## CHAPTER III
### REVIEW OF RELATED LITERATURE

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CHAPTER III
REVIEW OF RELATED LITERATURE

3.0 Introduction

In the last chapter the researcher described the dramatic changes in the way we live now compared with our predecessors. In particular, the researcher has identified a single underlying element in this transition: the change from a physically based lifestyle to the lifestyle of today, which is largely mental.

The researcher have described how this move from body to mind has impacted our physical and mental health, the health of society in general and increasingly the health of the planetary body we all stand on: The Earth.

Given the potential dangers these multi-dimensional pathologies pose to our species, an urgent response is required.

This study aims to discover if it is possible to create a program that the participants would find simple and easy to embrace, which would help reverse the fundamental issue we have identified in this thesis: the move from a physical to a mental lifestyle. A program that would be a simple educational, self-management tool – easy to teach and easy to learn.

Reviewing the related literature in this filed has helped the researcher in identifying the many different efforts that have been made in this direction over a long period of time, and guided the process of framing the hypotheses of the study as well as provided helpful suggestions for this investigation. It provided the investigator a background for this research project by identifying the current status of the issues involved and also assisted in confirming whether the interventions used in the past were still appropriate or needed to be further refined.

Compared to the traditional teaching methods, the Mind-Body Management Education (MBME) Program has been specifically designed to benefit from all the different efforts of the past, and in particular, to be suitable for contemporary, modern people.

One very significant point that the researcher has reviewed was the very interesting question of interventions that have approached the mind-body complex through the body rather than through the mind. As will be seen, the earliest approaches
hardly included any physical movements. As time went by, perhaps in direct response to a realization that it was the physical that was becoming an increasingly excluded part of life, the use of physical activity as a doorway to affecting changes to the mind-body became more and more important. The Mind-Body Management Education program follows this same long-term development by using a physically based approach. In this present study, the researcher has evaluated these two different approaches.

The review of the literature in this chapter has started by looking at the development of mind-body interventions over time, with a particular reference to their continuing value to modern people, who as we have seen in the previous chapter, have very different challenges from their predecessors.

3.1 Literature Review of Mind-Body Management in Education

As we shall see later in this chapter, historically, mind-body management has played a central role in many “educational” approaches, for example in the fields of martial arts in India, China, and Japan.

In modern times, “physical education” has been regarded as an essential part of education. This has been based on an intuitive, common sense view that a healthy body supports a health mind.

However, recently, physical education has been the first casualty of cutbacks in funding.

“These reductions may have been made easier because traditional physical-education programs have not effectively improved the health and fitness of students, much less their academic performance. Traditional physical education notoriously emphasizes competitive sports rather than physical activity. Such programs marginalize students who are not athletes and fail to provide adequate opportunities for all students to exercise aerobically. Little wonder physical education has become dispensable” (Sattelmair & Ratey, 2009)1.

Many other studies were unable to prove more than a modest, at most, relationship between physical education and academic performance (Ahamed et al., 2007)2, (Dwyer et al., 1983)3, (Sallis et al., 1999)4, (Dishman et al., 2000)5, (Carlson et al., 2008)6, (Coe et al., 2006)7.

This only supported those who advocated cutting budgets for physical education.
What these authors point out is that it is the *quality* of these programs that counts.

Addressing exactly this point is Phil Lawler Physical-education director of Madison Junior High School in Naperville, Illinois, who has sparked a revolution in his school’s approach to physical education (Viadero 2008). Ratey reports that “this program is so successful that PE4life, a non-profit organization dedicated to promoting quality physical education in U.S. schools, has adopted and is now exporting the Naperville model by setting up PE4life Academies in schools around the country.” And that “so far, PE4life Academies have trained over one thousand educators and 350 schools to emulate their program.”

Some of the results are very impressive. Ratey reports that “less than 3 percent of Naperville students were overweight versus 30 percent in California (CDE, 2005).”

What is really striking is the evidence that when the quality of physical activity is appropriate, not only are there the expected physical benefits, but academic performance is also benefitted. Which confirms that with the right physical intervention, the mind is also positively affected, the essence of the hypothesis of the Mind-Body Management Education program in this present study.

Ratey continues: “Eighty percent of Naperville students achieved the recommended level of aerobic capacity versus only 50 percent in California. Since PE4life began in Titusville, Pennsylvania, standardized test scores have gone from below the state average to 17 and 18 percent above average in reading and math, respectively. The incidents of fighting have dropped dramatically. After one year of daily physical education, students at Woodland Elementary School in Kansas City, Missouri, showed dramatically improved fitness measures, as well as a 67 percent drop in suspensions from the previous year, reduced academic probation, and improved literacy.” He concludes, “There is abundant evidence that regular physical activity benefits the brains and bodies of school-aged children.”

In the same Ratey review of this topic are included many studies to support this:

A cross-sectional survey of school-aged children in Iceland revealed that, combined, body mass index and physical activity explain up to 24 percent of variance in academic achievement (Sigfusdottir et al., 2007).
Another cross-sectional study involving eight thousand schoolchildren found that academic ratings were significantly correlated with exercise levels and with performance on physical fitness tests (Dwyer et al., 1983)\(^3\).

A cross-sectional study conducted in 2002 by the California Department of Education demonstrated a strong association between physical fitness and academic performance (CDE, 2005)\(^9\). Using the Fitness gram, a six-faceted measure of overall fitness, and students’ grades on the SAT-9 state standardized test, nearly one million students in grades five, seven, and nine were evaluated. Investigators consistently found that those students with higher levels of fitness scored higher on the SAT-9. There was a positive linear relationship between the number of fit-ness standards achieved and standardized test scores. This result held for boys and girls in both math and reading, but it was most pronounced in math. A smaller follow-up study (Castelli et al., 2007)\(^11\) replicated this finding.

Shephard (1997)\(^12\) found that a reduction of 240 minutes per week of academic class time, replaced with increased time for physical education, led to higher scores on standardized math examinations.

In a review of physical activity and academic outcomes among school-aged children, Taras (2005)\(^13\) concluded, “There is evidence to suggest that short term cognitive benefits of physical activity during the school day adequately compensate for time spent away from other academic areas.”

In addition, A recent, longitudinal study (Wittberg et al 2012)\(^14\) of West Virginia students over a two year period concluded that, “Students’ aerobic capacity is associated with greater academic achievement as defined by standardized test scores. This advantage appears to be maintained over time, especially if the student stays in the HFZ (Healthy Fitness Zone).”

Finally, in a recent book, Neurophysiologist and educator Dr. Carla Hannaford (2005)\(^15\) reviews the latest insights from scientific research to questions that affect learners of all ages, and concludes, “Movement is somehow essential for learning.”

What is particularly relevant about these studies is that old adage that a “healthy body makes for a healthy mind” remains in general very true. Now we are able to see that it is specific bodily interventions that create positive effects on the mind, exactly the direction of this present study.
3.2 Literature Review of Mind-Body Integration

As the researcher discussed briefly in Chapter 2, most cultures throughout history have accepted that the body and mind are naturally integrated.

The only exception could be referred to as the Cartesian distraction. In order to free science from religious interference, Descartes made a deal with the Catholic Pope in the 17th Century Europe so that he could obtain the human bodies he needed for his dissection. “Descartes agreed he wouldn’t have anything to do with the soul, the mind, or the emotions – those aspects of human experience under the virtually exclusive jurisdiction of the church at the time – if he could claim the physical realm as his own. Alas this bargain set the tone and direction for Western science over the next two centuries, dividing human experience into two distinct ad separate spheres that could never overlap, creating the unbalance situation that is mainstream science as know it today” (Pert, 1999)16.

Even since 1999 when that book was written much has changed. As the researcher discussed later in this chapter, modern science now confirms experimentally what the sages down the ages have known experientially, that the body and mind are two aspects of one phenomenon.

Mind-Body Integration, therefore, actually refers to the need to respond to two distinct issues. One is the effect that the Cartesian distraction has had on Western science, and in turn much of modern thinking on this subject. The second issue is the need to respond to the impact of “civilization” over the last 10,000 years whereby our lives have become dramatically less physical and more mental, as the researcher has described at length in the previous chapter.

In fact what we are addressing is the need for Mind-Body re-integration. A glance at any animal in its natural environment will confirm he or she is not in need of any mind-body integration! In fact it is the absence of any mind-body dis-integration – it is the natural harmony of the whole organism – that gives these creatures their grace and beauty.

Before attempting to answer the researcher’s own question: "What is mind-body integration?" it is worth noting that there is not one result for this exact query on either Google or Google Scholar!

Clearly it is a question whose time has come!
It is also clear that the cause of this mind-body disintegration in otherwise healthy individuals is acquired through nurtured beliefs and our experience of the modern world we inhabit, as outlined above, and not caused by nature. In short, the problem is with the mind not talking to the body, rather than the other way around!

Perhaps the most famous work in this area is the work of Herbert Benson, Mind/Body Medical Institute Associate Professor of Medicine at Harvard Medical School and director emeritus of the Benson-Henry Institute. He is the author or co-author of more than 175 scientific publications and 11 books. The main thrust of his work has been as he describes it in the 2000 edition of his original groundbreaking work, “The Relaxation Response” (Benson et al., 1975)\textsuperscript{17}, “Three decades ago it was considered scientific heresy for a Harvard physician and researcher to hypothesize that stress contributed to health problems and to publish studies showing that mental focusing techniques were good for the body. I broke ranks with the medical establishment when I decide to pursue this theory and to prove or disprove it in my medical research.

“Today we, as a society, take for granted the multifaceted relationship between the mind and body. Scientists now avidly pursue ties between brain activity and physical manifestations.”

Essentially his body of work can be considered as mind to body integration as he describes above (Benson et al., 1974)\textsuperscript{18}.

If we see “mind-body integration” as basically a communication issue between both aspects of one continuum, biofeedback provides another interesting example.

According to the AAPB website (Retrieved 2013), The Association for Applied Psychophysiology and Biofeedback (AAPB), the Biofeedback Certification International Alliance (BCIA), and International Society for Neurofeedback and Research (ISNR) agreed in 2008, on the following definition of their work as:

“Biofeedback is a process that enables an individual to learn how to change physiological activity for the purposes of improving health and performance. Precise instruments measure physiological activity such as brainwaves, heart function, breathing, muscle activity, and skin temperature. These instruments rapidly and accurately "feed back" information to the user. The presentation of this information – often in conjunction with changes in thinking, emotions, and behavior – supports desired physiological changes. Over time, these changes can endure without continued use of an instrument."
Yucha and Montgomery (2008)\textsuperscript{19} produced a huge study of hundreds of papers presenting what they describe as follows: “The present volume fills a void in the biofeedback and neurofeedback practice world: the need for a standardized assessment of clinical efficacy and effectiveness for feedback-based therapies.” They identify a very wide range of disorders that are successfully treated by biofeedback techniques, results that are supported by independent researchers.

Jack Painter, Professor of Philosophy and Psychology at the University of Miami, was a major contributor to this field (Painter, 1990)\textsuperscript{20}. He combined body-based interventions such as acupuncture, Yoga, massage, Rolfing, and mind-based approaches such as the theories of William Reich and Gestalt Therapy, he created Postural Integration, an attempt at a holistic bodywork that aimed to support personal change and self-development. As he described it, “the form of bodywork which I created is not an eclectic combination of techniques I experienced or learned – it is a singular approach to the whole person” (Painter, 1990)\textsuperscript{20}.

A wide range of more traditional body-based interventions would also see their approach as integrating the body-mind: Yoga, Martial Arts, Tai-Chi, Qigong, many of which are still practiced today and will be reviewed below.

In this section we can mention, as examples of this growing field, a recent study of Qigong demonstrated its value for the treatment of US service personal with mild traumatic brain injury (Yost & Taylor, 2013)\textsuperscript{21}.

Of particular importance for the current study is the significance of mind-body integration for learning and education. Physical activity has been shown to enhance learning and memory in animals (Vaynman et al., 2004)\textsuperscript{22} and to delay or prevent cognitive decline in elderly humans (Yaffe et al., 2001)\textsuperscript{23} (Weuve et al., 2004)\textsuperscript{24} (Van Gelder et al., 2004)\textsuperscript{25} (Lytle et al., 2004)\textsuperscript{26}.

In addition there is general support for a positive correlation between levels of physical fitness and cognition in young people (Sibley & Etnier, 2003)\textsuperscript{27} and other researchers found that “Greater aerobic fitness was also associated with better performance on each of the three Stroop conditions independently of the other variables.” They concluded, “These findings suggest that increased levels of fitness may be beneficial to cognition during preadolescent development” (Buck et al., 2008)\textsuperscript{28}.

Finally, in another study by Herbert Benson’s group mentioned above, the Mind/Body Medical Institute, Care Group, Beth Israel Deaconess Medical Center,
Harvard Medical School found that, “Students who had more than two exposures to semester long classes in which teachers had been trained in the relaxation response curriculum had higher grade point averages, work habits scores and cooperation scores than students who had fewer exposures. In addition, students who had more exposure to the relaxation response curriculum showed an improvement in academic scores over the course of a 2-year period” (Benson et al., 2000)\(^2\).

So, it is clear that whether you start from the mind or the body, the more these two elements are integrated, or re-integrated, the results are always positive.

### 3.3 The Historical Review of the Philosophy and Application of Mind-Body Programs

#### 3.3.1 Introduction

Western history and philosophy of the mind is very complicated and confused. No one is sure whether the mind is material or immaterial, mechanical or supernatural, or even, as Ludwig Wittgenstein pointed out, simply a problem of language (Wittgenstein, 1954)\(^3\).

For example, the iconic statement of René Descartes – one of the most famous Western philosophers in this field – “I think therefore I am,” (Descartes, 1998)\(^4\) is one that anyone with an Eastern understanding can refute in the 20 seconds it takes to discover that they can watch their own thoughts. Hence the “thinking” and the “I” are clearly not the same. (Easwaran, 2010)\(^5\).

By comparison, the Eastern Approach has been consistent and straightforward since the first sutras of Patanjali down to J. Krishnamurti in modern times.

For example, one of Patanjali’s first sutras states (Ascott, 2001)\(^6\):

“Now the discipline of Yoga.
Yoga is the cessation of mind.
then the witness is established in itself.
In the other states there is identification
with the modifications of the mind.”

And Kabir says, “Be quiet in your mind, quiet in your senses, and also quiet in your body. Then, when all these are quiet, don’t do anything. In that state truth will reveal itself to you” (Chan & Wu, 2000)\(^7\).

While Jiddu Krishnamurti states, “Self awareness is arduous; to think-out, feel-out every thought-feeling is strenuous; but this awareness of every thought-feeling will bring to an end the wandering of the mind” (Krishnamurti, 1991)\(^8\).
3.3.2 The Mind-Body Issue before the Common Era

This Eastern understanding dates from ancient times, when humanity practiced what today would be seen as activities related to the “mind-body” domain. Ancient civilizations used repetitive, rhythmic chants to appease the gods (Joseph, 1998). Some authors have even suggested that the capacity for focused attention have contributed to the final phase of human biological evolution (Rossano, 2007). The first references in any literature that may relate to this topic are in the Vedic Sanskrit texts, which specifically refer to “meditation.” These texts included the Samhitas, which are collections of mantras, dating from the 15th Century BC (Everly & Lating, 2002). Adinatha, the first Jaina Teerthankara, for example, is placed by some scholars at the end of the of the Stone Age and the beginning of the Agriculture age (Choudhury, 1956), and is related by other scholars to peculiarly Jain meditation postures on some of the Indus seals from the Indus Valley Civilisation in that remote age (Chanda, 1932).

The extent to which this “meditation” referred to the process of observation of the body and the mind, one could date the origin of the “philosophy of the mind-body” from this time. And in the sense that meditation is by definition observing “oneself” it would also be perhaps the first form of “self-management.”

From the 6th Century BC for the next few hundred years, there was a surge of interest in this area, coincidently, in many parts of the world. Mahavira was one of the first of these figures who became deeply associated with meditation in Bihar in the 6th Century B.C. (Britannica Concise Encyclopedia. Encyclopædia Britannica, Inc., 2006) (Crim, 1989). Gautama the Buddha was a widely known proponent of meditation, also in Bihar, around the 5th Century BC (Cousins, 1996), (Narian, 2003) (Dundas, 2002). Lao Tzu was proposing what would later become “Taoism” in China sometime around the 4th Century BC (Kohn & Lafargue, 1998). Mention should also be made of Zarathustra although the dates of his life seem unclear. Some place him at the intersection of the hunter-gather lifestyle with the lifestyle that developed around fixed agriculture and more permanent living arrangements. That might be the 11th/10th Century B.C. The “traditional” dating puts him around the 6th Century B.C (Nigosian, 1993).

Zarathustra also deserves mention based on Nietzsche’s understanding of his contribution to modern mind-body philosophy. For example, his idea of Übermensch, self-mastery is very close to the idea in this thesis all these centuries later of “self-development” or “self-management.” Zarathustra’s essential idea that the essence of the
human condition is a struggle between truth and lies, and the concept of “free will” are also very modern. The concept of “free will” is of course an essential pre-condition for “self-development.” Zarathustra’s ideas spread to Judaism and influenced the ideas of Greek philosophy, particularly Heraclitus – another major figure in the creation of what would later become mind-body philosophy (Blackburn 1994)\textsuperscript{48} (August 2010)\textsuperscript{49}.

Between the 5\textsuperscript{th} to the 3\textsuperscript{rd} Centuries B.C. in Greece, along with Heraclitus, Socrates (Kreeft, 2007)\textsuperscript{50} and Plotinus (Stace, 1960)\textsuperscript{51} continue to support the oneness implicit in concept of the mind-body as one entity.

Finally as we move to the end of the period before the common era (BCE), in 20 BCE, again in the West, Philo of Alexandria writes about some form of “spiritual exercises,” involving attention and concentration (Hadot & Davidson, 1995)\textsuperscript{52}.

In summary, the mind-body issue has been torn between two major schools of thought: The predominantly Western “Dualism,” which sees the body and mind as separate phenomena (Crane & Tatterson, 2006)\textsuperscript{53}, and monism which sees the mind-body as one entity. Dualism can be traced back to Plato (Morton, 1996)\textsuperscript{54}, Aristotle (Robinson, 1983)\textsuperscript{55} (Nussbaum, 1984)\textsuperscript{56} and was most precisely formulated by Rene Descartes in the 17th Century (Descartes, 1998)\textsuperscript{57}.

In contrast to dualism, monism does not accept any fundamental divisions – and this view of the nature of reality has been central to the Eastern philosophies for well over 2000 years as described above. In Indian and Chinese philosophy, monism is integral to how experience is understood.

3.3.3 The Mind-Body Issue in the Common Era

The distinguished author and lecturer, Robert M. Young, in “The Mind-Body Problem” (Young, 1990)\textsuperscript{58} makes many interesting and relevant points. Firstly that the dualistic approach has created a situation, where, “On the whole, the incorporeal realm has been seen as more enduring, efficacious and valued than the corporeal, which is often described as transient, of little value, and even illusory.” So whether the divide is between the corporal and the spiritual, or between the corporal and the mental, it is the body that is seen as “of little value.”

This present study reflects on exactly this central point: That it is this devaluation of the body that lies at the root of so much modern pathology and which urgently needs to be redressed.
In the same work, Young quotes Whitehead at length as part of his critique of the separation of mind from the body, and the dominance of this idea over Western thought: “And yet – it is quite unbelievabl e. This conception of the universe is surely framed in terms of high abstractions, and the paradox only arises because we have mistaken our abstraction for concrete realities” (Whitehead, 1925)\(^59\).

Again, we see the fundamental distraction of obscuring the reality of our physical – and bodily – existence with mental abstractions. As Young puts it: “What a mess! Yet is well and truly still *our* mess.”

Young continues: “Rather than remaining split by the mind-body problem, it would surely be better to find a way of knowing that (to paraphrase Gilbert and Sullivan) the meaning isn’t matter and never idle patter of a transcendental kind. Nature is a meaningful unity, of which our philosophies must be seen as a part. Those, like Rorty, who would dissolve the history of the great questions of ontology and epistemology — of mind/body and subject/object — into a moving army of metaphors, seem to me to be appropriately gentle:

‘These so-called ontological categories are simply the ways of packaging rather heterogeneous notions, from rather diverse historical sources, which were convenient for Descartes' own purposes. But his purposes are not ours. Philosophers should not think of this artificial conglomerate as if it were a discovery of something pre-existent — a discovery which because ”intuitive” or ”conceptual” or ”categorical” sets permanent parameters for science and philosophy’ (Rorty, 1980)\(^60\).

“That is to say that what we mean by reality, including minds, bodies, persons and other dimensions of nature, is inside history and open to historical revision and reconceptualisation. It is to be hoped that the concepts will be friendly rather than tyrannical (Young, 1990)\(^58\).”

This present study intends to be part of that reconceptualisation, and a friendly one at that. The first “friendly” action would be to simplify some of the complexities above. What these authors are saying is that the body is real, simply natural and concrete, while most of the philosophy about the mind is based on complex theoretical abstractions with no reality beyond the imagination of the philosophers concerned.

Given the “mess” created by this mind-body dualism, it is not surprising that very little of value in the mind-body development came out of the Western world, dominated as it was, by the dualism of the Greeks initially, and later Descartes. Only in very recent times has the West begun to reject this dualistic approach.
A combination of modern globalization and multiculturalism has allowed the spread of ideas which challenged the Cartesian dualism inherited by the West. This coincided with a stage in Western economic development, where the limits of materialism to satisfy human needs has become more obvious, which is closely related to the sense of “anomic” referred to in the previous chapter. This is also reflected in the rise of an increasing interest in “psychosomatic” phenomena (Entralgo, 1955), humanistic psychology, and a wider view of “spirituality” beyond the conventional offerings of the religions – what has been also called “The New Age.” This wider view resulted in the discovery that the rest of the world didn’t share this dualistic view.

In fact the term “bodymind” is reported to have been coined by David E. Shaner in his 1979, University of Hawai, thesis, later expanded into his book on Japanese Buddhism, (Shaner, 1985). Other influences in the same direction, in addition to the ones mentioned above, included sources from as far afield as from ancient Tibetan wisdom to the Navajo Indians (Arpaia, 2004) (Gold, 1994).

The final nails in the coffin of Cartesian Dualism have come from recent major advances in the neurosciences. Firstly, the discovery in 1981 by David Felten of a network of nerves leading to cells of the immune system (Ader et al., 1991). Up until that point, the Cartesian influence had prevailed and it was accepted wisdom that the immune system and the nervous system were separate. Then, in 1985, Candice Pert discovered that neuropeptide-specific receptors are present on the cell walls of both the brain and the immune system (Pert et al., 1985). This work showed that the immune and endocrine systems are modulated not only by the brain but also by the central nervous system itself, a crucial step in the understanding of the role of emotions on health and then mind-body connection.

The next major advance in this area is the technology of brain imaging techniques. Increasingly it is possible to decode thoughts and feelings and make “thought reading” a reality (Haynes & Rees, 2006), (Andreasen, 1988). Also through the use functional magnetic resonance imaging, (FMRI) Sara Lazar at Harvard has shown specific brain changes for example with stress. Highly stressed animals show an increasing size of the amygdala in the brain; and compared with normal, people practicing the mind-body technique of mindfulness show a reduced size of the amygdala. Similarly, compared with controls, people using these mindfulness techniques show a reduction in the rate of change associated with aging in controls (Hölzel et al., 2009) (Hölzel et al., 2010).
A further advance is the extraordinary developments in the recent understandings of neuroplasticity. It had been the accepted wisdom that after the early years of life, the topography of the brain is essentially fixed. The part of the brain that processes the sensations from the middle finger will always process those sensations. Now it has become clear that this is not the case at all. In 1968 Merzenich discovered that this brain mapping is not fixed but responds to changes in patterns of sensory input (Paul et al., 1972). It was not until 1999, that Nobel Prize winner, Wiesel finally acknowledged that the accepted wisdom had been wrong and confirmed Merzenich’s findings (Wiesel, 1999).

Any discussion about the effectiveness of body-mind interventions is dramatically impacted by the understanding from Merzenich’s research that shows that even the so-called “hardwired” brain can “change” in response to external changes – what to say of the “software,” the habits and conditioning of our previous individual experiences!

And finally, as a reflection of the current acceptance of the mind-body being one entity, a recent news release (BBC News, 2012), The British Neurological Association was cited as describing as "exciting," the announcement that “a new brain scanner has been developed to help people who are completely paralyzed speak by enabling them to spell words using their thoughts.”

In terms of education, it would be hard to over-estimate the implications of this understanding of neuroplasticity for education, particularly physical education. It suggests that when physical interventions “affect” mental outcomes as we have discussed above, these interventions will be actually rewiring the brain at the same time.

### 3.3.4 Traditional Mind-Body Interventions

As mentioned above, since the first recorded history there is evidence in the literature of what we would now call “mind-body interventions.” While some scholars (Choudhury, 1956) place the earliest mentions of such “spiritual practices” at the end of the stone age, others (Chanda, 1932) identify the first evidence of “Yoga postures” during the Indus Valley Civilization, from about 3000 B.C.E. From those early days, many of the same practices continue to be used today, for example, Yoga, Vippassana, martial arts, traditional Zen practices, Sufi Whirling, and Dance.

#### 3.3.4.1 Yoga

Yoga is one of the oldest mind-body interventions. The term "yoga" first appears around 400 BCE in the Hindu scripture *Katha Upanishad*, which presents the basics of
Yoga, and defines it as the steady control of the senses, which along with cessation of mental activity (Flood, 1996)74.

Techniques for controlling breath and vital energies are mentioned long before that in the Vedic Brahmanas text from around 1000–800 BCE, and the Atharvaveda (Whicher, 1998)75 (Jacobsen & Larson, 2005)76. Nasadiya Sukta of the Rig Veda suggests the presence of an early contemplative tradition (Wynne, 2007)77.

The body-mind aspect of Yoga is essentially that keeping the body still helps to still the mind. In fact this can be regarded as a body to mind intervention, in that it starts with the body and breath as a means to provoke the “cessation of mind” as described in Patangali’s basic early Yoga Sutra.

As Yoga slowly emerged over the centuries, it became and integral part of Hinduism, Buddhism, and Jainism, and developed many different schools (Larson, 2008)78. In the 19th Century Yoga was introduced to the West and today for example in the US, there are said to be as many as 20 million followers (Broad, 2012)79.

3.3.4.2 Martial Arts

Many cultures around the world have developed the use of weapons into an art form. And some have taken this a step further. Beyond developing the skills required to be a successful fighter, they have extended the discipline required to be a successful fighter into the discipline required to be a complete warrior, or a complete human being. Extending the process from an opportunity to learn about doing to being – a parallel to the proposal of this thesis, of using movement, not only to develop the body but also for personal development.

Some writers have linked Indian martial arts since antiquity. They describe a clear connection between martial arts and Patanjali’s Yoga Sutras, dance, and early Buddhist texts. And later, Vatsayana’s Kama Sutra includes mentions of the value of martial arts (Svinth, 2002)80 (Chakravarti, 2004)81 (Zarrilli, 1995)82 (Zarrilli, 2000)83 (Haines, 1995)84.

In China, Sun Tzu’s “The Art of War” written in the 4th or 5th Century BCE (Sun Tzu, 2010)85 is one of the first accounts where the mind of the combatant is understood to be as important as the body – or the physical skills of the combatant. Taoist influences by Chuang Tzu and Lao Tzu are also said to have been added to Chinese martial arts at this same time (Wilson, 2012)86. It is also claimed that an early form of T’ai chi was practiced by Taoists as early as 500 BCE (Lao, 1997)87.
Finger positions identical to Buddhist and Hindu Mudras have been noted by some authors as evidence that these martial arts had a deeper significance than simply being a good fighter (Johnson, 2000). From those ancient origins, Martial Arts have been practiced in almost every culture, but it seems it was not until the 16th Century that Martial Arts really developed as a form of spiritual self-development. “The martial arts were transformed from a practical means of combat-to-the-death to spiritual education training that emphasized the personal development of the participant. Thus the art of fighting with a sword, *kenjutsu*, became transformed into “the way of the sword,” *kendo*. Soon other martial arts were given the ending –*do*, which means, ‘the way,’ or more fully ‘the way to enlightenment, self-realization, and understanding.’ This Zen element is reflected to various degrees in aikido, judo, kerate-do, tae-kwon-do, hapkido, and jeet-kun-do, among others” (Hyams, 2000).

As mentioned above, T’ai chi is related to ancient Chinese martial arts, and Chinese philosophy. Tai chi teachers have presented T’ai chi as a practice that can be applied to the student’s lifestyle (Lao, 1997). In summary, in many cultures, martial arts have used physical movement to effect inner change, quite separate from any outer fighting skills, and are clearly examples of traditional mind-body interventions, or more accurately, body to mind interventions.

### 3.3.4.3 Vipassana

Mention should also be made of Vipassana, originally from Pali, meaning “‘insight’, a clear awareness of exactly what is happening as it happens” (Gunaratana, 2011). It qualifies as a mind-body intervention because it uses the simple point that physical actions, like breathing and movement are happening in the present moment, and when the practitioner is aware of these events he or she too will be brought into the present moment, “as it happens.” Buddhist influences traveled from India to China, and also to much of the rest of Asia, and to Japan, where Zen emerged. The next new development was that ordinary activities of everyday life could also be used as opportunities to be present and aware. Whether Archery, flower arrangement, or having a cup of tea, any action could provide this opportunity. This new approach to meditation as a way of living, not separate from normal life is attributed to the 8th Century Zen Master, Hyakujo, with his famous quote, “One day not work, one day not eat” (Melton, 2011).
3.3.4.4 Sufi Whirling

One of the most interesting traditional body-to-mind interventions was Sufi Whirling. It originated with Mevlâna Jalâluddîn Rumi, after whom was created the Mevlevi Order, later known as the Whirling Dervishes (Schimmel, 1975). As the body rotates faster and faster, the real individual crystalizes in as an unmoving still center, distinct from the transitory nature of the constantly moving periphery, described by outsiders as "ecstatic trances" (Schimmel, 1975). Called sama, which means “listening” with the related dhikr which means "remembrance" (During & Sellheim, 2010), places Sufi Whirling very close to the traditional understandings of meditation, perhaps one of the first examples of an active meditation.

3.3.4.5 Music and Dance

The normal view of the mind-body or mind-brain relationship is that the main function of the body is to provide the brain with a nice safe location, including providing all the resources it needs, so it can think. Again as the researcher has discussed in Chapter 2, the body is usually presented as the poor cousin of the mind-body complex.

Neuroscientist Daniel Wolpert, University of Cambridge, Professor of Engineering is perhaps the most radical exponent of a new understanding, which dramatically reverses this traditional view, and starts from a surprising premise: the brain evolved, not to think or feel, but to control movement. As he puts it: “You may reason that we have [brains] to perceive the world or to think, and that’s completely wrong” (Wolpert, 2011).

In the same talk he says, "I believe that to understand movement is to understand the whole brain. And therefore it’s important to remember when you are studying memory, cognition, sensory processing, they’re there for a reason, and that reason is action.” He continues, “Movement is the only way we have of interacting with the world, whether foraging for food or attracting a waiter's attention. Indeed, all communication, including speech, sign language, gestures and writing, is mediated via the motor system...."

There can be no evolutionary advantage to laying down memories of childhood or perceiving the color of a rose if it doesn’t affect the way you’re going to move later in life.” And, ultimately, “We have a brain for one reason and one reason only — and that’s to produce adaptable and complex movements.”

So, it is not surprising that dance has played such an interesting role in the history of the body and mind.
As More and Yammamoto (2011) describe “bodily movement” as “the most dynamic dimension of human life.”

They continue, “From ancient times onward, the wise have advised that people should be judged, not by what they say, but by what they do. Contemporary research corroborates this advice, for ‘nonverbal communication is usually seen as more believable than verbal messages’ (Guerrero et al., 1999). Movement which is the behavioural domain beyond words, has been called, ‘the bedrock of the common man and the core culture that rules his life’ (Hall 1983).

Dance formed an important part of the ancient cultures of ancient India, Egypt, Greece and Crete, (Kassing, 2007), particularly in India (Devi, 2002), where its origins were clearly religious, and so clearly one of the earliest examples of a body to mind intervention.

A further example of this body to mind relationship is The Zar, a dance “dating as far back as ancient times” and “performed for the sole purpose of healing” and “practiced by Moslems, Christians and Jews, in Egypt, the Sudan and Ethiopia, where it originated” (Guindy & Schmais, 1994).

Completing this brief review we must obviously include music that has historically been an integral part of dance, and naturally implies rhythm and harmony, essential parts of this study, and vital aspect of all education in the widest sense. It is also a body to mind intervention as the neurologist, Oliver Sachs (2007) describes. He writes, “William James referred to our ‘susceptibility to music,’ and while music can affect all of us – calm us, animate us, comfort us, thrill us, or serve to organize and synchronize us at work or pay – it may be especially powerful and have great therapeutic potential for patients with a variety of neurological conditions. Such people may respond powerfully and specifically to music (and sometime, to little else).”

3.3.5 Modern Mind-Body Interventions

The most obvious modern mind-body intervention is simple exercise. Numerous studies now confirm the benefits of exercise for health. For example, Penedo and Dahn (2005) have reviewed highlights of “recent work evaluating the relationship between exercise, physical activity and physical and mental health. Both cross-sectional and longitudinal studies, as well as randomized clinical trials, are included. Special attention is given to physical conditions, including obesity, cancer, cardiovascular disease and sexual dysfunction. Furthermore, studies relating physical activity to depression and other mood states are reviewed.”
Including several age groups, diverse ethnic populations, men and women, they note, “Results of the studies continue to support a growing literature suggesting that exercise, physical activity and physical-activity interventions have beneficial effects across several physical and mental-health outcomes.” In particular they conclude “participants in randomized clinical trials of physical-activity interventions show better health outcomes, including better general and health-related quality of life, better functional capacity and better mood states.”

In a similar review of 152 separate studies, Darren et al. (2006) confirm that there is irrefutable evidence of the effectiveness of regular physical activity in the primary and secondary prevention of several chronic diseases (e.g., cardiovascular disease, diabetes, cancer, hypertension, obesity, depression and osteoporosis) and premature death.”

As the researcher has noted above, “exercise” is a very broad term and it may well be that different physical interventions have different outcomes on different populations. This applies not only to the educational field as the researcher has already mentioned, but for health care in general.

One study (Wolsko et al., 2004) found nearly 20% of US adults surveyed “used at least 1 mind-body therapy” in the previous year, with about 20% of these “involving visits to a mind–body professional. Meditation, imagery, and yoga were the most commonly used techniques.” These services were used for a “full array of medical conditions” such as chronic pain, insomnia, conditions for which consensus panels have concluded that mind–body therapies are effective.” They were also used for “those with heart disease, headaches, back or neck pain, and cancer, conditions for which there is strong research support.”

This present study focuses on an intervention for “healthy people” and the possibility of them becoming even more healthy, rather than sick people.

Qigong is a good example. It comprises breathing, physical, and mental training methods based on Chinese philosophy (Kam-Chuen, 1991), dating back some 4000 years. While also used for medicinal purposes, it is widely used today in China and throughout the world to wellbeing and longevity. From the perspective of this study, it is interesting to note that Gigong includes elements of flexibility, breath and awareness (Kam-Chuen, 1991).
Tai Chi, is another ancient Chinese mind-body intervention which is widely used today for wellbeing and stress, which also uses movement, breath, and awareness, important components of this study.

For example, one group, (Jahnke et al., 2010)\textsuperscript{106}, confirmed that “research examining the psychological and physiological benefits of Qigong and Tai Chi is growing rapidly. The many practices described as Qigong or Tai Chi have similar theoretical roots, proposed mechanisms of action, and expected benefits.” This study “examines the evidence for achieving outcomes from randomized controlled trials (RCTs) of both.” They concluded: “Research has demonstrated consistent, significant results for a number of health benefits in RCTs, evidencing progress toward recognizing the similarity and equivalence of Qigong and Tai Chi.”

Yoga is another very popular mind-body intervention today. Wolsko et al. (2004)\textsuperscript{104} reported that, “mind–body therapies used by at least 1% of the population in the last year. Meditation was used most commonly, followed by guided imagery and yoga.”

As Yoga is particularly focused on flexibility, breath and awareness, it is a valuable mind-body intervention to consider in our current context.

Lehrer, Woolfolk, and Sime, (2008)\textsuperscript{107} reported that they had performed, “a bibliometric analysis of Yoga therapy research ” revealing “a total of 181 publications in 81 different journals published by researchers in 15 different countries from 1967 to early 2004 (Khalsa, 2004)\textsuperscript{108}.” They reported on studies showing benefits for a wide range of stress-related conditions. They conclude that “Yoga is perhaps the most comprehensive approach in mind-body medicine, and therefore it is an ideal stress management intervention.”

Interestingly, given our focus here on education, Galantino, Galbavy and Quinn (2008)\textsuperscript{109} in a systematic review of the literature, “on the effect of yoga on quality of life and physical outcome measures in the paediatric population. They “explored various databases and included case-control and pilot studies, cohort and randomized controlled trials that examined yoga as an exercise intervention for children.” They concluded, “The evidence shows physiological benefits of yoga for the paediatric population…”

As mentioned above, meditation is one of the most common mind-body interventions used today. In the context of this study, with awareness as a major component, studies on meditation are important to look at.
Baer (2003)\textsuperscript{110} has reviewed mindfulness and mindfulness-based interventions, and concludes that findings “suggest that mindfulness-based interventions may be helpful in the treatment of several disorders.”

Jacobs (2004)\textsuperscript{111} reports that “Several hundred peer-reviewed studies in the past 20 years have shown that the relaxation response and mind–body interventions are clinically effective in the treatment of many health problems that are caused or made worse by stress. Recent studies show that mind–body interventions may improve prognosis in coronary heart disease and can enhance immune functioning.”

Donovan and Taylor (1999)\textsuperscript{112} produced a huge review of the meditation literature of the time and again confirmed it benefits in a wide range of issues related to stress and well being.

An interesting new development in this field is the use of music. In response to studies on children with attention deficit disorder (Russell et al., 1997)\textsuperscript{113} and dyslexia (Tallal, 2004)\textsuperscript{114}, Alexander Khalil (Khalil, 2010)\textsuperscript{115}, a post-doctoral scholar at the Department of Cognitive Science-UCSD, has provided the theoretical framework (Khalil 2010)\textsuperscript{115} behind a pilot project, conducted at the Museum School, a San Diego City Schools charter school, demonstrated a significant correlation between the ability of 150 children to synchronize in an ensemble setting and overall attentional performance, as measured by standard psychometric tests and teacher questionnaires. (Khalil et al., 2010)\textsuperscript{116}

The researcher has reviewed here the literature of the most well-studied and fast-growing modern mind-body interventions. There are too many other interventions to cover completely, and many of them have yet to be scientifically validated. For example, NIA is a dance-based intervention, where there is not yet enough research to comment. Most are not specifically related to the components included in this study.

3.4 Benefits of Mind to Body Interventions

The researcher has discussed at length above many of the studies demonstrating the benefits of different mind-body interventions. For clarity, it is best to review these in two parts, firstly body to mind interventions, and secondly mind to body interventions, with the proviso that as the mind and body are one entity, and are clearly dialectically related at the most, any such distinction will necessarily be somewhat arbitrary. A flexible body may help support a flexible mind, which in turn will support a more flexible body, and so on.
3.4.1. Benefits of Body to Mind Interventions

The researcher has described in detail the problems associated with the modern sedentary lifestyle and lack of exercise in particular. In this chapter the researcher has reviewed the benefits of exercise in helping to prevent or at least mitigate these ill effects.

For example, the U.S. National Institute for Health (2011)\textsuperscript{117} is clear in their advice to older citizens: They conclude that “Regular physical activity and exercise are important to the physical and mental health of almost everyone, including older adults. Staying physically active and exercising regularly can produce long-term health benefits and even improve health for some older people who already have diseases and disabilities.”

They quote the U.S. Surgeon General's Report on Physical Activity and Health, which concludes, “Inactive people are nearly twice as likely to develop heart disease as those who are more active. Lack of physical activity also can lead to more visits to the doctor, more hospitalizations, and more use of medicines for a variety of illnesses.” The confirm that exercise “is an effective treatment for many chronic conditions. For example, studies show that people with arthritis, heart disease, or diabetes benefit from regular exercise. Exercise also helps people with high blood pressure, balance problems, or difficulty walking.” In addition, the add that “Regular, moderate physical activity can help manage stress and improve your mood. And, being active on a regular basis may help reduce feelings of depression. Studies also suggest that exercise can improve or maintain some aspects of cognitive function, such as your ability to shift quickly between tasks, plan an activity, and ignore irrelevant information.”

The Surgeon General’s report puts it succinctly: “regular physical activity greatly reduces the risk of dying from coronary heart disease, the leading case of death in the United States. Physical activity also reduces the risk of developing diabetes, hypertension and colon cancer, enhance mental health, fosters healthy muscles, bones and joints; and helps maintain function and independence in older adults.”

The report appeals to the reader: “I believe we can team up to create a new physical activity movement in this country. In doing so, we will save precious resources, precious futures, and precious lives. The time for action—and activity—is now.”

As our focus in on education, it is important to note the review by Ian Janssen and LeBlanc (2010)\textsuperscript{118}. They identified 11,088 papers on the health benefits of physical activity and fitness in school-aged children and youth after screening for eligibility, and
then “abstracted data for 113 outcomes from 86 eligible papers.” They concluded, “Physical activity was associated with numerous health benefits. The dose-response relations observed in observational studies indicate that the more physical activity, the greater the health benefit.”

As the researcher has already noted, what kind of exercise benefits which population is not always clear from the literature. The researcher has already reviewed the benefits from other body to mind interventions, for Qigong and Tai Chi (Jahnke et al., 2010) and Yoga, (Lehrer et al., 2008) (Khalsa, 2004) (Galantino et al., 2008) – the most widely used and researched body to mind interventions in use today.

3.4.2. Benefits of Mind to Body Interventions

The most important and most thoroughly researched body to mind intervention is meditation, which is of particular interest in this study as “awareness” is also included as one of the main components of the study.

In addition to the studies mentioned above on the benefits of meditation and awareness (Baer, 2003) (Jacobs, 2004) (Donovan & Taylor 1999), there is an increasing volume of valuable new data available.

Several studies have shown that “prolonged stress exposure leads to increases in measures of amygdala structure in rodents (Vyas et al., 2002) (Mitra et al., 2005). Holzel, et al., (2010) have shown that participants in a mindfulness program showed that “the more participants’ stress levels decreased, the greater the decrease of gray matter density in the right amygdala.”

In another study, (Holzel et al., 2011) the researchers reported, “The results suggest that participation in MBSR (Mindfulness-Based Stress Reduction) is associated with changes in gray matter concentration in brain regions involved in learning and memory processes, emotion regulation, self-referential processing, and perspective taking.

Another fascinating finding suggest that meditation may even delay aging. When comparing meditators with controls, the study found “In one focal region of BA 9/10 the average cortical thickness of the 40-50-year-old meditation participants was similar to the average thickness of the 20-30-year-old meditators and controls, suggesting that regular practice of meditation may slow the rate of neural degeneration at this specific locus. (Lazar et al., 2005).
Finally, several recent studies have shown not only that meditation effects aging, but even gene expression (Epel et al., 2009)\textsuperscript{124} (Jacobs et al., 2010)\textsuperscript{125} (Hoge et al., 2013)\textsuperscript{126} (Bhasin et al., 2013)\textsuperscript{127}.

Given that awareness is one of our selected components, and our focus is on education, these findings are of major significance to this study.

\textbf{3.5 Self Development in Education}

The idea that education can be more than simply teaching students to be passive recipients is of fairly recent origins. Paulo Freire (1970)\textsuperscript{128}, expounded the notion of the ‘practice of freedom’ in education, further expounded by Peter Mayo (1999)\textsuperscript{129} and Freire (2004)\textsuperscript{130}.

A less political and more personal approach to self-development has been articulated by Magolda (2004)\textsuperscript{131}. A groundbreaking longitudinal study on self-development in education, including annual interviews of 101 first-year students, which continued often into their early thirties, provides the author’s appreciation of self-development, or “self-authorship” as she describes it. She notes, “Survival in the 21st Century requires flexibility, adaptability… the ability to cope with rapid change, ambiguity, diversity and complexity – in their work, personal lives, and communities—the need self authorship.”

Magolda (2004)\textsuperscript{131} describes how the missing piece of their college was “the lack of emphasis on developing an internal sense of self.” And that, “inviting the self into the education process require moving away from the traditional and control-oriented forms of organizing student life that prevail on many campuses.” In particular Magolda notes the need for contemporary students to learn “self-authorship” because they “require the ability to construct our own visions… and to take responsibility for those actions.” She identifies the importance for young people to discover themselves, as well as simply discover information.

As Robert Kegan (1994)\textsuperscript{132} describes it, as workers, adults are expected to “intent our own work… to be self-imitating, self-correcting, self-evaluating… to be guided by our own visions…to take responsibility for what happens to us… to be accomplished masters of our particular work roles, jobs, or careers.”

The value of “self-development” has also been identified in recent years in child psychology (Shweder et al., 1998)\textsuperscript{133}, while Confessore and Kops (2006)\textsuperscript{134} identify the importance of “self-directed learning.”
These developments now form an important developing area of research in the field of education (Cremer et al., 2010)\(^{135}\) (Hirt, 2009)\(^{136}\) and have strongly influenced the direction of the present study.

### 3.6 Mind-Body Management Education (MBME) for Self Development

The Mind-Body Management Education program has been designed to address the issues of learning to manage ourselves in today’s challenging world, and the implication of this for education in particular.

It is designed specifically for contemporary people as a way of providing them perhaps the most valuable of all tools, particularly given the situations they are going to find themselves in: the ability to change, and to love change. This need to change and be flexible suggested that “flexibility” would be a good bodily quality to include in the study, and in view of the rapidity of change today, “balance” was clearly also a valuable quality to examine.

There have been many studies of mind-body interventions that show clear improvements in bodily flexibility (De Vries, 1962)\(^{137}\) (Bal & Kaur, 2009)\(^{138}\) (Cowen & Adams 2005)\(^{139}\), and balance (Tsang & Hui-Chan, 2004)\(^{140}\) (Chen, & Sherman 2002)\(^{141}\), and others which show improvements in both flexibility and balance (Taylor-Piliae et al., 2006)\(^{142}\) (Hong et al., 2000)\(^{143}\).

As might be expected most of the studies of mind-body interventions that demonstrate increased flexibility and balance are based on traditional forms like Tai Chi, Qi-gong, and Yoga. As these interventions also include “awareness” it is not surprising some researchers have measured all three of these variables and shown benefits for all three (Galantino et al., 2004)\(^{144}\) (Colon, 2006)\(^{145}\).

As discussed above under “3.3 Modern Mind-Body Interventions,” there are numerous publications demonstrating the effectiveness of many mind-body interventions in raising awareness, most often mindfulness based approaches, as well as Yoga, Tai Chi and Qi-gong. The numerous benefits of awareness shown in that literature, as well as from the sources cited above under “3.4 Benefits of Mind-Body Interventions,” confirm the importance of including this component in the study, particularly for both educational and self-development reasons.

This present study is focused on body-based interventions, so the results of Yoga, Tai Chi, and Qi-gong for example are the most useful in this context.
In addition, “breathing” was also included as one of the components of the study. Again in the traditional philosophies behind, Yoga, Tai Chi and Qi-gong, breath, or prana in the Yoga context, and chi in the Chinese context are seen as fundamental to health, well being, and awareness (Kason, 2000) (Rammurti & Sarasvati, 1997) (Sovatsky, 1998) (Chang, 2011). Breath is also now an accepted part of modern Western medicine (Mehling, 2001) (Mehling et al., 2005) (Descilo et al., 2010).

Beauty & Grace were added as a fifth component, as an expression of all the other qualities. Of course it is a complex concept that has kept philosophers and poets busy for centuries, but has not been of major interest to experimental academic studies like this one. Related to this context however, research in sports has addressed the value of appreciating “beauty and grace” found in athletic performances others (Guttmann, 1986) (Goldstein, 1988), while others have noted the response of spectators’ esthetic sense as well as their self-esteem (McDonald et al., 2002). How much more could be experienced by actually participating?

3.7 Implications for further research

It is clear from the studies mentioned above that mind-body interventions have enormous potential to benefit participants, for both the body and the mind. The benefits extend beyond the body to the mind. Further research is needed to identify exactly which interventions affect exactly what aspects of different populations. This includes more clearly identifying how, and which, interventions that are essentially “mental” also affect the body, and how, and which, interventions that are essentially “physical” also affect the mind.

The most valuable area of future research may be to particularly examine further the evidence from the studies of using physical interventions to affect the mind, and even the soul of participants, in ways never before seriously considered. Particularly interesting in this regard is the potential benefit of physical interventions for improving for example the cognitive skills and psychological wellbeing of students, not to mention the many other goals of education. In particular, what needs to be investigated further is the possibility of researching the possibility of physical interventions in helping students acquire a sense of their own self worth, and to help them understand that they need to depend on no one else: they can develop their own unique qualities through a process of self development. Perhaps the most important aspect of education.
3.8 Chapter Summary

In this chapter, the researcher has examined the vast existing literature of mind-body interventions from the earliest times down to the present. In particular, the researcher has presented a review of the research of mind-body management in education and mind-body integration of note is extensive literature presented, showing the benefits of these interventions and their value particular for self-development in education. Also the researcher has presented a review of the literature related specifically to the components used in the present study of the Mind-Body Management Education program for self-development, as well as the implications of this literature for further research.
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