Board Response to J. Robert Wills' 'Future Article'." VASTA Newsletter. 6 (Winter 1993).

Lawrence Berkeley Laboratory. "Creative High and Schyzophrenia." Science Digest, February, 1978.

Leaffer, T. "Left Brain--Right Brain: Domination or Cooperation." Journal of Creative Behavior. 15 (4): 242-250.

LeCompt, N. and J.C. Rush. "The Jack Sprat Syndrome: Can Split-Brain Theory Improve Education by Including the Arts?" Journal of Education 163 (Fall 1981): 335-343.

LeDoux et al. "A Divided Mind: Observations on the Conscious Properties of the Separated Hemispheres." Annals of Neurology, 2 Nov. 1977, pp. 417-21.

Lessac, Arthur. "Theatre Training More Than Technique: It Can be Human Growth/Research Center." Southern Theatre Vol. XXXIII, No.#1 (Fall 1991): 22-27.

Ley, R.G. and M.B. Bryden. "Consciousness, Emotion and The Right Hemisphere." Aspects of Consciousness, Vol. 2, Underwood and Stevens, eds. New York: Academic Press, 1981.

Ley, R.G. and M.P. Bryden "Hemispheric Differences Processing Emotions and Faces." Brain and Language, 7 (1979), 127-138.

Linklater, Kirsten. "The Body Training of Moshe Feldenkrais." The Drama Review 21 (1977): 23-27.

Lipscomb, William N. "Our Schools Stifle Creative Thought." U.S. News and World Report. April, 1981.

Lowen, Walter. Foreword to Body Wisdom. Arthur Lessac. New York: Drama Book Publishers, 1981. v.

Luria, A.R. "The Functional Organization of the Brain." Scientific American 222 (March 1972): 66-72.

MacKinnon, C. "Implications of Right Brain Research on Curriculum Development." ERIC, (1981): ED 211519.

Marin, Oscar S.M. "Neurological Aspects of Music Perception and Performance. " Unpublished Article.

Miller, J. Michael. "Overview" Tisch School of the Arts: Theatre Program (New York: NYU, 1993).

Miller, Kay. Brochure on CoreSomatics. 1992.

Morris, Kelly (ed.) "Image, Movement, and the Actor." Tulane Drama Review. 10 #3 (1966): 112-126.

Moyers, Bill Healing And the Mind. Public Broadcasting System, 1992.

Murphy, Thomas F. "Eureka." Forbes (7 May 1988): 218.

Myers, Gene. "Brain Update" --pamphlet, 1-18.

Myers, Martha. "Moshe Feldenkrais and Awareness Through Movement (Movement Sequences for the Dancer). Dance Magazine 57 (Aug. 1983): p.13.

---. "Moshe Feldenkrais' Awareness Through Movement." Dance Magazine. 54 (May, 1980): p.136.

--- and Marion Horosko. "When classes are not enough: Body Therapies why, which, and when." Dance Magazine. 63 (July, 1989): p.16.

NAST Publication "The Work of Arts Faculties in Higher Education." (Spring 1993)

Olf, Julian. "Acting And Being: Some Thoughts About Metaphysics and Modern Performance Theory." Theater Journal, March, 1981

Pierpont, Margaret. "A Conversation With Norma Leistiko" Dance Magazine. 57 (Aug. 1983): 16.

Pinkard, Calvin M. "Mental Imagery in Rehabilitation Services" Journal of Applied Rehabilitation Counseling. 12 (October 1989): 20-24.

Poizner et al. "Cerebral Asymmetry For American Sign Language: The Effect of Moving Stimuli." Brain and Language

Pradier, Jean Marie. "Towards a Biological Theory of the Body in Performance." New Theatre Quarterly. Vol. 6, No. 21 (February 1990): 86-99.

Proskaver, Magda. "The Therapeutic Value of Certain Breathing Techniques." Rediscovery of the Body. Charles A. Garfield. New York: Dell Publishing Co, Inc. 1977, 51-65.

Putnam, Terisa, Robert Shepard, and Cathryn Downing. "Inner Visions." Psychology Today. February, 1985.

Rix, Roxanne. "Alba Emoting: A Preliminary Experiment with Emotional Effector Patterns." Theatre Topics Vol. 3, No. 2 (September 1993): 139-145.

Rolfe, Bari. "What Doth A Movement Person?" ATME Newsletter Vol.1, N.2 University of Virginia (June 1993): 5-7.

Rosenfeld, Albert. "Teaching the Body How To Program the Brain is Moshe's Miracle." Smithsonian 11 (Jan. 1981): p.52-7.

Rubenfeld, Ilana. "Ushering in a Century of Integration." Somatics Autumn/Winter (1990-91): p. 59-63.

Sackheim, H. and R. Gur. "Asymmetry in Facial Expressions." Science, August, 1979, pp.834-6.

Sackheim et al. "Emotions are Expressed More Intensely on the Left Side of the Face." Science, October, 1978, pp. 434-5.

Schechner, Richard. "Aspects of Training at the Performance Group." Actor Training #1. Richard P. Brown. New York: Institute for Research in Acting with Drama Book Publishers, 1972.

---. "Image, Movement, and the Actor." Tulane Drama Review. 10, #3 (1966).

---. "Ways of Speaking, Loci of Cognition." The Drama Review 31 (1988): 4-7.

Schwartz, John. "Smile and Your Brain Smiles With You." The Blade. 10 January 1994: p.23.

Schweiger, Avraham. "Harmony of the Spheres and the Hemispheres: The Arts and Hemispheric Specialization." The Dual Brain ed. Frank D. Benson and Eran Zaidel. New York: The Guilford Press, 1985.

Segel, Ronald G. "Tisch School at 25" Variety Oct. 22 (1990): 45-58.

Shindler, Andrea Gellin., ed. Music and The Brain: A Symposium. Chicago: The Foundation For Human Development, 1992.

Shotter, John. "Consciousness, Self Consciousness, Inner Games and Alternate Realities." Aspects of Consciousness, Vol. 3, Underwood and Stevens,eds. New York: Academic Press, 1982.

Spadino, E. J. "A Critique of the Teachings of Francois Delsarte in Terms of an Objective Attitude Toward Mind." The Quarterly Journal of Speech 15 (1928): 293-294.

Sperry, R.W. "Hemispheric Specialization of Faculties in the Brain of Man." Clairmont Reading Conference 36th Yearbook. M.P. Douglas, ed. Claremont, CA (1972): 126-136.

Stewart, Doug. "Teachers Aim at Turning Loose the Mind's Eye." Smithsonian. August, 1985.

Strauss, E. and M. Moscovitch. "Perception of Facial Expression." Brain and Language,13 (1981), 308-332.

Vahktangov, E. "Preparing For The Role" in Acting: A Handbook of the Stanislavski Method. Toby Cole (ed.) New York: Crown Publishers, Inc. 1955.

Walsh, T. "Alternating Routes: Aligning Body, Mind and Spirit." Backstage Vol.32, No.11. (15 March 1991): 28.

Weisburd, Stefi. "The Spark." Science News. 132. (7 November 1987): 298-300.

Weiss, William. "The Developmental Approach: Mastering the Voice." The Drama Review. Winter (1992): p.101-105.

White, Stephen W. (ed.). National Forum LXX, No. 3 (1990).

Wildman, Frank. "The Physical Act of Thinking." ATME News-Letter. Vol.1, N.2. (June 1993): 3.

Wittrock, M.C. "Education and Recent Neuropsychological and Cognitive Research." Education 329-339.

Youngblood, M.S. "The Hemispherality Wagon Leaves Laterality Station at 12:45 for Art Superiority Land." Studies in Art Education. 21 (1971): 44-49.

OTHER SOURCES

Anderson, Claudia. Presentation. Intercommunication Between Neuroscience and Actor Training:Part II. ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

Barton, Robert. Address. Bloch Lecture on "New Emotional Freedom For Actors: Discoveries For Helping Actors Summon and Control Feelings." ATHE Conference. Atlanta, Georgia. 4 August 1992.

---. Presentation. Intercommunication Between Neuroscience and Actor Training: Aesthetic and Pedagogical Implications: Part II. ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

Bloch, Susana. Lecture on "New Emotional Freedom For Actors: Discoveries For Helping Actors Summon and Control Feelings." ATHE Conference. Atlanta, Georgia. 4 August 1992.

---. Letter to the author. 6 June 1992.

---. Personal Interview. 3 August 1992.

Burgess, Hovey, Personal Interview, 6 May 1993.

Calder, Jim, Personal Interview, 6 May 1993.

Chabora, Pamela D. Letter to Graduate Professor. 17 October 1991,

---. Presentation. Intercommunication Between Neuroscience and Actor Training. ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

---. "Proposal for Think Tank" Acting Forum, ATHE, January 1994.

Delgado, Ramon, Personal Interview, 23 November 1992.

---. "An Acting Characterization Technique using 'Personality Styles'." Intercommunication Between Neuroscience and Actor Training: Pedagogical and Aesthetic Implications ATHE Convention. Philadelphia, 6 August 1993.

Dolan, John. Letter to the Author. 12 November 1992.

---. Presentation. Intercommunication Between Neuroscience and Actor Training: Part II. ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

Hill, Jim. Syllabus for "Creative Process." University of Toledo. (June 1993).

Johnson-Chase, Michael. Letter to the Author. 30 November 1993.

---. Presentation. Feldenkrais and Alexander: Are They Mutually Exclusive? ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

---. Presentation. Intercommunication Between Neuroscience and Actor Training: Part II. ATHE Conference. Philadephia, Pennsylvania. 6 August 1993.

Kassel, Paul. Presentation. Intercommunication Between Neuroscience and Actor Training. Part I. ATHE Conference. Philadelphia, Pennsylvania. 6 August 1993.

---. Proposal for "Performance Synergy." Acting Forum. ATHE Conference. 1994.

Lessac, Arthur. Personal Interview, 28 August 1993.

Leverone, Barbara. Feldenkrais and Alexander: Are they Mutually Exclusive?. Panel at ATHE Convention, Philadelphia, 6 August 1993.

---. Letter to Author. 30 May 1992 and 26 September 1992.

---. Personal Interview. 7 August 1993.

Miller, J. Michael. Personal Interview. 6 May 1993.

Miller, Kay. Letter to the Author. 16 June 1992.

Morin, Elinore--Alexander Practitioner. Personal Interview. 28 April 1992

Pratt, Judith. Letter to the author. 12 December 1991.

Serota, Carolyn. Personal Interview. 23 November 1992.

Stone, Harold. Personal Interview. 23 November 1992

Van Lieu, Ron. Personal Interview. 6 May 1993.

GENERAL REFERENCES

Bogen, Joseph E. "The Other Side of the Brain I: Dysgraphia and Dyscopia Following Cerebral Commissurotomy." Bulletin of the Los Angeles Neurological Society. 34, (73-105)1969.

---. "The Other Side of the Brain II: An Appositional Mind." Ibid. 135-162.

---. "The Other Side of the Brain III." Ibid 191-203.

---. "The Other Side of the Brain VII: Some Educational Aspects of Hemispheric Specialization," UCLA Educator, 17 (1975): 24-32.

Borod, Joan "Facedness and Emotion Related To Lateral Dominance, Sex and Expression Type." Neuropsychologia, 18 (1980) 237-41.

Botkin, James W. (et al). "Towards More Effective Teaching and Learning: What Can Research in the Brain Sciences Contribute? A Survey of Some Recent Research Efforts and Their Implications for Education." ERIC (1980): ED 200402.

Cambell, Ruth. "Left Hander's Smiles: Asymmetries in the Projection Of Posed Faces." Cortex, 15 (1979), 571-579.

Chemtob, Claude M. "Paradoxical Complementarity In The Aesthetic Preferences of Cerebral Hemispheres: An Exploratory Study." Perceptual and Motor Skills, 48 (1969), 799-806.

Cicone et al. "Sensitivity to Emotional Expressions and Situations in Organic Patients." Cortex, 16 (1978), 145-158.

Doerr, Susan L. " Conjugate Lateral Eye Movement, Cerebral Dominance, and the Figural Creativity Factors of Fluency, Flexibility, Originality, and Elaboration." Studies in Art Education. 21 (1980): 3, 5-11.

Gross, Y., R. Franko, and I. Lewin. "The Effects of Voluntary Eye Movement on Hemisphere activity and Choice of Cognitive Mode." Neuropsychologia 16 (1978): 653-657.

Heilman et al. "Right Hemisphere Dominance For Mediation Cerebral Activation." Neuropsychologia, 17 (1979), 311-315.

Hellige et al. "Information Processing in the Cerebral Hemispheres: Selective Hemisphere Activation and Capacity Limitations." Journal of Experimental Psychology: General, 108 (1979), 251-79.

Landis et al. "Dissociated Awareness of Manual Performance on Two Different Visual Associative Tasks: A 'Split-Brain" Phenomenon in Normal Subjects." Cortex, 17 (1981), 435-440.

LaTorre, R.A. and A. M. LaTorre. "Upright and Inverted Faces: The Right Hemisphere knows the Difference." Cortex 14, 411-419.

_____. "Lateral Assymetry in the Intensity of Emotion." Neuropsychologia, 16 (1978), 473-81.

Miller, Jonathan. Lecture on Art and Science. MPBN Public Affairs Broadcast April 27, 1994.

Reynolds, C.R., T. Riegel, and E.P. Torrance. "A Bibliography for Interdisciplinary Research on Lateral Cerebral Specialization and Interhemispheric Integration and Processing of Information." Gifted Child Quarterly 21 (Winter 1977): 574-585.

Risse, G.L. and M.S. Gazzaniga. "Well-kept Secrets of the Right Hemisphere: A Cartoid Amytal Study of Restricted Memory Transfer." Neurology 28, Set. 1978, pp. 950-3.

Ross, Elliott et al. in Archives of Neurology:
a. "Dominant Language Functions of the Right Hemisphere? Prosody and Emotional Gesturing." 36 (1979), 144-48.
b. "The Aprosodias: Functional-Anatomic Organization of the Affective Components of Language in the Right Hemisphere." 38 (1981), 561-69.
c. "How the Brain Integrates Affective And Propositional Language into a Unified Behavioral Function: Hypothesis Based on Clinical Evidence." 38 (1981), 745-48.

Walker, E., Wade S. and Waldman, I. "The Effect of Lateral Visual Fixation on Response Latency to Verbal and Spatial Question." Brain and Cognition. I. (1982): 399-404.