# CHAPTER II

## UNDERSTANDING – MIND AND BODY

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CHAPTER II
UNDERSTANDING – MIND AND BODY

2.0 Introduction

The study was conducted in response to the widespread understanding that modern society had become increasingly mental and decreasingly physical, with significant ill effects (Biddle et al., 2000)\(^1\). The context of the study is to examine the possibility that these ill effects can be mitigated by a bodily intervention – which would not only address the bodily issues involved but would also contribute to the mental wellbeing of the participants.

This chapter elaborates the historical context of the mind and body in which MBME has been developed as an educational tool for self-development.

2.1 A Historical Perspective of the Mind and Body

The history of “the mind and the body” runs along two parallel tracks. One is the intellectual effort to analyze and understand the mind and body – the theory. The second is the story of how humans have actually been living for these past millennia – the reality.

2.1.1 The Theory of Mind and Body – Past and Present

While the East and the West came to different conclusions when trying to understand the mind and the body over the last two millennia or so, the subject only seems to have become “a problem” in 17th Century Europe, particularly at the time of Rene Descartes. “If we cease to look at the pre-modern formulations and ask when the mind-body problem became conceptualized in the ways which we can recognize as more or less our own, the answer lies in the philosophical writings of René Descartes (1596-1650) and in his place in the so-called 'Scientific Revolution' of the sixteenth and seventeenth centuries” (Young, 1990)\(^2\).

From this time to the present almost every major Western figure in mathematics and philosophy seems to have been involved. From Copernicus, Kepler, Galileo, Newton, Whitehead, Burke, Locke, Hume John Stuart Mill, Spencer, Hobbes, and even John Hughlings Jackson and Freud (Young, 1990)\(^2\).

Despite all this attention, Young concludes, “All of this leads one back to the drawing board.” Confirming Feigl’s view: “It is truly a cluster of intricate puzzles” (Feigl, 1958)\(^3\).
Meanwhile the rest of the world, and particularly the East, remained clear of all this confusion with its simple understanding that there was no such problem: the mind and the body were two aspects of one mind-body continuum. For example, the Anthropologist, Gold (1994)\(^4\) has documented that the oneness of the body-mind was understood equally by the Tibetans and the Navajo Indians of North America. Gold explains that as a result of multiculturalism and globalization, the body-mind understood in these cultures has evolved into what has been called “The New Age.” At the same time modern science is now confirming this more holistic view of the mind-body as one entity (Pert, 1999)\(^5\).

2.1.2 Human Evolution: From the Physical to the Mental

For some millions of years our predecessors lived almost entirely in the physical domain. Food was either hunted or gathered, or later sown and harvested. Water was “drawn” from a nearby source and carried to where it was needed, or they had to take themselves to the water. Shelters had to be built by hand, and later, when fire was discovered, wood could be gathered, fires tended, and some light and safety brought to an otherwise hostile world of carnivorous animals whose fearsome potential and power was only amplified by the darkness (Redfield, 1953)\(^6\).

Whichever way we look at it, our past has been essentially physical. And then suddenly, in a blink of a cosmic eye, our whole existence has become mental.

We are increasingly a species of obese sedentary people who spend our time worrying about the state of each other’s minds, or at least “psychological” phenomena, rather than anything physical.

In a dramatic contrast with all those generations that went before us, we modern people tend to spend our lives in front of screens processing information through the mind, gathering our weekly food shopping which we exchange for a piece of plastic, before leaving to the car park pushing our trolleys before us.

Essentially, compared with those millions of years of living very physically, we have very recently and very suddenly moved our whole energy from the body to the mind (Gluckman & Hanson, 2007)\(^7\).

2.2 The Implication for Physical Health

The implications for the physical health of human beings of this rapid change of lifestyle are profound. For hundreds of thousands of years we lived as hunter-gatherers
constantly on the move, walking miles every day. Then, only in the last ten thousand years or so, we developed agriculture and were able to start living in one place (Cauvin, 2000). And now in the last few decades, we have become increasingly city-dwelling, sedentary office workers (Fox, 1999).

All this has contributed to our current sedentary lifestyle. “Sedentary lifestyle” is a medical term used to denote a type of lifestyle with no or irregular physical activity (CDC, 2010). A person who lives a sedentary lifestyle may colloquially be known as a couch potato. It is commonly found in both the developed and developing world. Sedentary activities include sitting, reading, watching television, busy with a mobile electronic device or a regular computer for much of the day with little or no vigorous physical exercise. A sedentary lifestyle can contribute to many preventable causes of death.

It is no surprise to find that, for the first time in human history, over-eating and obesity are now as much a threat to health globally as malnutrition and starvation. These new conditions, often referred to as the “diseases of civilization,” and as can be seen from Table 2.1 and Table 2.2, have now reached epidemic proportions.

These “lifestyle diseases” or “diseases of civilization,” are diseases that occur more frequently as a society becomes more industrialized and people live longer. They can include: Alzheimer's disease, atherosclerosis, asthma, male-pattern baldness or androgenic alopecia, cancer, chronic liver disease or cirrhosis, chronic obstructive pulmonary disease, Type 2 diabetes, heart disease, metabolic syndrome, Crohn's disease, nephritis or chronic renal failure, osteoporosis, stroke, depression and obesity.

Some diseases are specifically related to lifestyle and not age. For example diabetes and asthma appear at greater rates in young populations living with a Western Lifestyle, and their increased incidence is unrelated to age (Pollan, 2008).

One way of looking at this is to compare the health of developed and developing countries today, as a snapshot of the effects of this same progression from a more physical to a more mental lifestyle.


In Tables 2.1 developed and developing countries are compared for the leading causes of death.
### Table 2.1
Top causes of death

<table>
<thead>
<tr>
<th>Causes of death in developing countries</th>
<th>Number of deaths</th>
<th>Causes of death in developed countries</th>
<th>Number of deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-AIDS</td>
<td>2,678,000</td>
<td>Ischaemic heart disease</td>
<td>3,512,000</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>2,643,000</td>
<td>Cerebrovascular disease</td>
<td>3,346,000</td>
</tr>
<tr>
<td>Ischaemic heart disease</td>
<td>2,484,000</td>
<td>Chronic obstructive pulmonary disease</td>
<td>1,829,000</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>1,793,000</td>
<td>Lower respiratory infections</td>
<td>1,180,000</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>1,381,000</td>
<td>Lung cancer</td>
<td>938,000</td>
</tr>
<tr>
<td>Childhood diseases</td>
<td>1,217,000</td>
<td>Car accident</td>
<td>669,000</td>
</tr>
<tr>
<td>Malaria</td>
<td>1,103,000</td>
<td>Stomach cancer</td>
<td>657,000</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>1,021,000</td>
<td>Hypertensive heart disease</td>
<td>635,000</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>748,000</td>
<td>Tuberculosis</td>
<td>571,000</td>
</tr>
<tr>
<td>Measles</td>
<td>674,000</td>
<td>Suicide</td>
<td>499,000</td>
</tr>
</tbody>
</table>


As can be seen from these figures, if we consider from the list above, the conditions that are most obviously related to the diseases of civilization – ischemic heart disease, cerebrovascular disease, stomach cancer, hypertensive heart disease – we can see that while these comprise some 57% of total deaths in the developed countries. While in the developing countries these same conditions comprise only 25% of all deaths.

While this gives a good indication of the physical effects of the changes that accompany a modern developed lifestyle, the populations of the developing countries are not free from many of these same conditions. In order to really appreciate the full effects of the changes that have happened to the physical health of humanity as result of these changes we would need to know about the health of people long past, from hunter gatherers to the early agriculturalists, to the modern urban dwellers.

So, while it is easy to document what are called the “diseases of civilization,” it is not easy to compare this with the health of the ancients. Many writers contest the
common view – often held by physicians as well as layman – that primitive man was usually short-lived and subject to many diseases, and that the general lack of sanitation, lack of modern medical treatment, surgery and drugs in the primitive world prevented good physical health. According to Dr. Stanley Bass, in the first volume of his book, *In Search of the Ultimate (Vegetarian) Diet*, this seems to be a myth.

Indeed, in *The Western diet and lifestyle and diseases of civilization*, (Carrera-Bastos et al., 2011)\(^\text{13}\), the authors write, “It is increasingly recognized that certain fundamental changes in diet and lifestyle that occurred after the Neolithic Revolution, and especially after the Industrial Revolution and the Modern Age, are too recent, on an evolutionary time scale, for the human genome to have completely adapted. This mismatch between our ancient physiology and the western diet and lifestyle underlies many so-called diseases of civilization, including coronary heart disease, obesity, hypertension, type 2 diabetes, epithelial cell cancers, autoimmune disease, and osteoporosis, which are rare or virtually absent in hunter-gatherers and other non-westernized populations.” The authors conclude, “These diseases are not yet evidenced among hunter-gatherers, and therefore appear to be caused by our modern, ‘civilized’ lifestyle.”

As Professor Ken Fox (2003)\(^\text{14}\) of the University of Bristol, UK, writes in the European Food Information Council Report, “The human as hunter-gatherer developed an efficient endurance system, an ability to produce powerful energy output when required, and a capacity for energy storage. Energy had to be expended to seek food that was often spread over wide distances. Over a period of several million years, this helped humans to be highly successful survivors.”

Fox continues, “It is ironic that the pace of change in the environment in developed countries in the last century has left the human form poorly prepared. Humans are maladapted to a life where there is plentiful high-energy dense food. Without the need to physically seek food, there is no pressing need to expend large amounts of energy. Advances in technology through motorized transport, automation, and laborsaving equipment around the home, in the workplace and the shopping environment have further reduced the need for physical work. Cheap and accessible electronic entertainment makes the home an increasingly attractive and comfortable place.”

Fox concludes, “As a result, it is much easier to take life easy and more difficult to find the time and motivation for maintaining physical activity and fitness levels.”
result is that around 70% of populations in westernized countries are insufficiently active for optimal health and energy balance (Sports Council and Health Education Authority, 1992)\textsuperscript{15}.

Dr. Bass (2000)\textsuperscript{16} bases his conclusion “that primitive man is generally short-lived and subject to many diseases” is a myth on “accounts of early voyagers, explorers and missionaries, together with anthropological studies gleaned from various nutritional surveys and medical inspection made of the primitive world, or people of many lands, including all the continents and many islands…. Centuries of time involving observations of racial groups living in the early 16th century to those of the modern day.”

He states that the data indicates that, “when living under near-isolated conditions, apart from civilization and without access to the foods of civilization, primitive man lives in much better physical condition and health than does the usual member of civilized society. When his own nutrition is adequate and complete, as it most often is, his teeth are white without brushing, they are formed in perfect alignment and the dental arch is broad. The face is finely formed, well-set and broad; the body development is also good, free from deformity, and desirably proportioned in beauty and symmetry. The respective members of the racial group reproduce in homogeneity from one generation to the next, with few deviations from the standard anthropological prototype.

“Reproductive efficiency permits parturition (birth) with no difficulty and little or no pain. There are no prenatal deformities. Resistance to infectious disease is high; few individuals are sick, and these usually rapidly recovering. The degenerative diseases are rare, even in advanced life, some of them being completely unknown and unheard of by the primitive…. The duration of life is long, the people being yet strong and vigorous as they pass the three score and ten marks, and living in many cases beyond a century. “These are the characteristics of the finest and healthiest primitive races living under the most ideal climatic and nutritional conditions. Even primitive races less favored by environment have better teeth and skeletal development than civilized man. We note that people living under the culture and environment of the Stone Age, have far surpassed civilized man in strength, physical development and immunity to disease. This fact poses an important question to modern medicine and should arouse serious thought and consideration.”

Further he explains that the “Paleolithic Diet was the diet used by early man for hundreds of thousands of years preceding 10,000 years ago. It is now called the Hunter - Gatherer Diet.
“It consisted of a small amount of fruit, mostly berries (in the North), leaves and vegetables, nuts, fish, poultry & meat, occasionally eggs. No grains or legumes were used until appr. 10,000 years ago, when men began to settle in cities, plant crops, grains, legumes, and raise animals for food. From a (hunter-gatherer) diet that was largely raw and based on animal products and vegetables, man changed to a (agricultural) diet that was high in carbohydrates and sugars and cooked foods.

“This began a period of degeneration, even though the food was whole, natural and of high quality. As among the ancient Egyptians who were in terrible health (mummies show obesity and diseases). Their diet was based on fresh, organic vegetables and fruits – low-fat, but high in grains.”

Another source of information on this topic comes from a meta-analysis titled "Longevity Among Hunter-Gatherers: A Cross-Cultural Examination." Gurven and Kaplan (2007) assembled lifespan and mortality data from around the world that included isolated hunter-gatherers (the closest living relatives to our Paleolithic ancestors that can study), acculturated hunter-gatherers, isolated Neolithic cultures, Western modern civilizations, and even chimpanzees for comparison. The authors focused solely on reliable demographic data from a handful of cultures. The table below sums up the results of the study:

Table 2.2: Modal ages at death

<table>
<thead>
<tr>
<th>Population</th>
<th>Modal age at death</th>
<th>Standard deviation</th>
<th>Percent of adult deaths at mode year</th>
<th>Percent of adult deaths at and above mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hadza</td>
<td>76</td>
<td>6.0</td>
<td>2.5</td>
<td>24.1</td>
</tr>
<tr>
<td>Hlwi</td>
<td>68</td>
<td>3.3</td>
<td>3.3</td>
<td>17.9</td>
</tr>
<tr>
<td>Ache</td>
<td>71</td>
<td>7.7</td>
<td>2.1</td>
<td>24.5</td>
</tr>
<tr>
<td>Yanomamo XiliXana</td>
<td>75</td>
<td>7.3</td>
<td>1.9</td>
<td>22.8</td>
</tr>
<tr>
<td>Tsimane</td>
<td>78</td>
<td>5.9</td>
<td>3.0</td>
<td>30.5</td>
</tr>
<tr>
<td>!Kung 1963–74</td>
<td>74</td>
<td>7.8</td>
<td>2.7</td>
<td>35.4</td>
</tr>
<tr>
<td>Ache reservation</td>
<td>78</td>
<td>5.9</td>
<td>3.0</td>
<td>30.5</td>
</tr>
<tr>
<td>Abortigmes</td>
<td>74</td>
<td>7.8</td>
<td>2.7</td>
<td>35.4</td>
</tr>
<tr>
<td>Wild chimpanzees</td>
<td>15</td>
<td>16.8</td>
<td>4.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Captive chimpanzees</td>
<td>42</td>
<td>7.5</td>
<td>2.6</td>
<td>38.5</td>
</tr>
<tr>
<td>Sweden 1751–59</td>
<td>72</td>
<td>7.4</td>
<td>2.3</td>
<td>24.3</td>
</tr>
<tr>
<td>United States 2002</td>
<td>85</td>
<td>1.7</td>
<td>3.5</td>
<td>35.3</td>
</tr>
</tbody>
</table>

This data finds a balance between the romanticists suggestion of the ancients' supposed longevity and those who claim primitive human beings lived a life that was "nasty, brutish, and short" (Hobbes, 2010). Here we have numbers that secure a middle ground amidst these two extremes. The authors of the study sum up their compiled information as follows: “The average modal age of adult death for hunter-gatherers is 72 with a range of 68-78 years. This range appears to be the closest functional equivalent of an ‘adaptive’ human lifespan.”

This might be considered convincing research suggesting that our hunter-gatherer ancestors are not at all that far-removed from modern civilized human beings at least in terms of lifespan.

So, we can conclude that the benefits of modern health care have compensated for all the “diseases of civilization” so that we now live at least live as long as we did in the ancient past. This provides an interesting reflection on the level of disease caused by “civilization.”

### 2.3 The Implication for Mental Health

Assessing the effects of this rapid change in our lifestyle to the mental health of a largely urban-based civilization depends on comparisons with our ancient forebears, whose mental state is obviously not so easy to document precisely. The literature with references to mental disease in hunter-gatherer societies and ancient civilizations usually only discusses the point that mental disease, or at least brain disease, did exist and focuses on attitudes of the ancients towards mental illness rather than its incidence.

However, when we look at the precise data that is available today confirming what is called an epidemic of mental illness in modern societies (Wallace et al., 2007), it is difficult to imagine any primitive society surviving had this been the case in the long past.

For example, the US National Institute of Mental Health (2008) provides the following information:

“While mental disorders are common in the United States, their burden of illness is particularly concentrated among those who experience disability due to serious mental illness (SMI). The data presented are from the National Survey on Drug Use and Health (NSDUH).” The proportion of the adult population who suffer serious mental illness is about 6%: See Fig 2.1 below:
The National Institute of Mental Health (2005)\textsuperscript{21} provides the following additional information:

“Mental disorders are common in the United States, and in a given year approximately one quarter of adults are diagnosable for one or more disorders. While mental disorders are widespread in the population, the main burden of illness is concentrated among a much smaller proportion (about 6 percent or 1 in 17) who suffer from a seriously debilitating illness.” Fig. 2.2 below shows the percentage of the US adult population who suffer severe mental illness as a proportion of the incidence of all mental illnesses (Kessler et al., 2005)\textsuperscript{22}:
Fig. 2.2
The Prevalence of Any Disorder among Adults in the U.S.

(Source: National Institute of Mental Health report, 2005)\textsuperscript{21}

Figures 2.3 (Kessler et al., 2005)\textsuperscript{22}, and 2.4 (Colton & Manderscheid, 2006)\textsuperscript{23} below show how these disorders are spread over genders, races, ages, and geographical locations.
Fig. 2.3

The Demographics of Any Disorder among Adults in the U.S.

(Source: National Institute of Mental Health report, 2005)
Fig. 2.4

Years of Life Lost Among Public Mental Health Clients by State

(Source: Preventing Chronic Disease: 3(2): 1-14, 2006)

The report “Mental Health: A Report of the Surgeon General” (1999) was prepared against a backdrop of growing awareness in the United States and throughout the world of the immense burden of disability associated with mental illnesses. In the United States, mental disorders collectively account for more than 15 percent of the overall burden of disease from all causes and slightly more than the burden associated with all forms of cancer (Murray & Lopez, 1996).

The report notes that, “The current prevalence estimate is that about 20 percent of the U.S. population is affected by mental disorders during a given year.”

The report states, “This estimate comes from two epidemiologic surveys: the
Epidemiologic Catchment Area (ECA) study of the early 1980s and the National Comorbidity Survey (NCS) of the early 1990s. Those surveys defined mental illness according to the prevailing editions of the Diagnostic and Statistical Manual of Mental Disorders (i.e., DSM-III and DSM-IIIR). The surveys estimate that during a 1-year period, 22 to 23 percent of the U.S. adult population – or 44 million people – have diagnosable mental disorders, according to reliable, established criteria. In general, 19 percent of the adult U.S. population has a mental disorder alone (in 1 year); 3 percent have both mental and addictive disorders; and 6 percent have addictive disorders alone. Consequently, about 28 to 30 percent of the population have either a mental or addictive disorder” (Regier et al., 1993)26 (Kessler et al., 1994)27.

This same Surgeon General’s Report also states, “Few families in the United States are untouched by mental illness.” And they add, “About 20 percent of children are estimated to have mental disorders with at least mild functional impairment.”

Surveys in the US have shown that “Antidepressants were the third most common prescription drug taken by Americans of all ages in 2005–2008 and the most frequently used by persons aged 18–44 years” (Pratt et al., 2011)28. Also, the National Center for Health Statistics (2011)29 notes, “From 1988–1994 through 2005–2008, the rate of antidepressant use in the United States among all ages increased nearly 400%.”

The following graph Fig. 2.5 exemplifies the same point, demonstrating data that shows that about one in 10 Americans aged 12 and over takes anti-depressant medication (Pratt et al., 2011)28.

Fig. 2.5. Percentage of persons aged 12 and over who take antidepressants, by age and sex.

(Source: CDC/NCHS, National Health and Nutrition Examination Surveys, 2005-2008)
Any condition that affects at least one in five citizens, adults and children, of one of the most advanced societies today would seem to qualify as “epidemic.” When we also consider that it is estimated that 60-90 percent of visits to health care professionals are for stress-related disorders. (Cummings & VandenBos, 1981)\textsuperscript{30} (Elite, 1986)\textsuperscript{31}, it is an epidemic that is out of control with huge costs to the individual and society.

If the cause of this recent explosion in mental disease is related to our change in lifestyle from our hunter gather past, via agriculture and settled life, to our modern urban world, then we would expect science to confirm that the environment is critical in creating mental disorders. In fact, William Cockerham (2010)\textsuperscript{32} writes in \textit{Sociology of Mental Disorder}, “With increasing numbers of studies uncovering a significant relationship between social factors and many psychiatric conditions, the study of mentally disturbed behaviors has become an important area of research in sociology. A substantial body of evidence has accumulated over the past several decades supporting the conclusion that the social environment has important consequences for mental health.”

Emphasizing the same point that our mental health is closely related to external phenomenon, under the section, “Culture and Mental illness,” Varma (2003)\textsuperscript{33} writes, “There are certain types of cultural change that are hazardous to personality and psychic equilibrium.”

He writes: “Change is likely to stressful…

…when the tempo is accelerated and especially when major dimensions of the
…when change occurs within the lifespan of a single generation;
…when it involves pervasive reorientation about basic values and assumptions;
…when it is experienced at the outset of a cycle when few guides and models exist;
…when there has been little formal training and preparation in the skills and techniques necessary to accomplish the new tasks.”

One can hardly imagine a more accurate description of the challenges modern people face, challenges which could have been barely imaginable to the ancients.

To compare the mental health of modern societies with the ancient world cannot be an exact science. However, inferences can be drawn. For example, Dr. Bass (2000)\textsuperscript{16} in his book comments that, in addition to physical good health for the ancients, “Mental complaints are equally rare, and the usual state of happiness and contentment is one scarcely known by civilized man.”
And Dalgalarondo (1997) author of *Civilization and Madness. An Introduction to the History of Ethonopsychiatry*, writes on the same topic: “The idea that insanity is rare among primitive people and that it tends to increase in proportion to the civilizing process first appeared in the 19th century. Important psychiatrists of that time defended the idea that there is an intimate relation between civilization and mental illness. The notion about the ‘good savage,’ proposed by the French philosopher and reformer Rousseau, was still strong.

“For example, the German naturalist Alexander von Humboldt, in his trip to the tropical regions of America had been surprised by the absence of mentally ill among the savages. In another example, the doctor in charge of the removal of the Cherokee Indians to the Indian reservations observed more than 20 thousand Indians and he came to the conclusion that he had never seen or even heard about any case of insanity among the Cherokees. It was also believed that insanity was rare among the African and the Chinese, and the native peoples in the South Pacific were also exempt from insanity. Captain Wilkes, the Commander of the ‘United States Exploring Expedition’ relates that during his entire voyage to the southern seas he had not seen any case of insanity among the people of that region.”

And it is not surprising to find many descriptions in the literature where it is clear that the “large numbers of asylums that were established around world starting, most notably in the sixteenth century onwards,” was due to the “burgeoning amount of mentally ill individuals” at that time. (Foerschner, 2010) (Butcher et al., 2007).

So, it seems reasonable to conclude that while there have been “mental disorders” since recorded time, it is only very recently in human history could we call its incidence “an epidemic.”

2.4 The Implication for the Way We Live Now

As we have described, the rapid changes from a physical to a mental lifestyle in the last few thousand years has created significant challenges to our physical and mental health. Our attempts to ameliorate the effects of these changes dominate the health care systems of most of the developed world, and already much of the developing world.

In the same way, we can see rapid changes in the social relations between individuals, and between groups of individuals across the human domain. Perhaps the most obvious example related to the rapid increase on migrations across the world, the decreasing affiliation with traditional religions, the nation state, or the family.
2.4.1 The Effects of Migration

Given our focus on mind-body disintegration as the root cause behind many of today’s pathology, migration is interesting. For millions of years we wandered around a fixed locale, different places but familiar. Today, we may well be brought up in one place where our mind learns how to live, and then our bodies may be forced to move to a totally different environment. Do we leave part of our minds behind? Another cause of the modern mind body split?

With the advent of globalization and the resultant emergence of multicultural societies, inevitably the old ties that used to bind us together are loosening. Perhaps one of the greatest sources of dislocation from past values has been due to the massive increase in migration seen in the last two centuries – now an ever-accelerating process.

For example, the 2005 Revision of the UN Department of Economic and Social Affairs report (2005)\textsuperscript{37}, World Urbanization Prospects, describes the staggering increase in urbanization of the world’s population during the 20\textsuperscript{th} Century. The global proportion of urban population rose dramatically from 13\% (220 million) in 1900, to 29\% (732 million) in 1950, to 49\% (3.2 billion) in 2005. The same report projected that the figure is likely to rise to 60\% (4.9 billion) by 2030.

These numbers are even higher when one considers the transnational migrations that are now becoming commonplace with the ease of travel and the demand for young labor in aging societies. Even by the early 20\textsuperscript{th} century transnational labor migrations were running at several millions a year.

Then compound that with the numbers of internally and externally displaced people due to conflict and famine and other disasters in modern times and picture of global turmoil begins to emerge (IFRCRCS: World Disasters Report, 2012)\textsuperscript{38}.

If that weren’t enough of a challenge, we must also now consider a new category of displacement and dislocation: climate refugees (Black, et al, 2011)\textsuperscript{39}. There are also alarming predictions by the UN, charities and some environmentalists that between 200 million and 1 billion people could flood across international borders to escape the impacts of climate change in the next 40 years (Brown, 2008)\textsuperscript{40}. If these figures turn out to be unrealistic, we will be grateful. Either way, it highlights just how unknown and unpredictable our future really is. Itself a major source of psychological dislocation (Kovats & Butler, 2012)\textsuperscript{41}.
2.4.2 The Effects on Religion

Change is happening rapidly in many different fields challenging everyone to be psychologically more flexible, one of the main interests of this study.

Perhaps an inevitable result of this turmoil, and part of its cause even, are the changes happening in the world in relation to “religion.” While usually viewed as an essential part of people’s “identity,” this potentially unifying and stabilizing force is too under threat.

We can see this in the developed countries, where the old “religions” are seen as less relevant than before.

For example, the 2008 Pew report on religious affiliation in the US (Pew Forum on Religion & Public Life, 2008) report that “More than one-quarter of American adults (28%) have left the faith in which they were raised in favor of another religion - or no religion at all. If change in affiliation from one type of Protestantism to another is included, 44% of adults have either switched religious affiliation, moved from being unaffiliated with any religion to being affiliated with a particular faith, or dropped any connection to a specific religious tradition altogether.

“The survey finds that the number of people who say they are unaffiliated with any particular faith today (16.1%) is more than double the number who say they were not affiliated with any particular religion as children.

“Among Americans ages 18-29, one-in-four say they are not currently affiliated with any particular religion.”

And to emphasize the generational nature of these changes they note, “People not affiliated with any particular religion stand out for their relative youth compared with other religious traditions. Among the unaffiliated, 31% are under age 30 and 71% are under age 50. Comparable numbers for the overall adult population are 20% and 59%, respectively” (Pew Forum on Religion & Public Life, 2008).

Can one imagine any past grouping in history where 25% of the population openly declared that they were “not affiliated with any particular religion”? 

Time Magazine, in a series of articles, “Ten Ideas That Are Changing Your life” include a section on the changes happening to the traditional views of religion in the US: “The Rise of the Nones” (Sullivan, 2012). They note, “The Mainstream Protestant Churches have lost more than a third of their members since 1960.” In particular they
point out, “About 75% of Americans between the ages of 18 and 29 now consider themselves ‘spiritual but not religious.’ Furthermore, all traditional forms of Christian practice have sharply declined from previous decades (including church attendance, Bible study and prayer), and doubts are much sharper regarding traditional Christian beliefs.”

*Foreign Affairs*, published by Council of Foreign Relations, carries in its March-April 2012 issue, an article by Campbell and Putnam (2012), based on their book, *In American Grace: How Religion Divides and Unites Us*. The essence of the article is directed towards this same group of “nones” who declared that they have “no religious affiliation.”

They note that in the 1960s the “nones” comprised 5-7% of the population; by the mid-1990s they had grown to 12%; in 2011 the percentage was 19%. And according to the data on religion posted by the Pew Forum on Religion and Public Life, the incidence of “nones” is highest in the age group 30-49. The authors reject the explanation that the young have always been less religious than their elders and report that: “Today 33% of young people are religiously unaffiliated, as compared with 12% in the 1970s.” So, it is not just age. In the surveys conducted by Cambell and Putnam (2012), all “nones” grew by about 18% between 2006 and 2011. However, remarkably, the young “nones” grew by about 90% over the same period.

In the groupings of the hunter gatherers of old, or the tribal societies that developed around the later development of the cultivation of the land in one place, “affiliation” with the accepted beliefs would have been, by necessity, for all intents and purposes, 100%. Particularly in relation to their “gods.” Let alone the tribal societies of old, even in developing countries today, the idea that 25% of individuals might be “not affiliated” with the accepted religious beliefs of the rest of their family, their caste, or their society, or that 75% of young people might be rejecting traditional religious beliefs is almost unthinkable.

### 2.4.3 The Effects on National identity

The old clarion call of “For King and Country” no longer touches the younger generations as it did in times past. While it is hard to find specific statistics on this, one simple observation gives an indication exemplifies the recent change in this fundamental attitude. Fifty years ago, anyone visiting a theater in the developed world would be expected to stand for the National Anthem. Gradually people began to take no notice and simply walked out, laughing and joking, totally ignoring this attempted call to national
solidarity. Eventually this ritual was simply dropped. Today, in developing countries, one can see the exactly the same process under way.

### 2.4.4 The Effects on the Family

As the younger generations get over the obsessions with skin color and caste, again much of the “tribal” nature of the relations between people is slowly disappearing. Extended families are almost non-existent in developed societies, and even in developing countries, the reliance on the younger generation to take care of their elderly relatives is become less certain.

China for example has 200 million elderly people, many whom now have to fend for themselves. “With the introduction of economic reforms, families in China are challenged by a variety of family-related problems. Demographic and social changes are affecting both the capacity and willingness of the family to provide care for the elderly. The Chinese Government is aware of the importance of the family in the welfare of its citizens, and has promulgated a series of laws and regulations prescribing family obligations. Yet formal services supporting families are extremely underdeveloped, and it is urgent that the government formulate an effective policy to facilitate, support, and maximize family care” (Leung, 1997)\(^45\).

Even the development from the extended family to the nuclear family, with its “normal” 2.4 offspring is now being replaced by an increasing trend of people choosing instead to live alone.

Initially, it was assumed that people who were “living alone” must be abnormal in some way. A form or modern outcast. However, as is clear from the study, “Living Alone, Social Integration, and Mental Health” (Hughes & Gove, 1981)\(^46\), “There is no evidence that persons who live alone are selected into that living arrangement because of preexisting psychological problems, noxious personality characteristics, or incompetent socioeconomic behavior.” And furthermore, the study refutes the normal expectations by finding that, “unmarried persons who live alone are in no worse, and on some indicators are in better, mental health than married persons who live with others.”

So, not surprisingly, this form of living arrangement is becoming increasingly common, particularly in developed countries, and we can assume, tomorrow in today’s developing countries.

For example, “Marital Status and Living Arrangements” (Saluter, 1994)\(^47\) note that in the US, “In 1994, the median age at first marriage was 26.7 years for men and 24.5
years for women, approximately 3½ years higher than the median age in 1970 (23.2 years for men and 20.8 years for women). Another indication of delayed marriage is the significant increase in the proportion of young adults who have not yet married. Since 1970, the proportions of men and women who had never married have at least doubled and in some cases tripled for the age groups between 25 and 44 years.”

The report continues, “In 1994, 23.6 million persons lived alone or 12 percent of all adults. While women accounted for the larger share of persons living alone in 1994 (6 of 10), the number of men living alone increased at a faster pace. Between 1970 and 1994, the number of women living alone increased 94 percent (from 7.3 to 14.2 million). During the same period, there was a 167 percent increase in the number of men living alone (from 3.5 to 9.4 million).”

“There were 7 unmarried couples for every 100 married couples in 1994, compared with only 1 for every 100 in 1970. About one-third had children under 15 years old present in the home” (Saluter, 1994)47.

And clearly this trend has continued: Time Magazine of March 2012, reports, “The extraordinary rise of solitary living is the biggest social change that we've neglected to identify, let alone examine.

“Consider that in 1950, a mere 4 million Americans lived alone, and they made up only 9% of households. Back then, going solo was most common in the open, sprawling Western states – Alaska, Montana and Nevada – that attracted migrant workingmen, and it was usually a short-lived stage on the road to a more conventional domestic life.


2.5 The Implication for Society in General

2.5.1 Now

Some observers are pointing to a deeper malaise related to these lifestyle changes from ancient to modern. Beyond an increase in the incidence of morbidity and mortality for physical and mental diseases of the individual, they see pathology in society in general that has accompanied the development of “civilization.” In particular, this sociological approach is concerned in addition with “the changing nature and quality of the relations” between people (Galtung, 1995)49.
The world of the ancients was largely concerned with dealing with physical challenges like ensuring shelter, warmth, food, and water. Successful adaption to whatever situation these people found themselves facing at any given time would obviously be greatly enhanced by being able to operate together as a group, sharing the tasks at hand for the interdependent benefit of all concerned. Managing alone would be unthinkable. The connections between people were the key to their survival so was regarded as of the highest importance.

“The history of civilizations comprises only a tiny fraction of the time that the genus Homo has inhabited the earth. Civilized societies, those that relied on sedentary agriculture, developed social stratification and economic specialization, and created population densities sufficient to support urban life, have existed for the last 9,000 years. In order to understand civilizations, it is necessary to look at prehistorical precedents for human development in the Paleolithic and Neolithic ages. The rise of sedentary agricultural communities during the Neolithic is one of the first great transformations of human society” (Stearns et al., 2003)50.

So, we should not be surprised that human society is still in the process of adapting to this “great” transformation. Meanwhile the key to the success of the pre-agricultural societies of Homo Sapiens is particularly attributed, not only to “the manual dexterity that permitted the production of tools, enhancing the physical capabilities of early humans,” but in particular in this context to “the intelligence that allowed the development of spoken language, enabling groups of humans to engage in cooperative behavior” (Stearns et al., 2003)50.

Indeed, Margaret Mead in her ground breaking work, “Cooperation and Competition Among Primitive Peoples,” concludes that there is “a correspondence between: a major emphasis upon cooperation, a social structure which does not depend upon individual initiative or the exercise of power over persons, a faith in an ordered universe, weak emphasis upon rising in status, and a high degree of security for the individual” (Mead, 1937)51.

In, Body Pleasure and the Origins of Violence, James W. Prescott (1975)52 examines the hypothesis that “that human society which provide their infants and children with a great deal of physical affection (touching, holding, carrying) would be less physically violent than human societies which give very little physical affection to their infants and children.”
He explains, “Cultural anthropologists have gathered exactly the data required to examine this hypothesis for human societies – and their findings are conveniently arranged in in R. B. Textor's *A Cross-Cultural Summary* (Textor, 1967). Textor's book is basically a research tool for cross-cultural statistical inquiry. The survey provides some 20,000 statistically significant correlations from 400 culture samples of primitive societies.”

He further explains that the results in his table 1, which is now represented as Table 2.4 below, clearly indicated that those societies which give their infants the greatest amount of physical affection were characterized by low theft, low infant physical pain, low religious activity, and negligible or absent killing, mutilating, or torturing of the enemy. These data directly confirm that the deprivation of body pleasure during infancy is significantly linked to a high rate of crime and violence” (Prescott, 1975).

**Table 2.3**

**Adult Behaviors in Societies Where Physical Affection is lavished on Infants**

<table>
<thead>
<tr>
<th>Adult Behaviors</th>
<th>Percent N</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invidious display of wealth is low</td>
<td>66 50 .06</td>
<td></td>
</tr>
<tr>
<td>Incidence of theft is low</td>
<td>72 36 .02</td>
<td></td>
</tr>
<tr>
<td>Overall infant indulgence is high</td>
<td>80 66 .0000</td>
<td></td>
</tr>
<tr>
<td>Infant physical pain low</td>
<td>65 63 .03</td>
<td></td>
</tr>
<tr>
<td>Negligible killing, torturing or mutilitating the enemy</td>
<td>73 49 .004</td>
<td></td>
</tr>
<tr>
<td>Low religious activity</td>
<td>81 27 .003</td>
<td></td>
</tr>
</tbody>
</table>


Again, there is a clear implication of the considerable cost to be paid by the individual in this transformation from a predominantly physical world to a predominantly mental world, not only for the individual bodies, but the way those bodies relate to each other, and the resultant affects on the body of society in general.

For example, compare the existence of a close nit, totally interdependent hunter gathering group described above, whose very survival depends on cooperation, and the following description from contemporary China recently published in the *New York Times* (Tatlow, 2012).
Tatlow writes, “Nearly 58 million children, almost all in the countryside, are growing up without one – or, often, both – parents, according to state-run media, citing a 2010 survey by the All-China Women’s Federation. Nearly 80 percent are cared for by grandparents, while some are simply left to fend for themselves – 4.2 million, the survey found. Their parents’ absence exposes them to risks that other children may not experience.

Their parents are working in big cities, where they can make far more money, fueling the boom that turned China into the world’s second-biggest economy within three decades. There are more than 200 million adult migrant workers in China, according to official figures. The parents among them may return home once a year to see their ‘left-behind children,’ or liushou ertong, as they are called.”

The article reports on a documentary on this subject, “Children Left Behind,” by Catherine Lee Yuk San, a TV producer with the Hong Kong broadcaster TVB Jade, which won the 2007 Asia-Pacific Child Rights Award. On receiving the award, the article cites Ms. Lee as saying, “They have parents, but they just live on their own. They live very lonely lives. They eat alone, they play alone. Although it is their basic right to have their parent’s love, concern and care, in reality you can see that they live like an orphan.” When she asked one child the question, “When do you think of your parents?” She reports the answer, “Morning, noon and night.”

It is hard to imagine a more graphic depiction of what was described above as “one of the first great transformations of human society” (Stearns et al., 2003)\(^50\).

So, it is not surprising that when we look at the health of modern society, with its increasing emphasis on the individual rather than the group, we can see these same factors at work.

In the introduction to Professor Johan Galtung’s paper (1995)\(^49\), the Director of the UNRISD, Dharam Ghai, writes, “Galtung briefly explains in his paper how models of social interaction have changed over the course of human history, from the earliest (primitive) societies of hunters and gatherers, through the development of traditional structures of age- or caste-based power within agricultural societies, to the modern industrial order. In this progression, relations become increasingly hierarchical and impersonal. The post-modern phase, which the current revolution in communications and robotics seems to portend, in Galtung’s view is characterized by a breakdown of human relations – a collapse and corruption of institutions, an isolation of individuals and the growing predominance of purely egotistical motivation for action.”
Ghai continues, "‘To go straight to the issue,’ the author begins, ‘the first thesis is simply this: many human societies (perhaps most) are in a state of advanced social disintegration at the close of the twentieth century.’ At the roots of this process Galtung finds a trend toward ‘destructuration and deculturation, heading for structurelessness and culturelessness’ – or what he defines as atomie and anomie.”

“Anomie” is a concept made famous by Émile Durkheim in his influential book *Suicide* (Durkheim, 1979). Durkheim describes anomie as "a rule that is a lack of rule," "derangement," and "an insatiable will" (Stjepan, 1993). Durkheim’s *Anomie* has also been described as “a mismatch between community of practice and information artifacts.” Creating young people who are “at loose ends, with no road map…. A mismatch between indivual circumstace and larger social mores” (Star et al., 1997).

As we move towards a globalized “multicultural” world, where links to family, caste, ethnic group, even religion and nation start to dissolve into a larger whole, it is natural to ask ourselves if this is yet another massive change for which, as a species, we are ill-prepared.

In a similar way, Galtung (1995) is using the word “anomie” to describe this sense of “culturelessness.” He then creates the term “atomie” to describe a situation in addition to “culturalness” which he calls “structurelessness.” As he puts it, “we are at a stage in human history where the problem is not only whether interaction structures between individuals, groups and countries are right or wrong, but whether there is any structure at all; and not only whether the culture defining right or wrong is right or wrong, but whether there is any normative culture at all.”

In the same paper, Galtung writes, “The transition from primitive to traditional was made possible by the agricultural revolution, growing plants and breeding cattle in a relatively sedentary…way. The transition from traditional to modern was made possible by the industrial revolution providing the goods, the scientific revolution providing the knowledge and the transportation-communication revolution….

“But how about the transition from modern to post-modern?”

Galtung contends that as this process continues, “We would expect a general sense of pessimism to prevail…. And that is exactly the general finding that emerged from a major comparative 10-nation study, “Images of the World in the Year 2000”: the more economically advanced the country, the more pessimistic in general terms the inhabitants.”
Galtung concludes, “In short: at the end of the road winding through history and into the future we see a social formation (‘society’ may no longer be the term) basically atomized into individuals, thinly and weakly related, each acting out of egocentric cost-benefit calculations. We are close to this state of atomie, but there is still some interaction left. We are also close to anomie, where the only binding normative culture left would be individualized cost-benefit analysis.

“On the road we would expect a number of social phenomena…. 

“First, we would expect the focus of interaction to shift from ‘mutual rights and obligations,’ a reciprocal mix of egoistic and altruistic orientation, to an egoistic orientation of ‘what is in it for me.’

“Second, we would expect increasing corruption at all levels of social organization.”

Thirdly, he writes, “We would expect increasing mobility out of nets, relations and organizations…. 

“Fourth, we would expect increasing violence at all levels of social organization.”

“Fifth, we would expect increasing mental disorder…. Types of conduct indicative of mental disorders, such as drug consumption, alcoholism, sexoholic and workaholic behavior, perverse physical and verbal violence, are also efforts to find identity in tighter and thicker human interaction and in the deeper recesses of the Self. They are outer and inner journeys. When such efforts fail, suicide is a possible way out; not only out of despair, but also as the ultimate act of egoism.”

Galtung summarizes his view of how these modernizing changes are affecting or will affect society: “Today the problem may be that there is no structure/culture at all and that violence, hurting and harming, is erupting all over as a consequence of social disorganization. Here is a typology of eight forms of violence:

1. Violence against Nature (ecological crimes)
2. Violence against Self (alcohol/drugs/tobacco, stress, suicide)
3. Violence against Family (child abuse, physical/verbal violence)
4. Violence against Individuals (robbery, assault, rape, homicide)
5. Violence against Organizations (corruption)
6. Violence against Groups (inter-class, inter-nation violence)
7. Violence against Societies (inter-state violence)”
While this is obviously a very pessimistic and perhaps extreme view, it also rings alarmingly true as we look around us, or watch the news on TV!

2.5.2 And in the Near Future

It is easy to see how the change in our lifestyle from a largely physical existence to a largely mental one has affected our bodies and minds directly. What is less obvious is that this change away from “the body” has also had profound effects on the way we relate to planetary body we stand on.

Perhaps the next “major transformation” of society lies in the very near future when we will face ecological threats of an unprecedented nature. And once again, one can see how the cost of the transition from our ancient lifestyle.

“Ecology was of practical interest early in human history in primitive society, all individuals needed to know their environment – that is, to understand the forces of nature and the plants and animals around them-to survive. The beginning of civilization, in fact, coincided with the use of fire and other tools to modify the environment. Because of technological achievements, humans seem to depend less on the natural environment for their daily needs; many of us forget our continuing dependence on nature for air, water, and indirectly, food, not to mention waste assimilation, recreation, and many other services supplied by nature. Also, economic systems, of whatever political ideology, value things made by human beings that primarily benefit the individual, but they place little monetary value on the goods and services of nature that benefit us as a society. Until there is a crisis, humans tend to take natural goods and services for granted; we assume they are unlimited or somehow replaceable by technological innovations, even though we know that life necessities such as oxygen and water may be recyclable but not replaceable. As long as the life support services are considered free, they have no value in current market systems (Odum & Barrett, 2004)58.”

It is no surprise that of all the peoples on the earth, the one who remain still most connected with the Earth are the indigenous and aboriginal peoples who still carry an understanding of the interdependence between all aspects of life.

“The theme of kinship draws attention to a key worldview value repeatedly found among indigenous societies emphasizing the integrity of all reality as well as the intimate relations maintained with the natural world” (Grim, 1998)59.”
Grim continues, “So also, indigenous life ways foster sustainable subsistence practices by gatherers, hunters, and agriculturists. Care for the earth is woven into the governance systems of indigenous people, and when these systems break down often the restraint and continence guarding life is lost.”

He concludes, “Finally, what may be the most significant insight which draws together these brief examples of indigenous environmental knowledge is the felt experience of interacting with the larger whole of reality. Cosmology describes the context in which humans reflect upon their own bodies, the collective social order, and their understanding of how the world works. The interrelationship of the microcosm of the body with the macrocosm of the larger world is mirrored most immediately for indigenous peoples in the local bioregion.”

Another commentator writes, “Encoded in indigenous languages, customs, and practices may be as much understanding of nature as is stored in the libraries of modern science (Thein & Durning, 1992).”

Deruyttere (1997) notes, “Indigenous peoples often have a strong attachment to communally held and managed land and natural resources, which form the basis of their subsistence as well as their social and cultural integrity.”

She adds, “In general, indigenous people have adapted well to their ecologically sensitive environments. In addition they have an extensive knowledge of the natural resources that surround them and have often adopted very complex methods and technologies to manage their habitat in a sustainable manner. Indigenous people regard themselves as an integral part of nature rather than seeing nature as being subject to human domination.”

No review of the dramatic changes we humans have gone through and are going through, as a way to understand how to help humans adjust and even enjoy such a rapidly changing world, would be complete without a brief look at what other changes are predicted for the near future.

While nothing is certain about the future there are some highly probable outcomes that are already affecting us, if not yet physically, at least mentally.

Simms et al. (2010) reports, “A recent UN-Habitat report talked of economic development being characterized by ‘islands of wealth in oceans of poverty’ meaning that, for the poor to get slightly less poor, the over-consuming rich must consume ever more. It’s a very inefficient way of doing things.
“Conventional economic thinking says that, if the poorest are getting a smaller slice of the cake, just bake more cakes. But that assumes we have infinite resources. Already, based on a very conservative measure, we would need at least three and a half planets like earth for everyone to copy UK levels of consumption. But in reality, due to the gap and the dynamics between rich and poor, and how natural resource-use and income are linked, just to get everyone in the world onto a modest income of $3 per day would take the resources of around 15 planets” (Simms et al., 2010).62

Needless to say, there are no more planets available, let alone 15, not ever three and a half. Clearly our current direction as a species is totally unsustainable. Perhaps a brief mention of three main topics will be sufficient to emphasize the stresses this will put on all of us: Food, energy, and water – considered against a backdrop of climate change.

Food security has been a fundamental source of human anxiety since time immemorial. To grow food we need land, energy, and water. We are now facing what has been described as the “the perfect storm” or “the ultimate recession” (Simms et al., 2010).62

Perhaps Godfray et al. (2010)63 in “Food Security: The Challenge of Feeding 9 Billion People.” put whole situation into a clear perspective:

“The past half-century has seen marked growth in food production, allowing for a dramatic decrease in the proportion of the world’s people that are hungry, despite a doubling of the total population (Fig. 2.6) (World Bank, 2008) (FAOSTAT, 2009). Nevertheless, more than one in seven people today still do not have access to sufficient protein and energy from their diet, and even more suffer from some form of micronutrient malnourishment (FAO, 2009). The world is now facing a new set of intersecting challenges (Evans, 2009). The global population will continue to grow, yet it is likely to plateau at some 9 billion people by roughly the middle of this century. A major correlate of this deceleration in population growth is increased wealth, and with higher purchasing power comes higher consumption and a greater demand for processed food, meat, dairy, and fish, all of which add pressure to the food supply system. At the same time, food producers are experiencing greater competition for land, water, and energy, and the need to curb the many negative effects of food production on the environment is becoming increasingly clear (Tilman et al., 2001) (World Resources Institute, 2005). Overarching all of these issues is the threat of the effects of substantial climate change and concerns about how mitigation and adaptation measures may affect the food system” (Parry, 2007) (Schmidhuber & Tubiello, 2007).
Fig. 2.6

Changes in the relative global production of crops and animals since 1961

(Source: when relative production scaled to 1 in 1961. (A) Major crop plants and (B) major types of livestock.) (Godfray et al., 2010)

At the same time, according to the Carbon Tracker Initiative (2012)\textsuperscript{72}, we face an energy crisis where we will soon have used up our carbon allowance that would give us an 80\% chance of keeping the rise in global temperate at only 2 degrees centigrade. There is no real Plan B. Either we use this energy and see the temperatures rises above this level or we forgo the energy sitting in the ground and see 20 trillion dollars worth of energy reserved wiped off the books. A choice between an ecological or an economic disaster. Or we start using less energy.

Meanwhile, to feed the expected nine billion, how can we possibly use less energy? In addition, recent studies suggest that in order to feed these extra mouths, and to
satisfy the increasing demand for food from those already here and hungry – or those who simply want more – the world will need 70 to 100% more food by 2050 (World Bank, 2008)\textsuperscript{64} (Royal Society, 2009)\textsuperscript{73}.

More food requires more energy! How to manage that without using more carbon based fertilizer that will only worsen the situation? Not to mention more water!

As Lester Brown (2011)\textsuperscript{74} points out in \textit{World on the Edge}, “The situation the world faces now is even more urgent than the economic crisis of 2008 and 2009. Instead of a U.S. housing bubble, it is food bubbles based on over pumping and over plowing that cloud our future. Such food uncertainties are amplified by climate volatility and by more extreme weather events. Our challenge is not just to implement Plan B, but to do it quickly so we can move off the environmental decline path before the clock runs out. One thing is certain – we are facing greater change than any generation in history.”

Brown continues, “In our water-scarce world, the competition between farmers and cities is intensifying. The economics of water use do not favor farmers in this struggle, simply because it takes so much water to produce food. For example, while it takes only 14 tons of water to produce a ton of steel, it takes 1,000 tons of water to produce a ton of wheat. In countries preoccupied with expanding the economy and creating jobs, agriculture becomes the residual claimant (Postel, 1997)\textsuperscript{75}.

“Worldwide, roughly 70 percent of all water use is for irrigation, 20 percent goes to industry, and 10 percent goes to residential use. Cities in Asia, the Middle East, and North America are turning to farmers for water.”

Brown also states, “Food price stability now depends on a record or near-record world grain harvest every year. And climate change is not the only threat to food security. Spreading water shortages are also a huge, and perhaps even more imminent, threat to food security and political stability. Water-based “food bubbles” that artificially inflate grain production by depleting aquifers are starting to burst…. Slowly but surely, fast-growing cities are siphoning water from the world’s farmers even as they try to feed some 80 million more people each year.”

Brown continues, “Today more than half of the world’s people live in countries with food bubbles. The question for each of these countries is not whether its bubble will burst, but when—and how the government will cope with it. Will governments be able to import grain to offset production losses? For some countries, the bursting of the bubble may well be catastrophic. For the world as a whole, the near-simultaneous bursting of
several national food bubbles as aquifers are depleted could create unmanageable food shortages.

“This situation poses an imminent threat to food security and political stability.”

The final part of this perfect storm is the need for land to provide 70% more food. More importantly, it is soil on the surface of that land that is now in question. Lester Brown (2011)74 again: “The thin layer of topsoil that covers much of the earth’s land surface and is typically measured in inches is the foundation of civilization. Geomorphologist David Montgomery (2007)76, in Dirt: The Erosion of Civilizations, describes soil as ‘the skin of the earth—the frontier between geology and biology.’ After the earth was created, soil formed slowly over geological time from the weathering of rocks. It was this soil that supported early plant life on land. As plant life spread, the plants protected the soil from wind and water erosion, permitting it to accumulate and to support even more vegetation. This relationship facilitated an accumulation of topsoil that could support a rich diversity of plant and animal life.

“As long as soil erosion on cropland does not exceed new soil formation, all is well. But once it does, it leads to falling soil fertility and eventually to land abandonment. Sadly, soil formed on a geological time scale is being removed on a human time scale.

“Journalist Stephen Leahy writes in Earth Island Journal that soil erosion is ‘the silent global crisis.’ He notes that ‘it is akin to tire wear on your car—a gradual, unobserved process that has potentially catastrophic consequences if ignored for too long (Leahy, 2008)77.’

“Losing productive topsoil means losing both organic matter in the soil and vegetation on the land, thus releasing carbon into the atmosphere. Rattan Lal (2004)78, a soil scientist at Ohio State University, notes that the 2,500 billion tons of carbon stored in soils dwarfs the 760 billion tons in the atmosphere. The bottom line is that land degradation is helping drive climate change.

“Soil erosion is not new. It is as old as the earth itself. What is new is that it has gradually accelerated ever since agriculture began. At some point, probably during the nineteenth century, the loss of topsoil from erosion surpassed the new soil that is formed through natural processes.

“Today, roughly a third of the world’s cropland is losing topsoil at an excessive rate, thereby reducing the land’s inherent productivity.”
Brown continues, “In August 2010, the United Nations announced that desertification now affects 25 percent of the earth’s land area. And it threatens the livelihoods of more than 1 billion people—the families of farmers and herders in roughly 100 countries.”

More threateningly Brown points out that “Today, two giant dust bowls are forming. One is in the Asian heartland in northern and western China, western Mongolia, and central Asia. The other is in central Africa in the Sahel—the savannah-like ecosystem that stretches across Africa, separating the Sahara Desert from the tropical rainforests to the south. Both are massive in scale, dwarfing anything the world has seen before. They are caused, in varying degrees, by overgrazing, over plowing, and deforestation.”

Nowhere seems spared. He continues, “While China is battling its expanding deserts, India, with scarcely 2 percent of the world’s land area, is struggling to support 17 percent of the world’s people and 18 percent of its cattle. According to a team of scientists at the Indian Space Research Organization, 24 percent of India’s land area is slowly turning into desert. It thus comes as no surprise that many of India’s cattle are emaciated and over 40 percent of its children are chronically hungry and underweight” (Ajai et al., 2009)79 (UNICEF, 2009)80.

Brown concludes, “Soil erosion is taking a human toll. Whether the degraded land is in Haiti, Lesotho, Mongolia, North Korea, or any of the many other countries losing their soil, the health of the people cannot be separated from the health of the land itself.”

2.6 The Implication for Education and Self-Development

The reason for describing in such detail the current situation—within the bodies and minds of individuals, and between individuals and between individuals and between our planet and we humans who currently inhabit it—is to highlight the challenges faced by anyone interested in education and self-development.

How do these dramatic events effect how approach education? And what is the relevance of self-development? How can education adjust to this unknown future? Is it going to be business as usual or are we educators able to respond in a creative way to these startling possibilities?

It seems clear that if the future is this unpredictable, then teaching people “information” is unlikely to be of much use. Today’s information will soon be out of date and the information our students will need is going to be as unpredictable as the situations
they are going to face. And in any case, today, almost any information you need is available online.

So, perhaps the direction for education of the future is not information, but transformation. As Baily et al. (2010) point out in *The Sage Handbook of Philosophy of Education*, “The developing mind of the student is at least one core objective of education, and, indeed, is central to the very concept of education.”

Perhaps what we can offer our students is the ability to welcome change, to remain open and flexible so they can easily adjust to whatever the future holds. That they can remain balanced despite being buffeted this way or that. They can become aware of themselves, learn to live in the present rather than dwell on a past that has gone or an unknown future that hasn’t happened yet. Perhaps we can help them to learn that only by being in the present will they be able to respond to the needs of the moment, no matter how rapidly they change. Can we teach them that one of the most valuable tools they can acquire is to just breathe, and breathe naturally, a simple doorway between the inner and the outer, a doorway to that elusive present where life actually happens.

And finally, can we help them learn to respect themselves, to conduct themselves in a way that reflects their natural beauty and grace?

They will not be our students for very long. Soon they will move on with their lives. We can remain dependent on teachers to teach us, to learn from. Moreover, the situations that these students may well have to face in the future are situations we teachers may ourselves have no experience of, and may be unable to teach them about anyway.

So, clearly, the most optimistic approach is to not only help them learn the skills we have just outlined, but to help them learn to teach themselves, to continue to learn no matter where they are and no matter what is happening. In short approach is to help them understand the value of self-development.

2.7 The Relevance of MBME to Contemporary People

The Mind-Body Management Education program has been designed to address the issues outlined in this chapter: to learn to develop ourselves in the face of the greatest turmoil our species may ever have faced as outlined above.

The most significant issues are the re-integration of the body and the mind to counter the effects of civilization we have detailed already which has taken us in the opposite direction.
The second major issue is to address the epidemic levels of mental illness and stress within the mind of the individual that we have seen accompanies modern life.

The third major element we have seen is the challenge of dealing with change, being adaptable and flexible in the rapidly changing future our students will have to confront. An integral part of this will be the ability to stay balanced and relaxed in the fact of these challenges.

Lastly, the major contribution that education can offer today’s students is to help them learn to appreciate themselves, to understand that they are unique individuals who don’t need to depend on others to learn how to respond to this unpredictable future. They can instead take responsibility for their own transformation, they can learn the art of self-development.

So, the Mind-Body Management Education program is designed specifically to address these issues for contemporary people. It is as a way of providing them with perhaps the most valuable of all tools, particularly given the situations they are going to find themselves in: to learn how to develop the ability for themselves to relax into their bodies, to be able to change, and even to love change. Thus the program is designed with realization that the only thing that never changes is the continuity of change itself.

The creation of Mind-Body Management Education program is in response to the understanding that this has never been truer than today, and the ability to respond to be able to teach us how to change, easily and naturally has never been more urgent.

In the next chapter, this will be explained in detail.

2.8 Interdisciplinary Approach of MBME Program

The fundamentals involved in creating the Mind-Body Management Education program involve an interdisciplinary approach, which combines physical education, psychology, management theory and the science of education learning. The “interdisciplinary” element is not just including these three different elements, but synthesizing them into one new multidimensional intervention. The critical aspect of this is to benefit from the current scientific research which raises the intriguing possibility of being able to influence the mind through a physical intervention, rather than approaching the mind directly, and in particular address the split between the body and the mind that has been the outcome of the sedentary, mentalized modern civilization as we have outlined above. The specific outcomes that would be most valuable would be the ability to respond to a rapidly changing and unpredictable future in a flexible, balanced way at the same time both relaxed and aware.
2.8.1 Movement Education – Psychomotor Considerations

The key points in approaching were to ensure that MBME program would include:

- Sufficient movement and exercise for people with a sedentary people lifestyle.
- To choose a variety of movements that would engage the whole body.
- To introduce the concept that flexibility and balance includes not only conventional flexibility of the muscle and joints, and balancing the body on one leg for example, but also the ability to move all the different parts of the body, in small movement and large, quickly and slowly, in a variety of different combinations, experiencing a deeper sense of balancing all these different elements in one session.

2.8.2 Psychological Considerations

The prime consideration of this study was Maslow’s view that “What a man can be, he must be” (Maslow, 1997). So, in this study the motive of the intervention was to help the participants reach their full potential, using body movement to support that process, not only in the body, but also the mind.

This included the intention:

- To provide a range of physical movements as described above that could provoke parallel changes in the mind. In particular, flexibility and balance.
- To benefit from the experience of existing body movement interventions. For example, one that showed mental outcomes all included relaxation and awareness. These would be necessary to support the process whereby the mind would also be able to experience and understand the same qualities of flexibility and balance.
- To create a program whereby this flexibility and balance of mind would not only support an optimal use of the participants’ cognitive functions, but would also support their ability to respond to emotional challenges rather than mechanically react – the essence of a balanced individual. For this purpose, awareness and breath were added to the first two components of the MBME program.
- To create a program that would create a sense of wellbeing in the participants. For that reason Beauty and Grace were added to the other components.
• To create a program that was sufficiently self-rewarding that the participants were motivated to continue the program themselves.

2.8.3 Management Theory

The program was based on the proposition articulated by the business management community, and our own research above, that the greatest challenge to modern people is the ability to be flexible and adjust quickly and easily to a rapidly changing world, and to remain balanced during the inevitable challenges we all face today. In particular we included the insights of Senge (2006) who emphasizes the importance of self-development in this process.

In summary:
• To respond flexibly to ever changing situations
• To respond in an easy relaxed fashion to all the varied kinds of people that form part of any modern, management environment in today’s globalized market.
• To be totally involved in any activity without tension.
• To support innovation and creativity, which can only happen in a relaxed, stress-free atmosphere.

2.8.4 Science of Education & Learning

As a starting point the researcher took the understanding that the origins of our learning experiences is play. That the intervention should be playful and enjoyable was crucial for its effectiveness and acceptability. In addition, the origin of “education” is “ex-duco” to “lead out.” So, for this study, it was considered very important to help the participants understand the value of bringing out their own individual qualities, not imposing anything from the outside. For this reason, free form movements were included wherever possible rather than the tradition approach of learning a fixed form over movement or postures.

In summary the aim was to produce a valuable mind-body intervention that would allow participants the opportunity to learn how to manage the development of their body and mind by themselves. This would provide very interesting possibilities for both education and self-development, based on allowing the participants to learn to develop their own potential.
2.9 Investigator's own understanding of mind and body

While reviewing the literature, the investigator discovered that the contemporary understanding of the body and mind is undergoing a paradigm shift. Firstly the understanding of the mind is in the midst of major transformation. Until very recently, the “brain” was often regarded as “the hardware” and the mind, the “software” component of a super-sophisticated bio-computer. So, the thoughts, feelings and imaginings that emerged from the individual’s interaction with his or her environment, the mind, were processed by an “operating system,” the brain, which, by adolescence at least, was fixed for life.

Then in the last 15 years only, it has become accepted that the brain is itself a plastic phenomenon: a bio-computer where the hardware is capable of continuous adjustment depending on the use of the software! The implications of this are only beginning to be appreciated by the scientific community.

The next major very recent revolution, as described in more details in this study, is the discovery that the nervous system is intimately related to the body. Prior to the 1990’s it was established wisdom that the mind and body were separate. The discovery of nerve cells in the lymph nodes and chemical neurotransmitter linking the nervous system with every cell in the body shocked everyone and changed everything. Now it was clear that the mind and body were one entity, as had always been proposed in the East, and that Descartes, the leading proponent of the Western idea that they were separate, was finally proved wrong.

A third revolution that has dramatically impacted the investigator’s understanding of this area, and this study, is the relationship between the mind and the body. The concept of mind-body oneness has changed the dynamics from 100 billion neurons communicating with each other to a new situation where it is realized that all the other 100 trillion cells in the body are part of the conversation. Potentially more impacting, certainly to the investigator, is the new realization that the relative importance of these two elements, the body and the mind, has been widely misrepresented. The new proposal from the neuroscientific community, that the function of the body is to serve the body, is both radical and yet strangely obvious. Our whole survival over eons of time depended primarily on intelligently coordinated movements. Which means, from one perspective, that the body essentially trained the mind to coordinate the smartest bodily movements. What has totally inspired the investigator is the potential, which follows from this, is the
possibility of discovering which specific movements of the body might educate the mind to develop similar movements of the mind.

In this study, the investigator has decided to use modern and traditional methods to create a harmonious unity of mind and body, including areas of cognitive functions and academic performance, which traditionally are not thought possible with body based interventions. This intervention will ensure a sense of wellbeing and increased self-esteem. This will have positive affect on learning capacities and education.

Aim of this study was to address the problems discovered in way that avoided any disadvantages of existing interventions, and which particularly was designed to address the challenges and opportunities for “change” and “self-development” for contemporary people. In addition, to provide a way of supporting these understandings, and this intervention in particular, so that educators could support the essential harmony between mind and body. That’s why the investigator chose specific bodily components to discover if significant or even parallel changes could be transferred to the mind.
References


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