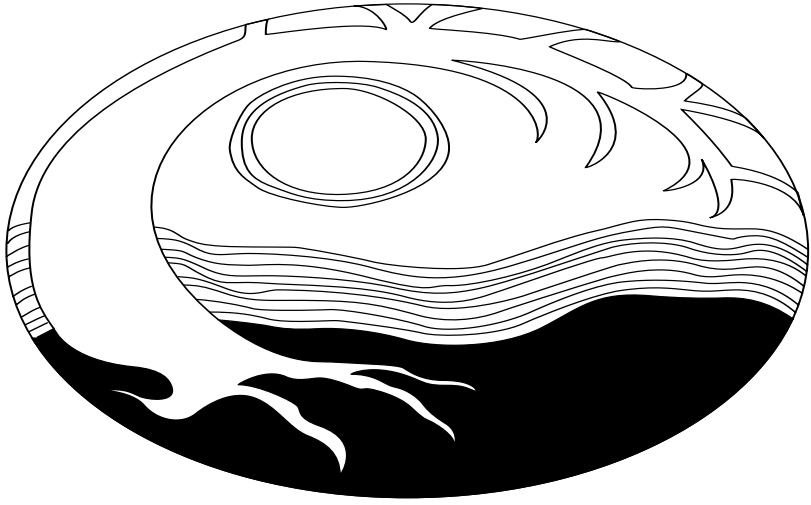
RETHINKING



EDUCATION

Philip Snow Gang, Ph.D.

RETHINKING EDUCATION

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RETHINKING EDUCATION

A NEW LOOK AT EDUCATIONAL PHILOSOPHY IN THE CONTEXT OF CULTURAL CHANGE

APPLYING THAT PHILOSOPHY TO SECONDARY EDUCATION

Dagaz Press

Christchurch, New Zealand

This book is dedicated to Ruth Gloria who brought sunshine, rainbows and peace into my life.

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ALL GOOD THINGS

IN ALL GOOD TIME

Robert Hunter

INTRODUCTION

Transitions. It seems that many of us are contemplating or experiencing transitions in our lives as we approach the last decade of the 20th century. Wherever I travel I hear people talking about major changes in their lives. Business, technology and governments are experiencing the same transitions, developing new substructures that will meet the needs of a society in transformation.

What about education? Can we continue to prepare the rising generation according to old principles and old guidelines? What form or structure must education take? Can a cosmology for education be developed and integrated with the present-day paradigm shift? What is the nature of adolescence and what special role is there for secondary education?

This book has been written to explore educational change and develop a new structure based on current paradigmatic trends.

Part One explores my personal background -what has informed my thinking- from childhood experiences through a career change that took me from engineer-manager to global thinking educator. Some of the ideas contained in theoretical physics are then compared with the goals of education. This section concludes with my personal reflections on where I am in terms of my Montessori heritage.

Part Two begins with an overview of rising and declining cultures throughout human history. In tracing human cultural history some interesting pictures emerge. At each major intersection of cultural change a paradigm shift occurs. These paradigm shifts are explored in terms of the scientific breakthroughs that carried them forward. The last paradigm shift, which occurred towards the end of the nineteenth century, becomes the major focus of attention, as this emerging period is described in terms of scientific truths obtained from an inquiry into quantum and relativity physics.

One hundred years ago our society was riding high on the shoulders of the mechanistic-industrial age. One hundred years ago adolescence was non-existent as a particular phase in human development. Young people were needed to help generate the energy required to power the industrial economy.

All that dramatically changed between the 1880's and the 1980's. First, the growing industrial society needed more educated adults to fill its managerial and highly technical positions. Coupled with a labor surplus brought about by massive waves of new immigrants arriving in America, this created the demand for compulsory secondary education which was born at the end of the nineteenth century. And second, appearing on the horizon at the turn of the twentieth century were scientific discoveries that would begin to reshape humanity's relationship with the universe - a relationship that had been perceived as static for centuries.

These two parallel developments -the emergence of adolescence and the emergence of a new paradigm- are explored in order to provide new insights into the nature of education and, in particular, secondary education in the enfolding era. The initial point of focus is the history of the three major paradigm shifts. A theory of "stages of humanity" is developed exploring the nature of society before and after these shifts. With this as background an analysis of present-day revelations in quantum and relativity physics is used as a basis for understanding the emerging paradigm and for determining a new conceptual framework for education.

In order to develop a scenario for secondary education, Part Three explores the historical significance and contemporary nature of adolescence as a developmental stage, focusing on the work of Erikson, Kohlberg, Piaget, Douvan and Adelson and Elkind. Five recommendations are proposed to reform secondary education based on the psychological needs of this period.

In Part Four these recommendations, together with information collected in selected interviews with adolescents, are set against the backdrop of the a conceptual framework for education.

The problem we face today is that secondary education has never considered adolescence as a specific stage of development with certain possibilities and opportunities that are characteristic of the age group, nor does secondary education incorporate the changing nature of society into a scheme that would prepare young people for life in the future.

Phil Gang
Atlanta, 1989

PART ONE

A WAY OF THINKING

CHAPTER ONE

***

THE JOURNEY

The seeds of the sciences must have been sown early in my schooling, because I gravitated to and enjoyed them during my primary and secondary years. I especially remember Mr. Schwartz, my ninth grade general science teacher. His methods were unconventional, interesting and alive. I recall making a pinhole camera for a project in his class. It was constructed so well that I was actually able to use it to take several photographs. The enlarged pictures were placed on display, along with the camera, in the window of the science department office. That accomplishment looms as one of the only healthy experiences I remember about high school.

After general science came biology, chemistry and physics. I enjoyed them all. I wanted to study science, but I also wanted to join the family manufacturing business. What career path would best prepare me for this line of work? Engineering! In the Fall of 1958, this New York City youth went south to Atlanta to study Industrial Management and Engineering at the Georgia Institute of Technology.

To say there was a competitive atmosphere on campus is an understatement. The school administration exacerbated this feeling. During orientation week, my freshman class was gathered together and told, "Look to your left and then to your right. Only one of the three of you will graduate." I remember thinking, "It's going to be me! - I am going to be a survivor." I am sure everyone in that room felt the same, and so we each began our college days trying to make sure that it was the other two guys who were not going to make it.

Competition was rampant - in the classrooms, on the college athletic field and in intramural sports. The image of my days at Tech is one in which I am crossing a battlefield laden with hostile enemies just waiting for me to make a mistake. It was a rigorous four years of academic pressure where facts and figures took precedence and culture was nonexistent. On the positive side, it was during this collegiate experience that I developed a knack for "beating the system" as well as an appreciation for technique and order in the process of exploration.

The compassionate, humanitarian, socially aware part of me was unable to develop and mature during my college days. It would have to wait another ten years to emerge. However, the capacity to view life from an emotional center that values others was born early in my childhood. In my family of origin democratic and humanitarian values for others were in high regard; that is, the poor, minorities, and people oppressed by tyranny. It was good to "do good" for them. The giving of oneself to benefit others had a significant place of value.

Then there was Ruth Gloria. One would never say "hello" or "good-bye" to Ruth; she would only respond to "peace." When I left for school in the morning it was, "Peace Ruth," and when I came home it was, "Peace Ruth." She was our housekeeper who introduced me to the world of caring. Ruth was gentle, kind, supportive and had a deep conviction that good would ultimately triumph over evil. She planted and took care of gardens, spoke kindly to children and was always available when I needed her. Ruth directed my attention to the world of nature. She saw creation itself manifesting in every plant and tuned me into that process.

By the time I graduated from college my world of experience was fairly well divided into tasks and feelings. I remember receiving messages that working hard now would pay huge dividends later. I also recall many difficulties in relating to people. Work was a task and relationships and social action were feelings. Only there was no time for relationships or social action, so the feelings had to lay dormant. Conflict emerged between the world "out-there" and the world "in-here." I was uncomfortable with my being, but unable to understand why. I suffered from a variety of stress

related discomforts.

I became a survivor, climbing the management ladder of success.

Although appalled at the time, I understand today that the failure of the family business was an important turning point in my life. I sensed a strong need to go out on my own and prove myself - to "break away" from the tight family strings which were holding me back from becoming my own person. Atlanta seemed like a glowing alternative.

Shortly after moving back to Atlanta the family business was sold in bankruptcy to a company in Tuscaloosa, Alabama. I was asked to take the position of plant manager. It was an appealing offer -an opportunity to undertake a job with considerable responsibility at the age of twenty-three. I accepted. The challenge was exciting and I was impressed with my accomplishments, but in 1964 Tuscaloosa was the at the edge of civilization. The social changes that were sweeping the country were moving very slowly, if at all, in Alabama. For the most part people were holding on to the past and refusing to accept the inevitable. The social and political climate was decadent.

We moved back to Atlanta where I took a position with another manufacturing company. Soon after I was hired as a manufacturing engineer for Lockheed-Georgia. I received one promotion after another on my way up the corporate ladder, but ultimately, the Lockheed experience was going to bring me face to face with the gnawing dichotomy in my life.

I realized that I was diametrically opposed, both philosophically and politically, to the goals of the company and the people with whom I worked. For several years this discord did not emerge because I was thrilled with my achievements and the financial rewards that accompany such success. Eventually, it was difficult to separate the two lives. The engineer-manager was in conflict with the humanitarian, socially aware existentialist. I began to experience a personal metamorphosis. At the age of thirty-one I was not quite sure if I really wanted to be president of Lockheed! I became consciously aware that I needed to work with people with whom I could share a common value system.

It was at this time that the company was asking every employee to sign a petition requesting the United States government to "guarantee" a loan for Lockheed so that it could continue to supply the armed forces with military aircraft. This was also the time of Vietnam and the Nixon White House. Things were not very clear.

In time my lens sharpened and I recognized that I could not sign that petition because I had a conflict within myself with regards to the American role in the Vietnam war. Why did it take some ten years after graduating from college for me to begin to listen to the compassionate, humanitarian side of my being?

The key to answering this question lies in an event that took place in 1968. That was the year in which we enrolled our three-year old son, Warren, in a Montessori school. I was impressed with his accomplishments and began to read several of the Montessori books. I discovered that just prior to the turn of this century Maria Montessori became the first woman to be awarded a medical degree in Italy, that her insights did not come from pedagogy, but from child development, and that she had a spiritual and philosophical nature. What attracted me to the philosophy was its fundamental belief that good will triumph in the universe; that only through an effective revolution in education can changes be made enabling age-old prejudices and conflicts to break down which will free the child, and thus the adult, to make this a more harmonious world.

I realized that the people with whom I worked on a daily basis did not identify with the spirit and directions inherent in these principles. I attempted to talk about social and political issues with some of my close co-workers, but it was not a healthy climate for such discussion. I was probably the only person among some thirty thousand employees to vote for McGovern in 1972.

I left Lockheed soon after the election to start my own business. This was a necessary step which prepared me for the next "letting-go" experience which was to occur less than six months later.

Montessori opened the door for a personal transformation, one in which the true nature of my being began to emerge. In reading Maria

Montessori's books I was drawn back to my own childhood in a search for meaning and understanding. This exploration led me to read more about psychology and philosophy. *Man's Search for Himself*, a book by Rollo May, made a strong impression, as did some of the writings of Fritz Perls, John Lilly, Alan Watts, Martin Buber, Pierre Tielhard de Chardin, and J. Krishnamurti. It became a process of passionate exploration and discovery as I started to fill in a cultural void left from my college experience.

The stage was set for a dramatic career change. My wife and I had developed close relationships with our children's teachers - our daughter, Sharon, by now was also enrolled in the Montessori school. It was these friendships and our openness to listen that enabled us to take Warren, eight, and Sharon, four, and leave the United States for a year of study at the Center for Montessori Studies in Bergamo, Italy in order to receive the Advanced (elementary) Montessori Teacher Training.

During the ensuing years I have discovered the joy that comes when there is a direct actualization of personal and career goals. Montessori enabled me to combine "who I am" with a cosmic world view, a reverence for humanity and potential for the universe. This undergirded all the philosophy I was predisposed to and intuitively prepared for. It was subconscious in my early years and only conscious now that I have been involved in the process for many years.

All of the psychosomatic symptoms related to earlier diagnoses of narcolepsy and stomach disorders disappeared after I changed careers.

The Montessori experience brought me back to my roots as a lover of science, but it was now cast in a new light. Maria Montessori referred to her educational experiment as scientific pedagogy, an inquiry into the process of learning based on scientific observation and intuition. She explains it herself:

> *To aid the physical development of the child under the guidance of natural laws is to favor his health and his growth; to aid his natural psychic tendencies is to render*

him more intelligent. This principle has been intuitively recognized by all pedagogists, but the practical application of it was not possible, except under the guidance of scientific pedagogy, founded upon a direct knowledge of the human individual. Today it is possible for us to establish a regime of liberty in our schools, and consequently it is our duty to do so (1913, 443).

One of the most fascinating chapters of the teacher training course in Bergamo was a section that integrated Montessori's visionary understanding of childhood with the world of theoretical physics. This rekindled my interest in science and planted the seeds for continuing research that would unite the engineer-manager with the humanitarian-educator. It led to the inclusion of a cosmological inquiry based on quantum and relativity physics as part of this book.

CHAPTER TWO

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EDUCATION AND PHYSICS

At the most elementary level of our physical world...things do not happen because they are caused by other things, but instead all events take place as if there were a final cause in mind.

Robert Shiarella
"Journey to Joy"

God! Let me praise you
by improving my corner of your creation,
By filling this little world of mine
with light, warmth, goodwill and happiness.

Albert Szent-Gyoergyi
"Crazy Ape"

The Hebrew word "Shalom" comes from the root word "shalem" which means wholeness or completeness. It is used to greet and to say farewell to a friend. It means peace. Shalom is the beginning and the end for the peace that lies within. You cannot have peace without "wholeness."

To educate for peace is to believe that the great happening called our universe has meaning and purpose. If we are to help young people understand that peace is not just the absence of war, but a state of being that holds all of humanity responsible for our actions with each other and

within the natural order, then education must provide a view of life which embodies the possibility for harmony in the world.

Towards the end of her life Maria Montessori worked on interrelating her teleological views with her educational methodology and with the world of theoretical science. She collaborated with the Italian mathematician, Luigi Fantappie, creating a link between the scientific phenomena of entropy and syntropy with the philosophical concepts of causality and finality. To assist in our discussion, the following definitions are provided:

CAUSALITY: From early on our understanding of science was based on the search for cause; to have scientific knowledge was to know perfectly, to know something is so because of the causes that made it to be as it is. Causality is the relation between cause and effect which arises out of our experience with things.

ENTROPY: The word entropy was coined from its Greek origins by Rudolf Clausius in 1865 to mean transformation. Entropy is used as a measure of the unavailability of energy. Clausius called the constant transformation of motion into heat, entropy, with its ultimate extrapolation being: The entropy of the universe tends towards a maximum state. Ergo, the universe is running down!

SYNTROPY: A binding energy or force that promotes order and harmony in the universe.

FINALITY: The principle that everything is predisposed towards a specific end - a direct and genuine expression of creation, teleological in nature.

Fantappie was a mathematician who worked in the area of wave mechanics. He described two categories of phenomena: entropic phenomena made up of divergent waves and syntropic phenomena made up of convergent waves. According to Fantappie,

"Entropic phenomena all obey the principle of mechanical causality" (Fantappie, 1944). Entropy theory is a direct result of causal thought and owes its prominence to the second law of thermodynamics. This law states that heat will, of its own accord, flow only from a hot object to a cold object. The significance of this law is that the total entropy of the universe is increasing because, in time, all matter tends to lose available energy. The universe is therefore running down because, over-all, the energy lost in heat that does not perform work will ultimately overwhelm the thrust for structure and organization, producing ultimate disorder and complete homogenization of all matter.

Another way of looking at this is that heat tends to flow from a hotter body to a cooler one - never the reverse. The flow ends when the temperatures of the two bodies are equal. Entropy is this tendency to equality, to equilibrium, to uniformity. Take the theory of the conservation of energy; that is, the amount of energy in the universe is always the same -it can neither be increased nor lessened. The law of entropy records the qualitative change in such energy. Some of it passes to a stage where it is no longer available for work. In any machine, therefore, there is a loss of available energy because of the dissipation of heat through the machine itself. The second law of thermodynamics states that entropy in any closed system tends to increase to the maximum -to maximize uniformity and equilibrium. Matter, therefore, is moving from a diversified state to a less complex one. Hence, there is no hope!

In counter-position to the scientific theory that supports entropy we have scientific theory that points to other "finalistic" ordering processes in the universe. Fantappie claims that one sees the principle of final cause in syntropic phenomena and describes evidence of their existence in the biological world. He gives the following example:

> *It seems evident that in the human body, in the body of animals and plants and, generally in every living being we see these laws securely operative: one passes from the simple to the complex, guided by a finality (1944).*

From this biological perspective one observes that the whole of evolution is a process that moves from chaos to order. Evolution demonstrates the expansion of the universe from the most simple singular element, hydrogen, to more and more diversified forms. This process might be called "complexification" (Tielhard de Chardin,1961) and is exemplified by the ascent of life on earth.

And there are other views that seem to converge.

Albert Szent-Gyoergi, the Hungarian born biochemist who won two Nobel prizes for his work with the structure of muscles and the identification of vitamin C, has theorized that the behavior of a cell depends on the equilibrium of two substances - one which tries to make the cell multiply and the other which inhibits its multiplication. He points to mounting evidence for the existence of a genuine cosmic force, syntropy, through which forms tend to reach higher and higher levels of harmony. Szent-Gyoergi conceives of an innate drive in living matter to perfect itself and suggests that such a syntropic principle can be found even at the sub-atomic level (1974).

In an attempt to distinguish between order and disorder, Lancelot Whyte proclaims:

> *The universe displays a tendency toward order which I have called morphic (from the greek, meaning "generating order, form or symmetry"). In the viable organism this morphic tendency becomes the tendency toward organic coordination, and in the healthy human mind it becomes the search for unity which gives rise to religion, art, philosophy and the sciences (1974: 40).*

Whyte contends that subsequent to the chaotic beginning of the universe and the primeval fireball, every identifiable object has been formed at some time by morphic processes. All visible forms, from crystals and organisms to spiral galaxies, and all human artifacts were formed by morphic processes at some level in the hierarchies of nature.

Piere Teilhard de Chardin, Jesuit Father and paleontologist, explains that *"the impetus of the world can only have its ultimate source in*

some inner principle, which alone could explain its irreversible advance towards higher psychisms" (1961: 34). He attempts to provide a coherent vision of the process of evolution starting from the formation of our planet through the emergence of life, and later, thought, to an imagined state of perfection called the "Omega Point."

How can we reconcile these different perspectives? On the one hand we have the classical scientist, propelled by the second law of thermodynamics and a causalistic thought mode, saying that the universe must, on its own accord, move toward a state of total dissipation. On the other hand we have new age scientists thinking that there are other, syntropic processes at work in the universe which tend to create order and lead toward harmonic balance and hope for the future.

Perhaps physicist and author, David Bohm, can help put this into a different perspective. Bohm explains that two orders exist in the physical world -the explicate and the implicate. The explicate is the unfolding outer order of the world of things. The implicate (or enfolded) order pays attention to inner aspects which enfold the explicate, giving it meaning. He pursues the idea that this implicate order is not a dependent aspect of the content, but rather "the independent ground on the existence of things, that on which the explicate order is based" (Wallace, 1972). In this light the existence of cause and entropy may not have to be rejected but can be included in the definition of the higher-ordered syntropic/finalistic process.

Maria Montessori, at her last public conference in Perugia, Italy, 1950, attempted to apply the concepts of causality and finality to the world of education. She held that causalistic phenomena are those produced by determined causes and are reproducible by experimentation. In traditional education the teacher is said to be the "cause" of the development of the intelligence and will of the child. It is a causal system, reproducible because it is predictable. The teacher may be seen as an emitting source (warm) and the students as the receiving source (cool) and the resulting

entropy is the amount of tension available for work in the system!

It was not teaching theories that were important to Montessori, but the child itself and its spontaneous behavior and spirituality. She was so struck by what she called the "discovery of the child" that she never felt the need to build up a theoretical system. Montessori was a scientist that knew something existed beyond cause and effect. It was this deep commitment to something beyond herself, that led her to unfold secrets about childhood that were previously hidden from general knowledge. Montessori disclosed the young child's capacity for taking-in everything in its experience and called this the quality of the "absorbent mind". She also explained that children go through a time between birth and six years of age called "sensitive periods" in which they have certain heightened interests in different aspects of perception and experience. What is the source of these capacities? How does the absorbent mind and sensitive periods originate?

Montessori speaks of "a form of unconscious memory that retains its fixed images even through generations and minutely reproduces the character of the species" (1969). This unconscious memory is called the mneme, storing potentiality in the form of nebulae which have the power to direct the future tissues so that they can form complicated and structurally complete determined organs.

> *At this point, the extension of Fantappie's theory to the spiritual field is sustained by the scientific pedagogy of Maria Montessori, who averts us to the existence in the newborn of "nebulae". That is, of potential energies on which will depend the psychic formation of man. Even this last must be considered as a result of elementary syntropic phenomena, scattered and mixed, at least in the beginning, in those "nebulae" or "spiritual embryo" (Palazzo: 1952).*

At that 1950 conference, Montessori used the following example to clarify the concepts of causality and finality. She suggested that one

should picture what happens when a stone is thrown into a pond of still water (cause). The stone disappears and goes to the bottom; immediately concentric waves (effect) are formed, first small ones, then larger and larger until they disappear. Suppose now that a film of this episode had been taken and it is played in reverse. What would happen? First there would be the surface of still water and then from the outer part we would see waves; and the waves would increase and form concentric circles, gradually clearer and smaller, and at the end of the film, the stone would emerge from the water. One process is degenerative and the other generative. If one were present for this second phenomena, one would undoubtedly exclaim that such a phenomena cannot happen by chance. It must have been prepared on purpose. These waves, in fact, seem to have been combined so well, precisely for the aim of making the stones jump out!

While it is evident, on most levels, that rocks do not jump out of the water, this example serves to illustrate the kind of power or force that is at work in the mind of the child. It is a unifying force taking direction from the inner drives which take it to seek its own perfection. It is a creative energy that permits the child to participate in ones own development -to be an agent of ones own self creation. According to Montessori optimal relationships between children and adults and an optimal environment stimulate and give support to this spontaneous development.

Montessori proclaims that the secret of childhood is disclosed, not from adults probing the child with a set of external measurements, but from the spontaneous manifestations of the child acting freely in a prepared environment.

As everything in the universe is predisposed to a final end, Montessori forecasts a better tomorrow. She said, "We must have faith in man and remain optimistic." Young people who are surrounded with adults that share this optimism develop a strong sense of self, are encouraged to become "all that they can be", and develop the possibility for seeing a new world vision.

CHAPTER THREE

*****

BEYOND MONTESSORI

The Movement Versus the Philosophy

Time and spirit still link my thinking to its Montessori heritage. The Montessori underlying principles are universal truths which can continually inform our thinking, but the methodology and the doctrine need constant updating.

Maria Montessori died in 1952. Throughout her life she explicitly encouraged those who would follow in her footsteps, urging them: *Do not follow me, but follow the child as your guide*. This message points away from her as a central figure and underscores the idea of universal principles applied to education.

I see a current dilemma surrounding Montessori education because nothing has significantly changed since her death. The universal truths are still there but much has been discovered in the human and natural sciences that shed additional light on her work. As knowledge evolves, so must theories and techniques.

Many of the societal trends point to educational reform that is holistic and in total harmony with Montessori principles. This should be a time of high visibility for Montessori around the world. Instead, today's Montessori leadership seems more concerned with preservation than with dynamic intervention.

Ideally an organization that has a philosophical basis ought to model that philosophy throughout its institutions. Where Montessori organizations are concerned there exist a multitude of "umbrella"

structures, none of which collaborate with each other in any meaningful way.

Another glaring difficulty is that the preparation of Montessori teachers is inconsistent with the needs of teaching. Teacher preparation courses are dominantly concerned with content over process. They do not prepare teachers, but give the individual who has a natural teaching ability the Montessori pedagogical approach. Accordingly, graduates rarely feel "ownership" of the process, resulting in a very high dropout rate. Teacher training works best when the methods model the principles that the teacher must apply. In addition, Montessori teacher training programs are rarely considered part of the academic mainstream.

Today, Montessori concepts can be found seeping into classrooms under a variety of headings: hands-on experiences, the writing road to reading, visualized abstractions, practical life, and a host of other phraseologies. At this same time people are coming to -and going beyond- the arrivals made by Montessori in her lifetime; and much of this without direct knowledge of her experience. This reinforces the notion that these ideas are a universal and that the direction of change is irreversible. It does not matter whether or not the changes are given the name Montessori, Steiner, Piaget, McDonald, Dewey, Apple, Eisner or Taylor. What matters is that positive change does occur.

I have grown to appreciate the work of many twentieth century educators and transforming agents. I have moved beyond Montessori in the sense that it is a universal, not patented nor restricted to the symbol "montessori." Although today there is an increase in university affiliations and growing public school interest, the application of the Montessori approach, in the purest sense, accounts for only a tiny fraction of American pedagogy . However, I still believe that if the Montessori message could be demythologized and communicated in a coherent format -integrating it with the latest advances in psychology and brain research- it would represent a powerful advance in pedagogy.

PART TWO

THE BASIS FOR CHANGE

CHAPTER FOUR

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PARADIGM THEORY

and CULTURE

The present day rising self consciousness and our ability to see the historical turning point at which we stand, means that we can move deliberately; and we can consciously influence our direction.

At The Crossroads

We hear a lot today about "paradigms." A paradigm shift is a profound change in the thoughts, perceptions, and values that form a particular vision of reality. Thomas Kuhn coined the word *paradigm* in his book, *The Structure of Scientific Revolutions*. The first major paradigm shift occurred when human beings moved from the nomadic existence of the hunter-gatherer towards a settled life in an agrarian society. A second paradigm shift occurred as the industrial revolution became the dominant force shaping society as it spread across the world displacing the agricultural age. Today we are on the brink of a third paradigm shift - one that searches for a type of truly unified world view. The vision itself is fascinating:

...finally, an overall paradigm theory that would unite science, philosophy-psychology, and religion-mysticism; finally a truly "unified field theory"; finally, a compre-

hensive overview. Some very skilled, very sober, very gifted scholars, from all sorts of different fields, are today talking exactly that. It is truly extraordinary (Wilber, 1983: 1).

As the twentieth century moves towards its concluding years, prognosticators from around the world and from many different walks of life are speaking about the dawn of a new age. There are associations and journals dedicated to life in this new age and the number of books written about the period has grow very quickly. Fritjof Capra, Alvin Toffler, Marilyn Ferguson, John Naisbitt, Buckminster Fuller, Robert Muller, Jose Arguellas, George Leonard, Gary Zukav and Joseph Pearce, are just a few writers who are telling us about the changes that are in process.

In general these "twenty-first century thinkers" explain that in the next twenty-five years there will be sweeping changes in all of our frames of reference. These will be triggered by the gradual shift from the mechanical-industrial age to the information-solar age. It will mark the transition away from a non-renewable energy base toward renewable sources of energy, from a period of super-specialization toward a time of holistic disciplines, and from a dichotomy between man and nature towards a unifying grasp of reality.

As the momentum pushes us towards this new era, modern science is exploding with new findings that shake the very foundation of our perception of ourselves and the world in which we live. The "new" science has developed the capability of confirming the pervasive unity which embodies the universe - as foretold by our religious and mystical ancestors. Relativity theory and quantum physics provide us with a new window to view the universe, revealing a multiplicity of interrelationships and interdependencies. It tells us, at one and the same time, that we know more about existence than we have ever known and that existence remains, and may always remain, a mystery. Matter and energy become interchangeable, as particles and waves of energy are sometimes indistinguishable.

We are about to economically harness the energy of the sun and are working on tapping into electromagnetic energy and gravitation. In other areas of scientific endeavor, Richard Leakey, through his paleontological work in East Africa, has said that the whole history of humankind shall be known to us by the turn of the century - and less than 100 years ago we knew practically nothing about our ancestry. Biogenetic engineering is treading a cautious path that has the potential for saving us from disease, while at the same time it tampers with moral and ethical issues that threaten the nature of life. The sciences that support military innovation are struggling with the proliferation of lethal weaponry as we try to see our way out of the age of nuclear confrontation and into the age of peaceful coexistence.

What does all this mean to us?

We are entering a new epoch. According to the Mayan calendars which were created 1,200 years ago, the cycle we are about to enter is no mere transitory time-frame. It marks the end of 5,000, 26,000, and 104,000 year cycles (Arguelles, 1987). We are truly embarking upon a period in which economic, cultural, political and spiritual realities will undergo a major metamorphosis.

How we prepare ourselves for the dawning of this new era is the subject that I address. For if we are to make the necessary transitions, education will have to play a major role in the transformation of society.

In order to put this emerging paradigm into perspective let us take a closer look at previous stages of human development. For purposes of this discussion, I have developed four unique periods (See Figure 1):

The Age of Humanity in Nature
The Age of Humanity with Nature
The Age of Humanity over Nature, and
The Age of Humanity through Nature.

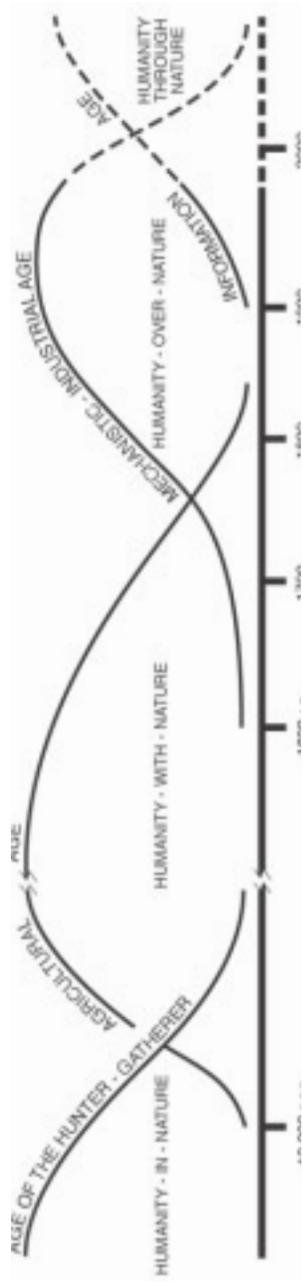

Figure 1. **Paradigm Shifts:** Rising and declining cultures throughout history.

THE AGE OF HUMANITY IN NATURE

Ever since human beings became human and began the process of understanding the environment, they have sought to uncover the mysteries of our world and universe. Unlike any other member of the animal kingdom we have been given the power to observe and then to reflect upon that observation. We have used this power throughout history to understand the phenomena that occur both in the macrocosm and microcosm. We have reasoned that such understanding will lead us to live in closer harmony with ourselves and our universe.

And so, in each epoch, humans have developed a relationship to the environment that was consonant with the latest theories concerning the unknown. From the very beginning they have sought to discover the essential nature of all things. To grasp the essence of the early human observer all one has to do is to look closely at an infant as it makes its way into the world. As you watch an infant's attempt to grasp a finger held before its eyes -and indeed grasp understanding- you are witnessing the early human observer. The child is becoming aware of the subtle division between itself and the outside world.

Consciousness is born out of one's ability to separate the "out there" from the "in here." Hunting and gathering tribes functioned at the level of the infant-explorer. They lived "in" nature because they were subjected to the whims and vicissitudes of their environment. They experienced a direct connection between their own welfare and the natural order as evidenced by their total dependence on variations in weather patterns, animal migration and vegetation cycles. Theirs was a time of being in-nature, always trying to make meaning out of this relationship.

A darkening sky warned them to seek protection as well as it provided certain clues as to where game might be found. Repetitive patterns in nature began to give early human groups a deeper understanding of their place in the world. It was a life directly connected to the environment and there was little differentiation between the "out-there" and the "in-here." Humanity and nature were one.

George Leonard explains,

> *Hunting bands have no government, courts or laws, nor formal leadership, no social classes, no full-time economic specialists or trades. Labor is divided on the basis of age and sex. Rights to the band's territory are collective. Society is based on kinship ties and is egalitarian. Trade consists of reciprocity in goods, favors and labor. There is no warfare as we know it...For members of the hunting band there is the Creation followed by a continual social equilibrium. Each individual life thus partakes of this mythic (1972: 51).*

That social equilibrium was disturbed and uprooted some 10,000 years ago when, commensurate with the retreat of the last ice age, a new paradigm evolved as the agricultural revolution began.

THE AGE OF HUMANITY WITH NATURE

When the ice age diminished in intensity our ancestors, who had been battling the elements for centuries, suddenly found the ground flowering and the animals surrounding them. They were instantaneously propelled into a new kind of life. In the words of Richard Leakey, *...agriculture was invented simultaneously in many different places and it diffused out from these foci to revolutionize life in much of the world in less than four hundred generations. Such is the power of cultural evolution (1978: 257).*

As the ice age came to a close new vegetation appeared and amongst this new vegetation was a hybrid form of wheat. A series of genetic

accidents produced a variety of wheat called bread wheat whose ears were too tight to break up in the wind and replant itself.

> *Suddenly, man and the plant came together... For the bread wheats can only multiply with help; therefore, man must harvest the ears and scatter their seeds; and the life of each, man and the plant, depends on the other (Bronowski, 1973: 68).*

In the same way, human beings domesticated animals and the agrarian society evolved. With the birth of this new life style came the development of civilization and an expansion of knowledge - both scientific and political. Human beings began to work "with" nature forming a reciprocal partnership. According to George Leonard,

> *(The early farmer) is aware of the energy of the universe and shares the tingling connectedness of earth, sky and sun, night and day, animal and plant. He remains in the mythic of time and space (1972: 59).*

The Age of Humanity-with-Nature was directly tied to the land. In all agricultural civilizations land was the basis of the economy, life, culture, family structure and politics. Human beings were no longer dominated by nature but were in the process of learning how to blend as equals with the natural environment.

If we think about human energy as the fuel that supported the Age of Humanity-in-Nature, then when we talk about the Age of Humanity-with-Nature we must think about "living batteries" as the new source of energy - that is, animal muscle power, or sun, wind and water.

When the early Greek philosophers came onto the scene consciousness took a giant leap forward. The Greeks sought to discover the causes of natural phenomena and in so doing became the first scientific observers of the universe. During the sixth century B.C., when science, philosophy and religion were not separated, the aim of philosophic inquiry was "to discover the essential nature or real constitution of things which they called 'physis'" (Capra 1976). This "physis" is the root of our word "physics," thus the study of the nature of things evolved in the early days of civilization. For the Greeks, logic and cause and effect ruled philosophic and scientific inquiry. This was the apex of Humanity with Nature.

Science and technology rapidly expanded until the end of the sixteenth century when new advances resulted in the industrial revolution breaking over Europe and unleashing a wave of planetary change.

A new paradigm emerged.

THE AGE OF HUMANITY OVER NATURE

> *Three hundred years ago...an explosion was heard that sent concussive shock waves racing across the earth, demolishing ancient societies and creating a wholly new civilization. This explosion was the industrial revolution. And the giant tidal force it set loose on the world collided with all institutions of the past and changed the way of life of millions (Toffler, 1980: 37).*

The architects of this new age were Francis Bacon, Rene' Descartes and Isaac Newton. Together they created a model of the universe that was

all-knowing and all-encompassing. A new spirit of inquiry evolved which urged the scientist to be critical, to use logic ruthlessly, and to analyze everything by taking everything apart. The dominant philosophy was espoused by Descartes when he said, *"Cogito ergo sum" - "I think, therefore I exist."* This Cartesian "mind over matter" philosophy formed the basis of scientific inquiry until the new physics evolved early in this century -its residue is still felt in modern day institutions and thought.

Prior to the time of Bacon the goal of scientific inquiry had been wisdom -understanding the natural order and living in harmony with it; the period of Humanity with Nature. It was a "yin" or integrative purpose; the basic attitude of the scientist was ecological. In the seventeenth century this attitude changed from yin to yang, from integration to self-assertion. For three hundred years after Bacon the goal of science was knowledge that could be used to dominate and control nature.

But it was Newton who became king of the mechanistic age. Newton's universe is a system of perfect, clearly definable order. It runs like a gigantic machine and everything from the animate and inanimate is explainable, for everything can be broken down to basic building blocks. All is predictable and all is knowable. Newton embodied these ideas into a new reality in his "Principia" where he sets forth his immutable laws of motion. George Leonard explains:

> *The world of the "Principia" was a world of fixed measurements, objective space and time, a world of isolated cases within an all-encompassing system, and a world without angels or smells (1972: 144).*

Combined with Bacon and Decartes' framework, Newton's world of physics established the foundation for the mechanistic-industrial age.

Their view of the world was a perfectly ordered giant machine that operated ad infinitem. This set the pattern for social and political institutions as well as human relationships. It was a period of Humanity-over-Nature because throughout this time institutions were established that sought to define, order and control the forces of nature. This is evidenced by the lack of environmental concern and the life threatening deteriorating conditions that exist in our rivers, lakes, forests, oceans and atmosphere. It is also clearly seen in the proliferation of weaponry and the nuclear arms race. More has become better, even if "more" means enough bombs to destroy the earth seven times over!

Nowhere is the mechanistic age more conspicuous than in the field of education where knowledge is separated into fixed categories and is parceled out in assembly-line fashion. The school favors competition over cooperation and achievement over integration. Modeled after the factory, mechanistic age schools have a covert curriculum in punctuality, obedience and in rote repetitive work.

Industrial society began to crack during the twentieth century and this process continues today. This was predicted in the early 1900's when western science made startling breakthroughs in two different directions. The first was an exploration of the macrocasm in order to discover the origins of the cosmos; and the second was an exploration of the microcasm in order to discover the intimate nature of reality. Both lines of inquiry have revealed truths about our existence and are reshaping our world view, setting the course towards a new paradigm shift. Another crippling blow to the mechanistic age was the realization of the inevitable depletion of its energy basis; that is, the irreplaceable fossil fuels of coal gas and oil, if used at our current rate of consumption, would disappear before the middle of the next century.

CHAPTER FIVE

***

THE EMERGING PARADIGM

THE AGE OF HUMANITY THROUGH NATURE

This century has become the stage for new revelations in science, thought and values. The authors of the drama are the physicists who paved the way for an understanding of a new reality and we -you and I- are the players.

Ten thousand years ago human beings were not consciously aware of the emerging agricultural paradigm; three hundred years ago farming communities were similarly unaware of the slow shift to an industrial society. These changes occurred over very long periods of time. We, who live today, have the capability and the knowledge to perceive the changes that are occurring because they are taking place in a matter of decades. This gives us the possibility of contributing and participating in the transition.

Although much of the scientific evidence that has given birth to this new age has been known since early in this century, it has taken some eighty years for these realizations to creep into the mainstream. Gribbin explains, *"Science doesn't always progress in an orderly flow. A discovery made today may have to wait years, or decades, for its significance to be appreciated and slotted into place" (1986: 55).*

The first inkling of difficulty with the Newtonian world view came when physicists began studying elementary particles. Accordingly, Zukav says:

It was the study of elementary particles that brought physicists nose to nose with the most devastating discovery: Newtonian physics does not work in the realm of the very small! The impact of that earthshaking discovery still is reshaping our world view (1979: 46).

As physicists began to explore the microcosmic world they found that classical physics could no longer explain certain phenomena. It all began with Max Planck when he discovered that the energy of heat radiation is not emitted continuously but in "energy packets" which Albert Einstein later called "quanta". This discontinuity of energy emission shattered the Cartesian model of the Great Machine.

Einstein claimed that light can appear, not only as electromagnetic waves, but also in the form of particles that travel at 186,000 miles per second. Later, these particles were named "photons", becoming part of the story of "quantum mechanics" - the study of the motion of quantities. It is a story wrought with contradictions and inexplicable occurrences. Every time the physicists asked nature a question in an atomic experiment, nature answered with a paradox, and the more they tried to clarify the situation, the sharper the paradoxes became. In their struggle to grasp this new reality, scientists became painfully aware that their basic concepts, their language, and their whole way of thinking were inadequate to describe atomic phenomena.

Out of this nebulous experience of inadequate answers evolved a new view of nature - one that merges the observer with the observed; that is based on probabilities; that synthesizes energy and matter; and that ultimately describes the oneness of the universe. Capra tells us that:

In contrast to the mechanistic Cartesian view of the world, the world view emerging from modern physics can be

characterized by words like organic, holistic, and ecological.... The universe is no longer seen as a machine, made up of a multitude of objects, but has to be pictured as one indivisible, dynamic whole whose parts are essentially interrelated and can be understood only as patterns of a cosmic process (1982: 77).

To assist in our understanding of quantum physics let's take a journey into the world of the atom. We must first understand the relative "size of our task". To grasp a picture of an atom's dimensions, consider that you would have to inflate a golf ball to the size of the earth if you were to hold in your hand one of its atoms that was the size of a golf ball! In actuality the size of an atom is less than two billionths of an inch in diameter.

Let's make this journey more interesting. Our imaginary golf ball atom is now stretched to a diameter of fifty yards. As we approach the outer limits of the atom we hear a high-pitched tone and we begin to see electrons as small as dust particles dashing here and there, every once in a while leaping into another movement pattern -as if propelled by some energy moving at the speed of light- and then returning to its original pattern. What are these flashing energy signals? Perhaps electromagnetic waves. Perhaps the tiniest of light particles. Alas, they seem to behave like both waves and particles - energy and matter!

As we leave this flying field of electrons which are traveling at a speed of 600 miles per second, we enter what seems to be a huge space void. It is silent and eerie now and we sense the presence of a great form of energy that enables this atom to carry out its function, maintaining its properties and holding it together. Advancing closer towards the center of the atom we begin to see the nucleus in the distance. Once we reach the center we realize that the nucleus is no larger than a grain of salt. We take

out our microscope and penetrate even further. Within the nucleus we find more particles - neutrons and protons, spinning, oscillating and vibrating at velocities of about 40,000 miles per second. As we begin to leave the realm of the microcosm we try to avoid becoming part of this energy-matter interchange. After returning to our own reality we sit back and ponder our experience.

We know that during this journey our being affected what we saw. We not only affected it, but it affected us. We sensed the presence of a creative energy that was unpredictable, yet seemed to follow specific patterns. We observed a world of intense movement and interconnectedness.

Modern science no longer views subatomic entities as objects at all; now they are looked upon as dynamic patterns or processes. Movement is not just one of their properties, it is their essential nature. The atom is now seen as a system of comingling waves, a pattern of interacting energy vibrations.

In the field of the macrocasm, or relativity theory, Einstein's intuition also led to further revelations. In 1929 a discovery was made that is still reshaping our reality. It proved to the western mind, what some of our religious traditions and mystics had already "experienced" and "known." Throughout history these and other spiritual people have incarnated a unifying principle in the universe. The eastern mystics-psychologists have said this for centuries. They discovered it through direct experience while western science allows us merely to conceptualize it.

It was in 1929 that Edwin Hubble made measurements with a very high-powered telescope and discovered that distant galaxies were moving further and further apart from each other at "speeds up to a sizable fraction of the speed of light" (Gribbin, 1986: 55). The consequence of this discovery was the realization of an expanding universe in juxtaposition to the dominant world view of a fixed universe.

An expanding universe! Expanding from what? The most immediate connotation is that it must be expanding from a singular origin. That is, the universe had a common beginning and that all of us and everything we see, touch, smell and know, are further articulations of an explosion that occurred some 15 - 20 billion years ago. We are all one!

Through study of the microcosm -quantum physics- together with insights gained from the study of the macrocosm -relativity theory- I propose the following four guiding principles for the emerging paradigm. There may be others, but I have chosen these as the most salient.

The Principle of Unity

Both quantum and relativity theory reveal the essential oneness in the universe. Each subatomic particle only has meaning in the context of the whole atom indicating an inseparable, all-encompassing organic pattern in which no parts are ever really separate from it or from each other.

Our picture of the universe is becoming completely devoid of any isolated entities -even isolated energy fields- because, if all material objects are made of particles which are patterns of energy, and if all the forces which act between such objects are also made of particles which are patterns of energy, then the whole of creation must be a single, enormously intricate web of interconnected vibrational patterns.

Since everything in the universe comes from a common origin, then all of our behavior and our institutions should reflect this knowledge. Capra explains,

> *The new vision of reality...is based on awareness of the essential interrelatedness and interdependence of all phenomena - physical, biological, psychological, social and cultural. It transcends current disciplinary and conceptual*

boundaries and will be pursued within new institutions. (1982: 265)

All the other principles emanate from the Unity Principle.

The Principle of the Participant-Observer

In atomic physics the act of observation creates relationship and effects the outcome of what is being observed. When the observer determines what questions to ask in an atomic experiment, he willingly and consciously effects the answer.

> *If I ask it (an electron) a particle question, it will give me a particle answer; if I ask it a wave question, it will give me a wave answer. The electron does not have objective qualities independent of my mind. In atomic physics the sharp Cartesian division between mind and matter, between the observer and the observed, can no longer be maintained. We can never speak about nature without, at the same time, speaking about ourselves (Capra, 1982: 87).*

In the Cartesian mind-set the observer could objectively describe the observed. In atomic physics the act of observation creates relationship and effects the outcome of what is observed. Clearly, it is not possible to observe reality without changing it. The participation of the observer alters the result. In human terms, it means that each person "counts" and has the ability to effect other people and events.

The Principle of Uncertainty

In the world of quantum theory, probability overshadows certainty. Matter shows tendencies to exist, and particle behavior and location is predictable only within limits of probability. The old cause-effect way of interpreting phenomena falls to oblivion since events can no longer be predicted with absolute certainty.

As the intimate activity of the atom is explored in detail one comes to discover that matter does not exist with certainty at definite places but shows these tendencies to exist. An apparent electron is here one moment and gone the next, skipping orbits, disappearing and reappearing according to certain probabilities. We can never predict an atomic event with certainty; we can only say how likely it is to happen. Compare this to the Newtonian era when all events were said to be definable and predictable.

Leshan and Margenau explain:

> *...(Concerning) the behavior of an electron, we find it impossible to define its state in terms of its present position and velocity because Heisenberg's principle of uncertainty, one of the revolutionary and incontrovertible historical bases of the atomic theory, forbids the simultaneous measurement, and hence prevents a knowledge, of the electron's present position and velocity (1982: 133-4).*

Therefore knowledge is based on a range of possibilities within certain probable limits. Capra explains:

> *Whereas in classical mechanics the properties and behavior of the parts determine those of the whole, the situation is reversed in quantum mechanics: it is the whole that determines the behavior of the parts (1982: 86).*

The Principle of the Dynamic Aspects of Nature

Modern science no longer views subatomic entities as objects at all; now they are looked upon as dynamic patterns or processes. Movement is not just one of their properties, it is their essential nature. The atom is now seen as a system of comingling waves, a pattern of interacting energy vibrations.

In contrast to the mechanical world view which held that the universe was a constant, both measurable and definable, the emerging paradigm recognizes that the universe is in a perpetual state of change. It also recognizes that matter and energy -and consequently, body and mind- are dynamic aspects of the same thing.

> *The dynamic aspect of matter arises in quantum theory as a consequence of the wave nature of subatomic particles, and is even more central in relativity theory, which has shown us that the being of matter cannot be separated from its activity. The properties of its basic patterns, the subatomic particles, can be understood only in a dynamic context, in terms of movement, interaction and transformation (Capra, 1982: 87).*

*****

From a Western perspective, these four principles create a new window for this generation to view the universe. Western science has followed in the footsteps of the eastern mystics-psychologists and paved the way for a truly unified world view -one that is leading us out of the mechanistic age and into the information age, into a time of interdependence and cooperation. It is an era in which humanity has an opportunity

to understand its role in the evolution of this planet. That is, we can begin to awaken to our personal responsibility to protect the earth from further deterioration. It is the time of a knowing participation in nature, a realization of nature through human nature. It is the epoch of Humanity through Nature, a humanity that embraces nature and a humanity that contains the innocence of Humanity-in-Nature.

Humanity through Nature is a giant shift in consciousness from Humanity over Nature. It requires individuals to "see the whole picture" and is transformative. Humanity through Nature is intuitive and is beyond the mind. It is nothing and it is everything. It is all the things that eastern philosophers and mystics knew about consciousness.

As Humanity through Nature the people of the twentieth and twenty-first centuries have several responsibilities: We need to live, by conscious choice and design, within the ecological and resource limits of the planet. We need to develop effective alternatives to our current patterns of violence, particularly war. We need to develop social, educational and political institutions that acknowledge, appreciate and incorporate the four guiding principles of the emerging paradigm.

Education is the singularly most important of these institutions and therefore requires our immediate and direct attention. I would like to draw the readers attention to three individuals that have made significant contributions towards a new evolving educational form during this twentieth century.

Robert Muller, recently retired Assistant Secretary-General of the United Nations, lectures around the world to people focusing on the need for a global education. The basis of his *World Core Curriculum* is spelled out in his book, *New Genesis*. In it he poses the question: *How can our children go to school and learn so much detail about the past and so little about the world, its global problems, its interdependencies, its future and its international institutions?* For Muller everything in the universe has

meaning and importance and he insists on giving this knowledge to children.

The founder of the Waldorf School movement is Rudolf Steiner. Steiner asserts that the basis for all pedagogical work is an insight into the living, including the nature of humanity and world. He lays this out in great detail in his science of the spirit called, anthroposophy. His is a child-centered pedagogy taking aim at the spirit and will of the child. Steiner says, *Our highest endeavor must be to develop free human beings who of themselves are able to give purpose and direction to their lives.*

Maria Montessori diligently applied her resources to help humankind understand, through the child, the implications and responsibilities for becoming Humanity through Nature. By creating educational environments that meet the physical, psychological, intellectual and spiritual needs of young people, Montessori schools all over the world support that effort.

Healthy education embodies the principles of unity and potentiality. The child should be viewed as the perpetuator of humanity, in whom rests the potential for positive global transformation. Teachers then have a responsibility to help each child achieve its own potential. This can be accomplished in an atmosphere that fosters self confidence and self esteem, integrates academics with experience, and develops a sense of community among the students and the adults. It is both a holistic and democratic approach to education.

The contributions of Muller, Steiner and Montessori are underrecognized in the current educational climate that grasps for a return to the past. However, there are growing numbers of individuals and groups that are emerging as catalysts for educational change. Collectively there is enough insight available to create a new conceptual framework for education.

CHAPTER SIX

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EDUCATION FOR THE EMERGING PARADIGM

A New Conceptual Framework

There is a proverb about the difficulty of seeing the wood because of the trees... The problem of education is to make the pupil see the wood by means of the trees.

Alfred North Whitehead
"The Aims of Education"

The four guiding principles, unity, uncertainty, the dynamic aspects of nature and the participant-observer can become the keys to reshape the traditional viewpoint and create a new framework for educational reform. It is the task of the educator to use these keys and unlock the doors to the future. Let us examine each principle and suggest ways in which a few doors may be opened.

Words such as interconnectedness, interdependent, interdisciplinary and interrelated are part of the vocabulary of the emerging paradigm. The root for the prefix "inter" comes from the Greek word "enteron" which means intestines. The view of the intestines as a metaphor for transformation is an interesting image. The image is more complete when we add the "unity" component. While the unity principle points to interconnectedness and interdependence, it is also based on the concept of

holism or oneness. Education can embody this principle by helping young people see and understand the ever-unfolding story of the universe. The universe becomes the central focus of the curriculum. Montessori refers to this possibility in a description of the course of study during the elementary years:

> *...let us give the child a vision of the whole universe. The universe is an imposing reality, and an answer to all questions. We shall walk together on this path of life, for all things are part of the universe, and are connected with each other to form one whole unity. This idea helps the mind of the child to become fixed, to stop wandering aimlessly in the quest for knowledge. He is satisfied having found the universal centre of himself with all things (1948: 8).*

Through a grand study of the universe, students can emerge with the knowledge that they are part of an all-encompassing pattern in which every vibrational element has meaning and can effect events. They can learn this in a school environment that promotes holistic studies and emphasizes humanistic values.

Just as in the microcosmic world where atomic events are effected by the thoughts and actions of the participant-observer conducting the exploration, every human being has an effect on the environment. We are all part of a dynamic pattern that interconnects us with all people and all events. Since this gives us the opportunity to effect change, we must learn to use that potential for positive ends. An implication for this principle as applied to education, is for the school to provide experiences that enable young people to effect the world around them. A self-motivated student project to collect food for the poor or one in which the students request a change in public policy or law, are experiences that build a sense of empowerment. The school itself can become a place where the administration shares control with students, and yet retains the necessary authority. Empowerment is a principle of democracy which helps the young people feel confident and recognize their ability to effect others and their

environment.

The principle of uncertainty, derived from experiments in atomic physics, leads to the conclusion that if subatomic particle activity can not be absolutely predicted, then all events in the universe contain some element of probability. It moves us out of the age of making decisions based on "either-or" alternatives and creates the possibility that a multitude of solutions may exist, each one equally as plausible as the next. It also creates a meaningful place for intuition in decision-making.

If the outcomes of events are uncertain, then it is important for young people to have experiences where a myriad of solutions can be seen as valid. The history teacher who refrains from administering true-false or multiple choice exams, and instead asks the students to write about an issue, giving their opinion and justifying it, is educating for the emerging paradigm. Additionally, the "human" element now becomes an integral part of learning as students can be helped to discover their potential for shaping external events. Active participation in the social life of the community enables students to experience first-hand the realities of the work-a-day society and the notion that multiple solutions exist to problems based on their circumstances.

Western science has always insisted that energy and matter were two distinct realities. Energy was looked upon as the fuel that gave matter direction; and matter was viewed as the "user" of energy. Modern physics has revealed that matter and energy are dynamic processes or patterns. At the subatomic level it is impossible to make a distinction between the two, and in Einstein's relativity theory he showed the relationship between matter and energy with the famous formula which states that energy is equal to mass times the square of the speed of light. It follows that matter-energy and body-mind are dynamic aspects of the same thing. The image of a dynamic universe is one of movement, interaction and constant change.

Educational institutions promote this emerging paradigm principle by designing experiential learning strategies which enable students to interface academic learning with practical application. The "doing"

component of learning actualizes the experience and demonstrates the relationship between body and mind. A second outcome of this principle is an emphasis on possibilities for change. The teacher who explains, "This is what we know about the universe today, but tomorrow a new discovery may come which will transform our viewpoint," is helping to prepare students for change and adaptability.

These four principles guide us towards a new framework for education based on a holistic, experiential, democratic and humanistic philosophy. They point towards a new view of reality based on the essential interrelatedness and interdependence of phenomena. In the old Newtonian paradigm "all events" were known and predictable - the universe was compared to a gigantic machine, and there was a sharp distinction between the cognitive and the affective in human behavior.

With the emergence of the new paradigm there is an emphasis on a "systems view" of life. The systems view looks at the world in terms of relationships and integration. Systems are integrated wholes whose properties cannot be reduced to those of smaller units. Instead of concentrating on basic building blocks or basic substances, the systems approach emphasizes basic principles of organization. Every organism, from the smallest bacterium through the wide range of plants and animals to humans, is an integrated whole and therefore a living system. Systems are not confined to living organisms and their parts. The same aspects of wholeness are exhibited by social systems -such as an anthill, a beehive, or a human family- and by ecosystems that consist of a variety of organisms and inanimate matter in mutual interaction.

All these natural systems are wholes whose specific structures arise from interactions and interdependence of their parts. Systemic properties are destroyed when a system is dissected, either physically or theoretically, into isolated elements. Although we can discern individual parts in any system, the nature of the whole is always different from the mere sum of its parts.

The systems approach is quite similar to the principles we have addressed in modern physics. Quantum and relativity theory emphasize

relationships rather than isolated entities, and perceive these relationships as being inherently dynamic.

As we begin to explore aspects of holistic, experiential, democratic and humanistic education, it is essential to regard these areas as mutually inclusive rather than exclusive. They represent a systems approach -an integrated whole. (Figure 2 is a schematic illustrating how the four new frameworks for education reform emerge from the four guiding principles of the new paradigm. Table 1 depicts the actual interface between the two.)

Figure 2

EMERGING PARADIGM PRINCIPLE	RESULTANT EDUCATIONAL FRAMEWORK
PARTICIPANT-OBSERVER	
The power to effect events; "I count" empowerment.	**DEMOCRATIC:** Provide opportunities whereby children develop self-direction and independent thinking. **DEMOCRATIC:** Impart, by example, democratic principles and values. **EXPERIENTIAL:** Productive involvement and participation in the social life of the community. **HUMANISTIC:** Develop the humanitarian values of tolerance, freedom of thought and social responsibility.
UNCERTAINTY	
Knowledge is based on a "range of possibilities."	**DEMOCRATIC:** Help students understand that a variety of solutions may be valid in any particular situation. **EXPERIENTIAL:** Concrete actions on the environment in order to form abstractions.
DYNAMIC ASPECTS OF NATURE	
Emphasis on process, on dynamic interaction; the "whole" personality includes aspects of mind and body which are integrated in the new paradigm. Body and mind are one; that is, doing (actions of the body) and thinking (actions of the mind) are inextricably linked.	**DEMOCRATIC:** Enable students to experience freedom of choice in an atmosphere that emphasizes personal responsibility. **EXPERIENTIAL:** Active experimentation and discovery to bring about awareness and meaning. **HUMANISTIC:** Create an atmosphere where the whole personality of the student can emerge — achieving a higher self-concept, autonomy and integrity. **HUMANISTIC:** Emphasis on the affective — feeling component in learning.
UNITY	
We are all united and equal because we come from a common origin. We are all linked in a common bond for a higher purpose. Transcend traditional disciplines and emphasize: interrelations, interdependency and interconnectedness.	**DEMOCRATIC:** Encourage self-respect and respect for others and gain an understanding for the meaning of, "all people are created equal." **HUMANISTIC:** Actualize each student's potential. **HOLISTIC:** Give young people a vision of the universe in which all animate and inanimate are interconnected and unified. **HOLISTIC:** Help students synthesize learning and discover the interrelatedness of all disciplines. **HOLISTIC:** Prepare students for life in the new age by emphasizing a global perspective and common human interests. **HOLISTIC:** Enable the young to develop a sense of harmony and spirituality — which are needed to construct world peace.

TABLE 1

DEMOCRACY IN EDUCATION

"You have solved a great problem; you have succeeded in fusing together discipline and freedom - this is not a problem which concerns the government of schools only, it concerns the government of nations."

Remarks from a visiting
Minister of State, spoken
to Maria Montessori

Education cannot be neutral. You educate either for the radical transformation of society or for conformity, domestication and the preservation of existing structures - helping people fit in with the status quo.

Paulo Freire
"Pedagogy of the Oppressed"

Schools are part of the promise of a democratic society because schools are capable of endowing all our children with the knowledge and reason to function as fully enfranchised citizens.

from "Choosing Equality"
New World Foundation Report

The principles behind the democratic tradition have a very long history. People have always been aware of the potential power for good because democracy is based on basic moral law which is part of the human tradition and integral to our religious activity. At the source is the conviction that all people are created equal, that they have shared common interests, and that working together can actualize those interests. Dewey explains:

> *A democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience. The extension in space of the number of individuals who participate in an interest so that each has to refer his own action to that of others, and to consider the action of others to give point and direction to his own, is equivalent to the breaking down of those barriers of class, race, and national territory which kept men from perceiving the full import of their activity ([1916] 1966: 87).*

Education must enable the rising generation to embody the democratic ideal. Therefore, the following goals for democratic education are proposed:

To enable students to experience freedom of choice in an atmosphere that emphasizes personal responsibility.

To encourage self respect and respect for others, underscoring the meaning of "all people are created equal."

To provide opportunities whereby children develop self direction and independent thinking.

To impart, by example, democratic values.

To help students understand that a variety of solutions may be valid in any particular circumstance.

Freedom and Responsibility

> *"Now a cluster of people are over there looking at the New Games book. I am the only one still writing. Jason is doing a map of South America. Gregg is doing an assignment you gave him. Mark is fooling around and Mandy is over there telling him off. Mark blames John and John blames Mark. The usual. Tim and Cedric are also writing you a letter.... Mandy just read something about the Mayans believing that women had a power of their own, and we are making jokes about the beginnings of women's lib.... Now Dolores (the teacher) is giving a lesson on sentence structure. Sharon, Kristin and Heather are doing a country research. Heather is making a map the way you taught her. Chata, Monica and Georgie are doing math and Mark and John are doing a science experiment."*
>
> *Portions of a letter I received*
> *from a ten year old girl while*
> *I attended a three week seminar.*

Education is not a series of adult impositions on the child but a conquest of freedom secured by the learner. In this way, the child discovers that freedom exists within certain boundaries and that each individual, in exercising that free choice, also acknowledges responsibility for his or her actions. Freedom without responsibility is anarchy; responsibility without freedom is despotism.

To be free individuals need to develop and exercise their freedom and recognize their responsibilities. The school environment should therefore encourage personal choice in an atmosphere that holds the children accountable for their activities. This principle holds true throughout the educational cycle, although its application varies with the developmental level of the student.

Freedom of choice is born out of the individual's innate desire to act independently. Montessori learning environments foster individual choice

and social cooperation. In 1946 Montessori explained:

> *Many wars have been fought in the name of and for the acquisition of freedom, and what is arrived at ultimately is a degree of slavery, which seems to grow with the conquest of freedom - because we do not really know what freedom is. But life does give us a picture of what freedom is; it is a personal conquest of independence, something that one arrives at by one's effort and by that kind of effort which brings with it an ever greater progress, that brings with it not repression but uplift, joy and enthusiasm (1976: 35).*

The school setting should encourage students to make independent choices based on interest as well as societal standards. The latter is an acknowledgment of the child's responsibility to society and develops throughout the elementary and secondary years as the teacher sets before the student the intellectual and social requirements for participating in a democratic society.

As an elementary teacher, one of the methods I used to foster freedom of choice and emphasize personal responsibility was to help children along the decision-making path. At the risk of oversimplifying things, let's say that there are three categories of learners. The first are those who are self directed and motivated and need very little adult direction -perhaps 20 per cent of the class. Another 20 per cent are those at the opposite extreme. They need specific adult direction. These are the children that I would greet at the door and have them come together for a "private meeting." We would discuss the possibilities for the day, the lessons needed, the best place to work -and who not to work with! I might have to offer children in this group alternative choices. They would be required to write their ideas down and I would "approve" them. Slowly, sometimes at a snail's pace, they would wean themselves from my direct input and move into the next category.

The third and largest group are those who are self-directed some of the time and can improve with limited supervision. These children may need some help in planning their day, but it is more like offering suggestions than specific choices. They sometimes need to be reminded of their responsibilities, and are helped along the decision-making path through encouragement and reinforcement.

At the end of each day all the children wrote in their diaries -a log of the day's activities. I would meet at least once a week with each child to review the diaries and help them evaluate their own progress. In this way they developed more advanced skills for making decisions and began to take personal responsibility for what they had or had not accomplished.

Respect and Equality

Self respect is an outgrowth of family and school experiences that dignify the opinions and attitudes of the individual. It emanates from a caring-loving environment wherein adults recognize the worth of the child. One does not educate for self respect, but enables self respect to develop. Students will have difficulty valuing the contributions of others unless they feel their own worth, so the family and school must provide the first steps towards developing respect for others, by valuing the worth of the individual.

> *The realisation of one's own value is just the thing which urges (one) to association, because he who is conscious of his values is victorious over life, he is an energy (Montessori, 1937).*

Martin Luther King wanted us to know that, "Injustice anywhere is a threat to justice everywhere!" Extrapolating from this, I would add, "Inequality anywhere is a threat to equality everywhere!" Ideally schools would be accessible to students from all races and economic levels.

Heterogeneous grouping of children from many different socio-economic backgrounds promotes mutual understanding and compassion among people. Through cooperative learning strategies students are able to appreciate class and racial differences and accept their peers for what they contribute. However the structure of neighborhoods often precludes such idealized goals. The spirit of these goals can be achieved by dramatizing equality issues in the classroom.

Young children who are shown pictures of different human groups from around the world and study their commonalities -how they satisfy their basic needs for nourishment, shelter, clothing and the like, discover that most of the groupings in the world have vastly different measures for satisfying those needs, but the needs are common to all. Healthy classrooms promote peer acceptance and recognize individual differences. This is accomplished by helping students talk about and work through problems among themselves. Group and cooperative work builds mutual respect which, in turn, fosters trust and equality.

Students need help in understanding the outcomes of mutual respect and equality. What does it really mean when we say, *"All people are created equal."* Does that include women, children, poor and rich? If not, why not? The teacher must prepare an environment that can achieve not only the cognitive academic goals, but these extremely important aspects of affective education.

Hullfish summarizes these affective aims:

> *Democracy is...a general sentiment toward life, a sentiment given meaning by certain directing principles. This sentiment has led men to believe that by working together they can progressively fashion a better life for all. It has led men to believe that to welcome difference is a better way to enrich their lives than to insist upon conformity... It has led them to believe that ballots are a better means than bullets to secure leadership. It has led them to believe that education is a means of personal development that should be denied none (1960: 4).*

Each human being, by the very nature of his or her presence, is entitled to an equal opportunity to secure the happiness he or she desires. A good education forms the foundation for the fulfillment of these ends.

Self Direction and Independent Thinking

Education for democratic citizenship means teaching young people about the ways of society and enabling them to participate. This evolves when the educational process stimulates self direction and independent thinking. Young people are to be encouraged to make choices and to reap both the positive and negative consequences of those choices. It is in this atmosphere that mistakes become opportunities for further learning. Too often educators take the position that it is their responsibility to "correct" student errors so that the student can learn the "right" answers. Instead, incorrect responses must be viewed as a challenge for deeper understanding.

Authors of the 1985 report from the New World Foundation explain:

> *Education for citizenship means that schools should provide children with the social and intellectual skills to function well as members of families and communities, as political participants, as adult learners and as self-directed individuals (1985: 43)*

Independent thinking is the consequence of self-directed behavior. Schools that are socially and academically alive permit students to engage in dynamic interaction at all levels of the school community; that is, student to student, student to faculty, and student to administration. Through active participation, young people test out newly acquired capacities and develop the skills necessary for functioning in a democratic society.

Participation on an active basis means a willingness to share openly with others, in verbal and non-verbal communications. Active participation at its highest level includes the initiation of projects, the opening of issues, and the direct pursuit of problems, interests and concerns (Moustakas, 1973: 6).

When education focuses on independent thinking and participation, young people are empowered to effect events and develop the skills necessary to shape the future.

Democracy "By Example"

How often do you think students receive the message, "Do as I say, not as I do?" One cannot impart the democratic ideal through command, innuendo, suggestion or direct written exercises. The principles of a democratic society have to be "lived" in the classroom if students are going to understand the full impact of their meaning. You cannot teach democracy through non-democratic methods.

This is a very strong statement to make in light of the way our higher educational institutions train teachers, and in view of the current wave of reform -"back to the basics"- that is sweeping the country. If the learning process requires teachers to relinquish their position as "ultimate authority" in order to advance the democratic principles of justice, freedom, equality, responsibility and self-direction, then what controls are left for the teacher? A "new" teacher will emerge - one who realizes that learning is a reciprocal process. Paulo Friere charges:

Through dialogue, the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teachers. The teacher is no longer merely the one who teaches, but one who himself is taught in dialogue with the students, who in

> *turn while being taught also teach... In this process, arguments based on "authority" are no longer valid; in order to function, authority must be on the side of freedom, not against it... Men teach each other, mediated by the world, by the cognizable objects which in (traditional) education are "owned" by the teacher (1984: 67).*

Montessori explains the essential role of the new teacher:

> *The task of the teacher becomes that of preparing a series of motives of cultural activity, spread over a specially prepared environment, and then refraining from obstrusive interference. .....teachers can only help the great work being done (by the child) as servants help the master. Doing so, they will be witness to the unfolding of the human soul and to the rise of a New Man who will not be the victim of events, but will have the clarity of vision to direct and shape the future of human society ([1946] 1974: 3).*

Both Friere and Montessori would create environments that foster inquiry; that is, action research and experiential learning.

Democracy "by example" empowers the individual. If young people participate in an educational process in which they have the capacity to effect that process, they become empowered. This occurs in schools where liberty and responsibility are dynamically balanced. In this environment of *"teacher-student with students-teachers,"* new boundaries continually need defining and there is opportunity for the student to participate in setting standards and policy.

Participation enables youth to acquire control and to internalize the experience of effecting events. As adults these individuals become aware of their faculty to bring about change. They are active rather than passive.

Multiple Solutions

Knowledge is based on a range of possibilities. Nothing is exact or completely predictable. If these statements are taken at face value and are used as a lens to view the educational process we discover that schooling today contradicts these assumptions. Traditional education "imparts" knowledge and experience as if we were still in the Newtonian Age -that is, as if cause and effect reigned supreme and the universe itself operated like a giant machine, measurable and predictable.

Young people educated under this umbrella emerge from school with a "lock-step" approach to reality. William Glasser explains:

> *Completely consonant with the certainty and measurement principles, objective testing is the landmark of fact-centered education. Objective tests, except in rare instances, are passed by memorizing facts and regurgitating them correctly, a process that eliminates thinking by its total emphasis on the answer (1969: 69).*

Objective testing, with its implication in well-defined exact answers, frustrates efforts towards more expansive thinking in school. Individuals who have been bombarded with these testing situations through twelve to twenty years of schooling, are ill prepared for dialogue, collaboration and deep understanding.

In my classes I would always qualify declarative statements - especially in the area of science and history. I would explain, "This is what we generally know or think today, but tomorrow something may be discovered that will completely change our viewpoint." Children would move from one level to the next, not by passing a test, but by demonstrating mastery to themselves and moving on.

Students should emerge from formal schooling with an open mind - one that can appreciate a range of solutions for a set of given circumstances. Individuals so educated, are not stuck with linear logic;

they are not just focused on their own idea, their own solution, but can appreciate other points of view. This leads toward collaboration and cooperation with other human beings which is the foundation of a democratic society.

EXPERIENTIAL LEARNING

Life is never grasped except by the faculty of inward experience; in the way we perceive life, not as causal necessity, but as inner freedom - not as static and material "being" but as an emergent and creative "becoming."

The ideas of Henri Bergson
Quoted by Adir Cohen in:
"The Educational Philosophy
of Martin Buber"

The idea of using the present simply to get ready for the future contradicts itself. It omits, and even shuts out, the very conditions by which a person can be prepared for his future. We always live at the time we live and not at some future time, and only by extracting at each present time the full meaning of each present experience are we prepared for doing the same thing in the future. This is the only preparation which in the long run amounts to anything.

John Dewey
"Experience and Education"

Humanity has survived for over three million years because of its many-sided powers of adaption. Unlike the rest of the animal kingdom human beings possess the power to reflect, to observe themselves and to modify their encounters with the world in order to meet their needs. This encounter with the world is called experience.

Experience has been the basis of learning from the inception of man's appearance on earth. However, in the last few hundred years there has been an overeager embrace of the rational, scientific and technological. Our concept of the learning process has been distorted, first by

rationalism and later by behaviorism. We have lost touch with our own experience as a source of personal learning and development, and in that process, lost that experiential centeredness necessary to counterbalance the loss of "scientific" centeredness that has been progressively slipping away.

Traditional education denies experience as a component of the learning cycle. Instead it supports what Paulo Friere calls the "banking" concept of education. In "Pedagogy of the Oppressed," Friere explains:

> *(Traditional education is) an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiques and makes deposits which the students patiently receive, memorize, and repeat. This is the "banking" concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and storing the deposits. They do, it is true, have the opportunity to become collectors or cataloguers of the things they store. But in the last analysis, it is the men themselves who are filed away through the lack of creativity, transformation and knowledge in this, at best, misguided system. For apart from inquiry, apart from praxis, men cannot truly become human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry men pursue in the world, with the world, and with each other (1984: 58).*
>
> *Implicit in the banking concept is the assumption of a dichotomy between man and the world: man is merely "in" the world, not "with" the world or with others; man is spectator, not re-creator. In this view man is not a conscious being; he is rather the possessor of consciousness: an empty "mind" passively open to the reception of deposits or reality from the world outside (1984: 62).*

One of the blatantly missing elements in the banking concept is "action" - action on the part of the learner in order to make education meaningful and relevant. Experiential learning offers an approach to education and learning as a lifelong process that is based on the intellectual traditions of social psychology, philosophy and cognitive psychology. It emphasizes the critical linkages that can develop between the classroom and the "real world." Figure 3 illustrates experiential learning as a process that connects education, work and personal development.

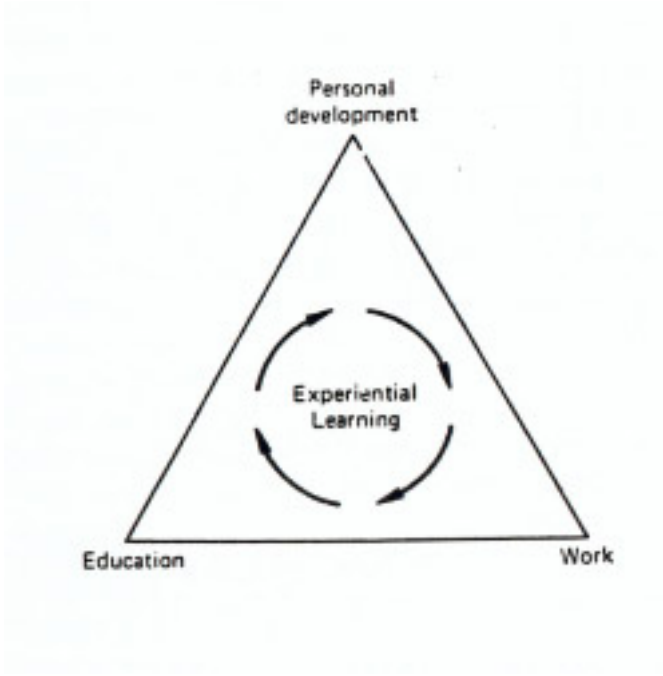

Figure 3. From Kolb, David, "Experiential Learning," (Englewood Cliffs, NJ: Prentice Hall, 1984, p. 4)

Aspects of experiential learning include:

> Active experimentation and discovery to bring about awareness and meaning.
>
> Concrete actions on the environment in order to form abstractions.
>
> Productive involvement and participation in the social life of the community.

Experimentation and Discovery

Experimentation is the application of principles or theories arrived at through concrete experience. It is a process whose end (or beginning) is knowledge and discovery. A healthy learning environment contains materials that enable the learner to take concrete materials and arrive at abstractions through experimentation. Students in the Montessori elementary class use a material known as the "chequerboard" to learn long multiplication. During initial contacts with this material the child places sets of bead bars on the board in such a way that the geometric form of multiplication can be internalized. At this stage of the work, correct answers are not as important as understanding the process. After working at this concrete level for some time, the child begins to reflect on the experience. This is followed by a period of theorizing or abstracting. Now the child thinks, "I wonder if I could apply what I know about this material to perform long multiplication abstractly." Experimen- tation begins and the child discovers that he or she no longer needs the concrete material but can rely on his or her own internalized process.

This experiential learning process is described in Figure 4. According to Kolb, *"(Experiential) learning is the process whereby knowledge is created through the transformation of experience" (1984: 38)*. In our chequer-board example knowledge of abstract multiplication is derived

from the transformation of experience with concrete materials.

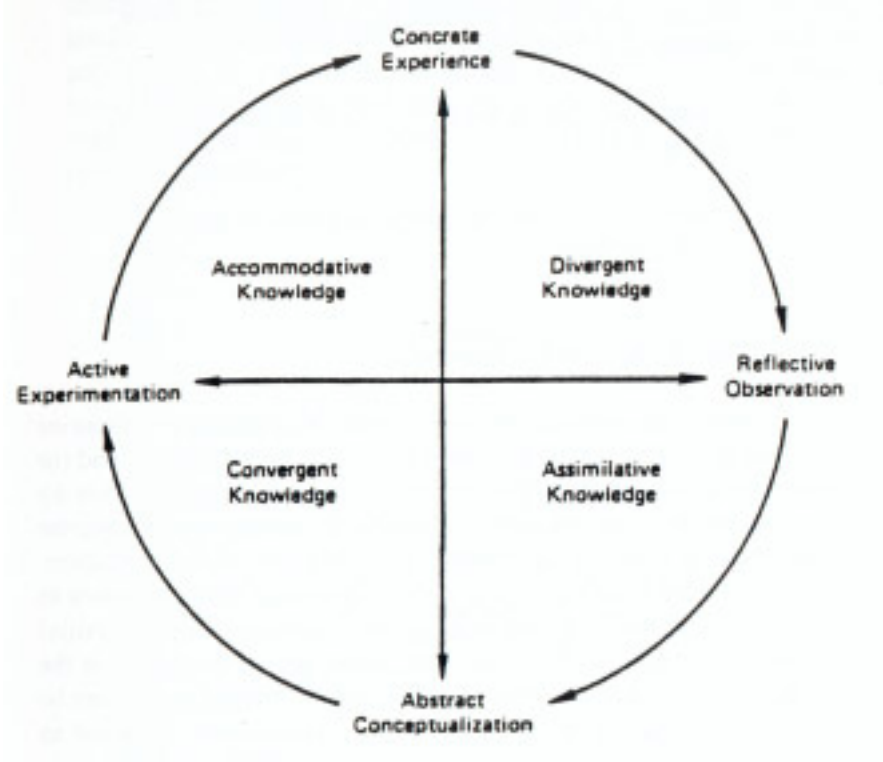

Figure 4. Adapted from: Kolb, David, "Experiential Learning," p. 42.

Kolb's model has wide implications for all levels of schooling and lifelong learning. It demonstrates that learning must have an active component, what Friere calls "praxis." It helps us move out of a framework that organizes learning into a singular "thinking" mode, and recognize that knowledge is built through the linkage of thinking -actions of the mind- and doing -actions of the body. Experiential learning is

holistic in nature and underscores the latest "whole" brain research which emphasizes the need for educating both right and left hemispheres of the brain.

Action and Abstraction

Group discussions and debates help students prepare for their role in society. These experiences not only provide an opportunity to develop communication and interaction skills, but give students direct encounters with the decision-making process. Cooperative work and collaborative decision-making is experienced through active participation. Students in my elementary classes formed small groups for research projects. They would help divide out the work based on individual interest and skill. One child might find all the books, another do the writing, another the drawing and another cut out pictures from magazines. The group would work together, making all the necessary decisions. Upon completion they would give a presentation to the whole class. Traditional learning environments are static and do not usually provide such opportunities. Brown suggests that they are passive:

> *The classroom activity which has been structured around a feedback of passive citation of facts must move toward a problem-solving atmosphere (1963: 148).*

Effective problem-solving is a dynamic process helping students understand that a myriad of solutions may exist side by side for any one particular situation. Concrete experiences of this nature assist in forming an adult personality that can look beyond cause and effect and comprehend the need for negotiation. Carl Rogers suggests that classrooms change their focus:

> *When a teacher is concerned with the facilitation of learning rather than with the function of teaching, he*

organizes his time and efforts very differently than the conventional teacher... he concentrates on providing all kinds of resources which will give his students experiential learning relevant to their needs (1969: 13).

Experiential learning which involves participation in group process is one such valuable resource.

Social Life Involvement

In Montessori's scenario for secondary education she explains:

The essential reform is this: to put the adolescent on the road to achieving economic independence. We might call it a school of experience in the elements of social life (1937).

The Erdkinder *(for more detailed background on the Erdkinder concept, read Montessori's book, "From Childhood To Adolescence")* would provide opportunities for students to earn money through the operation of a craft store, by boarding visitors, or through the sale of farming surplus. In this way the adolescent would "feel himself capable of succeeding in life" by earning money -representing a higher level of independence from parents. She contends that they would experience the "supreme reality" of social life - the interactions of the market place.

The realities of our time may require a more acceptable, more realistic approach than the Erdkinder model. An urban setting can provide two alternatives for community involvement. The first is the establishment of a student owned and operated "cottage industry"-a bicycle repair shop, for example. The second possibility involves a program for student internships. Through internships or apprenticeships young people explore social life at its core and begin to realize their own competence and capacity for contributing in the adult world. In "Touching the World,"

Arms and Denman describe the goals of the internship program at "Kaleidoscope," a community involvement project of the Philadelphia public schools:

> *...the interns' involvement was geared to something quite different than "choice preparation" for future work. Rather, their involvement was intended as a form of living and growing experience aimed at meeting their most immediate needs as people (1975: xiii).*

Involvement in the social life of the community is not limited to the secondary school. Elementary aged children should have ample opportunity to explore society. This not only answers an internal need of children to explore beyond the classroom, but gives them more data to construct their own world view and prepare them for "going out" as an adolescent. Concerning the separation of school and community, the New World Foundation Report on education charges that:

> *The isolation of schools from their communities further undermines the sense of civic responsibility and solidarity which public education should, but rarely does cultivate among students (1985: 42).*
>
> *School isolation works to deny students a link between what they learn in the classroom and the environment they function in outside the school (1985: 86).*

At the preschool level social life experiences connect the child to the real-to-life home environment. The child learns to care for themselves, to do simple and complex chores (e.g. preparing food, folding, washing a table, etc.) as well as the social graces such as
greeting a visitor, shaking hands or how to ask for things in a polite manner.

Those schools that help connect students to the social life of the community are contributing to the development of an integrated personality. Once we move from the limited notion of the 19th century school, education will regain its experiential heritage and become more holistic.

HUMANISTIC EDUCATION

There is no self to dance by the self alone. There is no world to dance by the world alone. Only with the world can one learn to dance. And that "is" the secret: to learn how to dance the world just as the world dances you. Not merely to control, but also to be controlled. Not merely to move, but also to be moved. Not to struggle and contend only, although selves must always struggle and contend, but ultimately to trust and participate.

Myron Arms
"Touching the World"

Sensitivity, awareness, uniqueness, responsiveness, respect for the integrity of the learner and his preferences and interests, authenticity, honesty, truth, love: each has its place in everyday meetings and each is more important than the most important fact or skill.

Clark Moustakas
"Learning to be Free"

Carl Rogers, Abraham Maslow and Clark Moustakas are among the founders of the Association for Humanistic Psychology. Moustakas recollects that in 1957 and 1958 several meetings were held to discuss the formation of an association that would concentrate on the following themes, "self, self-actualization, health, creativity, intrinsic nature, being, becoming, individuality, meaning, perception, reality, unity, and self-consistency" (Greening, 1985:7).

These form the basis of an education movement that began in the 1970's. Affect and cognition, feelings and intellect, emotions and behavior blend together in a positive framework of values derived from the humanities and from positive self concepts of mental health. They create

the process we call humanistic education. Humanistic education emphasizes a high regard for human life, personal freedom and self actualization. Its roots are as deep and as old as humankind.

In his book, "People of the Lake," Richard Leakey suggests that the driving force behind pre-historic community life was not war and conflict, but "reciprocal altruism."

> *...(W)hen the embryonic Homo ancestors invented a food-sharing economy, they raised the potential for reciprocal altruism to an unparalleled level. Would a female have readily shared out her cache of tubers and fruits to the hungry males if she were not sure that in return she would receive some meat when it was found? No. A pure altruist who always gave and never received would have fallen by the wayside in the march along the road to humankind (1978: 154).*

As the evolutionary advance continued natural selection favored the emotions that made reciprocal altruism work; emotions such as sympathy, gratitude, and moral indignation. Because, in helping other people an individual helps himself, keenly developed reciprocal altruism becomes a powerful source in the success of our species. We are human because our ancestors learned to share their food and their skills in an honored network of obligation.

Reciprocal altruism paves the way for a wider view of humankind - one that encompasses the characteristics necessary for humanity to pool its resources for the common good. These characteristics merge in the goals of humanistic education, which are:

> To develop the humanitarian values of tolerance, freedom of thought and social responsibility.
>
> To create an atmosphere where the whole personality of the student can emerge - achieving a higher self concept, autonomy and integrity.

To emphasize the affective-feeling component in learning.

To promote self-actualization.

Humanitarian Values

Humankind is at a crossroad. Commensurate with the change from the "mechanistic" world view to a "holistic" world view, is a revolution in personal values - one that recognizes the need to improve the welfare of all humanity. Such a global task begins at a very elementary level in our attitudes towards children - both at home and in school. If the child is to become a continuator of this transformation he or she must develop humanitarian values. Montessori explains that before individuals can develop these attitudes, they have to experience them first hand:

> J*oy, feeling one's own value, being appreciated and loved by others, feeling useful and capable...are all factors of enormous value for the human soul (1937).*

Once individuals have experienced care and love they are then capable of identification with others and concern for their welfare. Schools can emphasize these attitudes by helping young children:

1. role play personal interactions

2. be aware of their responsibility to the group, and

3. recognize people from other lands as having the same basic needs and feelings.

In the elementary school young people become truly conscious of inequality and injustice. Over the years my personal experience with this

aged child has dramatized this time and time again. If given the opportunity for open-ended dialogue and freedom of thought the elementary child will demonstrate his or her concern for the welfare of others.

One of my many experiences with this reality occurred a few years ago during the aftermath of the Mexico City earthquake disaster. Our elementary class children discovered that many babies were left orphaned and homeless and there was a tremendous need for baby bottles to feed the infants. They decided to help. They collected their own old toys and sold them to each other and to children in other classes. With the proceeds they shipped a large box of bottles to a center in Mexico City - what joy and inner satisfaction this experience afforded them. It was truly a sense of personal empowerment.

Adolescents in school are capable of similar humanitarian gestures. Their efforts go beyond the level of "doing" and are concerned with the reasons behind the injustices and inequalities that cause people to suffer. What creates poverty? Why are millions of people suffering from malnutrition? Why is personal freedom guaranteed in some places and not in others? How can we help? These issues are of a philosophical and moral nature and should be part of the form of study during the secondary school years. Thus educated, young people emerge from schooling with a broader sense of what needs to be done in the world and, more importantly, an understanding of the process to accomplish these ends.

Developing the Whole Personality

When asked to explain what was meant by the Montessori "method," Dr. Montessori responded:

> *For the word "method" we should substitute something like this: "Help given in order that the human personality may achieve its independence" ([1955] 1969: 8).*

In this context education based solely on academic understanding is a mere portion of what is necessary. If schools are to help young people develop so that they can take their place in society as fully integrated human beings education has to consider all the factors that build the personality. That is, the school has to work towards building a higher self concept, autonomy and integrity.

Speaking in the 1930's before the revolution in whole brain research, Montessori charges:

> *The human personality must be given a chance to realize every one of its capabilities. Men today are forced to take up either a trade or a profession. We might say that those who work only with their minds are "mutilated" men and those who work only with their hands are "decapitated" men. We (need) to create a harmony between those who work with their minds and those who work with their hands by appealing to their sentiments, but there is a need for whole men. Every side of the human personality must function ([1949] 1972: 131).*

The school which cultivates personality development through integrated studies, through recognizing the human element in learning, through fostering individual choice and social cooperation, and through applied or experiential learning, is promoting whole personality concepts - that is, the development of all the mental and physical potentialities.

The Affective-Feeling Component

The Rose has thorns that protect it from harm,
but thorns don't protect it from winter.
We build walls in our mind to protect us too,
but sorrow just knocks them down.
We have no protection from many things,
just like the Rose in winter;
But we can recover and begin again
unlike the thorny rose.

I received this poem from a young adolescent girl upon the death of my father.

The central prognosis of the Newtonian-mechanistic paradigm was a view of reality in which all is known and all is predictable. The universe was depicted as a gigantic machine, put into perpetual motion and created by God. The world of facts presided as the ruling theocracy, and intuition, feeling and imagination were subordinated. It was not a time of dancing-with-the-world, but a time of objective evaluation of phenomena.

This was the climate under which massive public education was born. And, except for a growing number of pockets of resistance, education still is tied to its mechanistic past. There is an overemphasis on rote memory and factual data; there is an overemphasis on objective testing; and there is an overemphasis on lesson plans, behavioral objectives and discipline.

Schools also need to consider the affective components in learning. Louise Berman's contribution to educational philosophy synchronizes the affective and the cognitive. She explains:

Our hypothesis is that as the school places priority upon developing a setting where children and youth have the opportunity to experience and verbalize the meanings of creating, loving, knowing, organizing, and other process

skills, they will orchestrate more beautifully the components of tomorrow's world than if they did not have such new priorities established in the curriculum (1968: 191).

It is this aspect of humanistic education -the linking of the affective with the cognitive- that correlates with left brain right brain theory, underscoring the necessity for emphasis in both planes.

Self Actualization

Abraham Maslow has made many contributions in his studies on the self actualization process. Self actualization is at the nerve center of the human potential. There exists in the human species the innate tendency to improve oneself and to strive for perfection. Early human beings repeated rudimentary tasks over and over again - all the while perfecting the process. Throughout history humanity has been on a continual course of self improvement in order to make life better for itself. This has sometimes occurred at the expense of others. In this period of the new paradigm it is understood that all are linked in a common bond for a higher purpose so that self-actualization emerges from the individual's initiative and becomes a collective actualization process, recognizing the dignity and worth of others.

When I was a classroom teacher I would write "letters of encouragement" to the children in my class -especially to the ones that were struggling. The letters would start with, "I like the way you...;" or, "I appreciate when you...." Most often the letters would identify specific acts or attributes that I liked. One day a ten year old stuck the following note into my briefcase:

Dear Phil,

I wrote this letter to you because I enjoy being with you. I also enjoy being in your class. I think you are very nice,

and one more thing that I like about you is that you share equal time with everyone.

Love,

Brian

Education can help the self actualization process by establishing an open environment, one that encourages positive self concepts, feelings of identification, responsibility, openness to experience, adaptability, creativity and effective human relationships.

HOLISTIC EDUCATION

Our aim is not merely to make the child understand, and still less to force him to memorize, but so to touch his imagination as to enthuse him to his inmost core. We do not want complacent pupils, but eager ones; we seek to sew life in the child rather than theories, to help him in his growth, mental and emotional as well as physical, and for that we must offer grand and lofty ideas to the human mind, which we find ever ready to receive them, demanding more and more.

Maria Montessori
"To Educate the Human Potential"

The last 400 years of scientific and intellectual progress contain a gigantic paradox. Every great advance, every profound insight in the sciences and other intellectual disciplines, has torn down the barriers of distinction between those disciplines; and yet the institutional result of each of these achievements has been the further fragmentation and specialization of the academy.

Fredrick Turner
"Design for a New Academy"

We must elevate ourselves as cosmic beings in deep communion with the universe and eternity. We must reestablish the unity of our planet and of our beings with the universe and divinity. We must have our roots in the earth and our hearts in heaven. We must see ourselves as cells of a universe which is becoming increasingly conscious of itself and us.

Robert Muller
"New Genesis"

At the core, at the very center of this inquiry is the knowledge and

understanding that a pervasive unity exists, not only on earth, but in the totality of the universe. How many times I have repeated this idea and still, as I look around the room in which I am writing and see this table, the paneling, a glass lamp, books, paper, pencils, word processor, carpet and me, it is hard to conceive that all of this is inextricably linked from some amorphous beginning twenty billion years ago. And even if it is, what does that mean to me?

As I contemplate an answer to this question I recall the ideas of Martin Buber in "I and Thou." Buber explores the nature of "I-Thou" and "I-it" experiences. The world of I-Thou is one of encounter, relationship and cooperation guided by spirituality. The world of the I-it is objective and indifferent and is guided by cause and effect.

My experience of this room becomes an I-Thou interchange as I develop relationship with the "it" articles I see and touch. It is majestic and uplifting.

We want schools that will enable students to encounter, to build relationship and to cooperate with the world. They can only accomplish this with a redirection of energy from a mechanistic to a holistic approach; that is, from one that emphasizes facts and objectivity (I-it) to one that explores interdependency and unity (I-Thou). The purposes of holistic education are to:

> Give young people a *vision of the universe* in which all animate and inanimate are interconnected and unified.
>
> Help students synthesize learning and discover the *interrelatedness of all disciplines*.
>
> Prepare students for life in the new age by emphasizing a *global perspective* and common human interests.
>
> Enable the young to develop a sense of harmony and *spirituality* - which are needed to construct world peace.

A Vision of the Universe

Some 15 to 20 billion years ago there was a great silent fire that marked the beginning of time. This was a fire that filled the universe - that was the universe! All of the particles of the universe were in that fire, churning in extreme heat and pressure. All that we see, all that exists was in that fire at the beginning.

We can see the dawn of the universe because the light from its edge just reaches us now after traveling for 15 to 20 billion years (Swimme, 1985). Everything in the universe came from a common origin - and everything was in the fireball. The material of your body and the material of my body are intrinsically linked because they emerged from a single energetic event. Our ancestry stretches back to the stars.

The universe is a single energetic unfolding of matter, mind, intelligence and life. None of the great figures of history were aware of this - not Plato, Aristotle, the Hebrew Prophets, Confucius, Thomas Aquinas, Galileo, Leonardo Di Vinci, or Newton. It is a new revelation. We are the first generation to live with an empirical view of the origin of the universe.

This means that whatever we do in the future will have to be based on the unity that emerged at the beginning - a new dance has begun.

After the fireball, stars and galaxies were created. Incredible as it may seem there were millions and millions of galaxies each with millions of stars. The enormous creative powers generated from that fireball seems overwhelming but it was effortless. This creativity permeated the beginning and manifested itself in the form of this earth. The earth created from the particles in that fireball - land, water, air, mountains, and life.

Out of the earth's creativity came the oceans. And emerging from the oceans came life - spreading across the continents and covering the entire planet. The creativity advanced, calling forth flowers to bloom; and then advanced further until the vision of the flowers and all the beauty could be deeply felt and appreciated. Human beings are the latest and most recent - the youngest creation of this creative earth.

We are just starting out in this journey. We have inhabited the earth for only six one hundredths of one per cent of its existence. Our presence in the universe represents less than six seconds in a twenty four hour period. And yet, in this very limited time period we have begun to comprehend the infinite!

Our power of self reflection has given the universe form and the universe continues to reveal itself to itself through human awareness. Human beings enabled the universe to be felt - to be appreciated. If you think about our recent arrival, the human experience has yet to realize its potential for appreciating the universe in its totality.

Consider the children. Are they aware of the beauty they embody? What if there were no one to appreciate the child's splendor - no one to celebrate its magnificence? Well, the same is true in the cosmos. Humanity can reflect on the beauty of the universe. We can value it and feel its grandeur.

As human society enters into a new paradigm -the Information-Solar Age- what lies ahead for us? Perhaps we will all come to see human life as part of the interconnectedness of the unfolding earth. An emergent earth community may overshadow the nation-state as human beings begin to realize the full meaning of planetary citizenship.

Pierre Tielhard de Chardin, paleontologist, philosopher and Jesuit priest many years ago declared:

> *The Age of Nations is past.*
> *The task before us now*
> *if we would not perish*
> *is to build the earth (1965: 29).*

This is the essence and purpose of the "cosmic education" described by Maria Montessori. Montessori tells of a cosmic mission for the animate and the inanimate - to render service unconsciously and to be part of the total interdependency of all things. In 1946 at Rome she explained:

If we educate children to see this they will ready themselves to feel gratitude toward all mankind ([1949] 1972: 42).

Young people need to know that they are the result of 20 billion years of creation and that just as the universe has creative powers, these creative powers reside in them waiting to be used.

In "To Educate the Human Potential," Montessori explains,

If the idea of the universe be presented to the child in the right way, it will do more for him than just arouse his interest, for it will create in him admiration and wonder, a feeling loftier than any interest and more satisfying. The child's mind will no longer wander but becomes fixed and he can work. The knowledge he then acquires is organised and systematic; his intelligence becomes whole and complete because the vision of the whole has been presented to him, and his interest spreads to all, for all are linked and have their place in the universe in which his mind is centered...No matter what we touch, an atom, or a cell, we cannot explain it without knowledge of the wider universe ([1948] 1973: 9).

Montessori called the plan for this kind of learning, "Cosmic Education." It is an approach that seeks to connect young people with the fundamental, universal laws or models that exist in the cosmos. Through this exposure the children begin to understand the psycho-evolutionary process which governs everything. They begin to comprehend the vision of the whole and its significance for their own lives. Ultimately what is being suggested is that the student should discover that humanity's cosmic task is to continue collectively, the work of creation on Earth, and to discover with its intelligence the endless latent possibilities of the world's creations and make them manifest in new forms. During the

earlier years in school this is accomplished through imaginative stories dramatizing the ascendancy of life on the planet and the coming of man - and demonstrating how certain universal principles have kept us on our evolutionary journey. In the secondary school this base is expanded to full philosophical dialogue concerning these principles.

One of the most memorable moments I have had in working with adolescents occurred when I was teaching a mini course in cosmology. We traced the development of life and humankind throughout the history of the planet and discussed the theory of paradigm shifts. The kids were totally absorbed -especially when we talked about the new realities uncovered for western humanity as a consequence of understanding quantum and relativity physics. They wanted more, and no matter how complicated the material was, they absorbed it. They truly understood the story of the unfolding universe.

Through a direct confrontation with the unity concept, learners experience intimacy with the creative energies that exist in the universe. They understand the need for cooperation and collaboration and realize the inherent interconnectedness of all the animate and inanimate.

Interrelatedness of All Disciplines

There is a direct correlation between the concepts of holistic health and holistic education. In holistic health the whole is more and different than the sum of the parts, and parts have relevance and meaning only as they serve as elements of a larger whole. When a patient visits a holistic practitioner with a knee problem, the source of the difficulty may be discovered in the motion of the head and neck - as the whole body is balanced and interdependent on all its components. This same patient upon visiting an orthopedic specialist might become a candidate for knee surgery. Holistic health considers both the physical and psychological aspects of illness.

Traditional education dissects the world of knowledge into isolated and separated categories. Culture may be divided into geography, history, math and science. Science and math is further broken down to physics, biology, chemistry, algebra, trigonometry and geometry. The fragmentation of curriculum into different areas of specialization is an artificial construction resulting from "assembly line" models which were exacted from the mechanistic mind set. In the real world these subjects are not separated but form integral wholes. Holistic education seeks to help the student comprehend the interdisciplinary nature of knowledge. It views learning as a process in which the whole and the unification of ideas are paramount.

The holistic, integrative curriculum requires much more research and development. At our secondary school we attempted, with moderate success, an integration between humanities -the study of language, art, drama and philosophy- and history. As for integrating math and science with other areas, there is much to be done. However, there are now "unified" math and "unified" science syllabi which cross the boundaries between algebra-trigonometry-geometry, and biology-chemistry-physics.

Fredrick Turner, in a Harper's Magazine article, "Design for a New Academy," explains the consequences of this holistic approach:

> *A person educated in this way would be in a position to recover that sacramental sense of unity and meaning of the world that was lost when we took the great detour into academic specialization... Such a person would not be overwhelmed or paralyzed by the complexity of modern life, any more than we are overwhelmed by the complexity of our own nervous, motor and sensory systems (1986: 52).*

The conventional concept of educating the whole person has been one of including in the individual's education plan as many pieces as possible. The belief was that when a range of elements -math, reading,

social studies, athletics, music, etc., are prescribed, learners would somehow automatically integrate these fragments into a meaningful whole. There is little evidence that this happens. Holistic education includes in its concerns and purposes the processes of assimilation and integration.

New knowledge about specialization in right and left brain functions has implications for education as a holistic process. Most of what is done in schools is left brain activity -the rational, sequential, linear- while the metaphoric right lobe is neglected. Holistic education implicates both lobes. Balance is realized through processes in which options and models are available and learners are free to choose those which fit their individual life journeys. Imbalance is a function of externally administered curricula.

Education which is separated into segments ignores parts of the learner's total development, does not include assimilation and integrative processes, and is insensitive to both right and left brain learning, does not meet the standards of holistic education.

The Global Perspective

For the first time during the last twenty years we have been able to observe our planet from the far reaches of outer space. This experience is having a transformative influence on the way we think and what we do. It is as if our planet has taken on the characteristics of a spaceship in time -one in which all are responsible for its preservation.

During the 1970's James Lovelock and Lynn Margulis popularized the idea known as the Gaia Hypothesis. The word *Gaia* comes from the Greek mythical Mother Earth goddess and the hypothesis states that all of the organic and inorganic matter on earth conspire to make this a fit place for life. In essence they hypothesize that the Earth is a huge living organism (Lovelock, 1979). The significance of this scientific realization is so profound that we are just beginning to understand its ramifications. One thing for sure is that it substantiates the idea of *Humanity through*

Nature since it sees humanity as part of the circle of elements that constitute the Earth, and not as the heir apparent to the Earth's resources.

If young people can be taught to see the earth as a whole; to see that every nation is directly affected by what other nations do; to see that population growth is not someone else's problem but everyone's problem; to see that we must work together to solve the world's environmental dilemma; to see that we must learn how to live together and de-escalate conflict before we destroy our planet; to recognize the humanitarian responsibility that each have to our fellow human beings; then we can begin to create a generation of people who shed their ethnocentric past and become stewards of the earth and protectors of our future.

Retired Assistant Secretary-General of the United Nations, Robert Muller, develops the global education concept in his book, "New Genesis:"

> *We must give a global vision to all the world's children, teach them about the miracle and sanctity of life, the necessity for love for our planet, for our great human family, for the heavens and for the Creator of all these marvels. We must teach them rules of good behavior towards our global home and all our human sisters and brothers, so as to ensure peace, justice and happiness for all (1982: 59)*

Such is the task of global education, for it seeks to plant the seeds of intercultural awareness. Global education must start with the very young child and carry through the secondary school. The preschool child, presented with the globe and learning the names of continents, oceans and countries begins to develop a larger concept of earth. He or she can be shown pictures and told stories of how people in other lands satisfy their needs. The elementary child builds on these experiences by studying other cultures and developing geography skills. Discussions about world affairs and how we are connected to global issues are critical during this period. At the secondary level, action becomes an integral part of the

learning process and students need opportunities to participate in debates about global concerns. More importantly, they should participate in social action projects centered in global issues.

Spirituality

> *Spiritual attraction is the force that can save humanity. Instead of being merely bound by material interests we need to feel this attraction to each other. These spiritual forces always exist around us, just as the cosmic rays exist in the universe. They are the Children! If our soul is far from the child, then we see only his small body, just as we see the star in the sky as a little shining point when it is really an immensity of heat and light. The art of spiritually approaching the child, from whom we are too far, is a secret that can establish human brotherhood; it is a divine art that will lead to the peace of mankind.*
>
> *Maria Montessori*
> *"Gandhi and the Child," 1939*

The cosmic education described by Montessori is, in a sense, the seedlings for spiritual development. From early on the Montessori environment promotes self-reflection and awe. In a class of 30 three to six year olds it is not uncommon for everyone to simultaneously experience The Silence. It is as if the universe has commanded that each participant understand and appreciate the meaning of being alone with self and others.

In the words of former Secretary General of the United Nations, U Thant:

Spirituality is a state of connectedness to life. It is an experience of being, belonging and caring. It is sensitivity and compassion, joy and

hope. It is the harmony between the innermost life and the outer life, or the life of the world and the life of the universe. It is the supreme comprehension of life in time and space, the tuning of the inner person with the great mysteries and secrets that are around us. It is the belief in the goodness of life and the possibility for each human person to contribute goodness to it. It is the belief in life as part of the eternal stream of time, that each of us came from somewhere and is destined to somewhere, that without such belief there could be no prayer, no meditation, no peace, and no happiness.

An education based on these ideas would accelerate humanity's path to wholeness. Such a method can evolve out of the descriptions and accounts of the four frameworks for education in the emerging paradigm that have been explored. The goals and objectives of Democratic, Experiential, Humanistic and Holistic education taken collectively open the way for the emergence of a spiritual humanity.

There is an old parable which says, "Give me your children and I will give you the world." Today we should say, "Give our children a healthy view of the world and they shall give us peace.

PART THREE

A D O L E S C E N C E

CHAPTER SEVEN

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THE ORIGINS OF ADOLESCENCE

Adolescence is viewed today as a period between puberty and social, psychological and physical maturation. The word itself is derived from the Latin verb, "adolescere," which means "to grow up," or "mature." Jean Jacque Rousseau may have been the first person to propose the concept of adolescence. In his book, "Emile," he explained that the individual experiences a second birth at puberty:

> *We are born, so to speak, twice over; born into existence and born into life; born a human being and born a man ([1764] 1979: 128).*

Even before Rousseau's days, Aries (1962) traces the first mention of adolescence to a thirteenth century Latin translation of ancient Byzantine writers. He explains that the roots of the adolescent period lie in the establishment of the academy schools in France during the late sixteenth century. Aries points out that such words as "son," "varlets," and "boys" were terms in the vocabulary of feudal subordination.

But we have to explore the events that took place in nineteenth century America to see how the period we call adolescence became a reality. *(America is used at as reference with the knowledge that similar phenomena occurred elsewhere in the world -albeit for different reasons- at about the same time.)* Prior to the 1860's there was continuous labor shortage in America. In the early part of the nineteenth century textile mills depended heavily on the labor of the working class youth (Star, 1981). At the same time the needs of the expanding commercial economy absorbed white collar middle class youth into the labor market. Working

youth were virtually provided with adult status during this period of history. There were early marriages and legal rights assumed by the young adult as a result of his early financial independence. Musgrove reports that most youth were making their own contracts and paying for their own lodging, board and clothing by the age of fourteen. He explains that prior to the American Revolution youth had more rights than they do today:

> "...fourteen-year-old boys could serve as executors of wills and at sixteen they became men, paying taxes and serving in the militia" (1964: 33).

In short, there existed no lengthy waiting period between puberty and the achievement of adult responsibilities. There was no adolescence.

Towards the end of the nineteenth century the status of youth rapidly declined. This can be attributed to:

1. Technical advancements in agriculture and the industrialization of the cities reduced the number of young people needed in the labor force.
2. The youth population increased dramatically because of improvements in health and sanitary conditions.
3. Increased immigration created a surplus of labor in the cities, leaving hoards of youth unemployed.

Gillis characterizes the years 1870-1900 as the period of the discovery of adolescence. He explains:

> *Youth's loss of political and social independence reflected the fact that a significant segment of the life phase, the adolescent years 14-18, was becoming increasingly dependent. While older youth retained much of its earlier autonomy...this younger age group was losing access to the economy and society of adults as it became increasingly subject to parental and other institutional controls. The moral autonomy attributed to youth by earlier generations*

> *was giving way to a new kind of conformity associated with a more mindless kind of physical vitality. In turn, this was reflected in the public image of the young (1974: 39).*

No longer serious participants in the economic affairs of society, young people were not taken seriously on social and political issues either.

"Adolescence was added to childhood as a second childhood in order to fulfill the aims of the new urban-industrial society which developed rapidly following the Civil War," explains Bakan (1971). Cities in America that had populations greater than 8,000 doubled in size between 1890 and 1900; and, by 1900 more than a third of the population lived in cities.

The scene was set. Unemployed youth and especially unemployed youth of foreign-born parents were on the streets of the large cities. By this time many industrial leaders began to recognize the dependence of industry on the existence of a reasonably educated labor force; educated not only with respect to knowledge and skill, but also with respect to bureaucratic subordination and reliable work habits. As Katz puts it: "the demands of a growing corporate state cried out for large numbers of punctual, hardworking, and obedient workers" (1976: 23).

Bakan explains:

> *As a result of these conditions, three major social movements developed, all of which conspired to make a social fact out of adolescence: compulsory education, child labor legislation and special legal procedures for juveniles. By the explicit citation of a precise chronological age, the legislation associated with these three areas essentially removed the vagueness of all previous ideas of the time at which adolescence terminates. Thus adolescence became the period of time between pubescence, a concrete biological occurrence, and the ages specified by law for compulsory education, employment, and criminal procedure (1971: 981).*

Social activists called for the state to intervene. Heretofore, parents were totally responsible for preparing their children for entering the adult world. But the existing models had disappeared because society was in a rapid state of technological change.

Compulsory Education

Two major issues paved the way for massive compulsory secondary education. The first task, already mentioned, was the preparation of youth for full employment in an industrial society. With families leaving farms in great numbers for opportunities in the city and with waves of immigrants coming from Europe, the need arose to help young people build a bridge from puberty to adulthood. This bridge became the secondary school where youth could be taught the skills of an industrial age.

As the nineteenth century moved into its final decades a burgeoning industrial economy required a different kind of worker. Skilled labor, managers, professionals, scientists and technicians were in great demand. High schools became the institution that would begin their training.

But there were two levels to this training. Beneath the level of knowledge and skill development lay a carefully organized secondary school which rewarded those attitudes and activities that were needed to perpetuate efficiency in the work place. So it was that the school was characteristically modeled after the factory. In assembly line fashion, students were, and still are, herded from one class to the next receiving additional information and assignments at each stop, purportedly resulting in a uniform, standardized product at the end of the compulsory school experience. In this process, hard work, being on time, following orders, and the ability to assimilate information is prized over individuality and self discovery. It is the quintessential Cartesian model.

The second task of the compulsory high school was to prepare the young for democratic citizenship. This was especially critical during the latter part of the nineteenth century when masses of immigrants were

coming to America from eastern and southern Europe. The citizenry feared that these immigrants would destroy or corrupt the native American culture. In response to these fears, schools were promoted as agencies of social control and assimilation. Starr explains:

> *The cultural differences of the immigrants were perceived as a national liability, not an asset. Schools were promoted, not as forums for cultural understanding, but as boiling pots which would melt away all significant cultural differences in the name of equality which would only permit sameness (1981: 202).*

Star explains that the high school became an instrument of government authority "to undermine parental authority and drive a cultural wedge between the generation within the immigrant family." By 1890 almost all the states had compulsory education laws, and by 1918 the process was completed. As the number of unskilled jobs continually decreased, the secondary school became not just an alternative to work but a requisite for it.

Child Labor Legislation

Legal restraints against child labor were very slow to develop. With the growing strength of organized labor by the 1880's, the Knights of Labor were becoming a real force for determining social policy. The labor unions were against child labor. They wanted to provide jobs for the unemployed adults and were opposed to the use of "cheap" child labor. In addition they were insistent that their own children obtain a decent education in order to secure better jobs and move up the social hierarchy.

Several attempts to draft national child labor laws failed because they were declared unconstitutional. By the time federal legislation was

enacted in 1938, most states had already set a minimum of 13 for entry into the labor force. By 1938, the average legal age for working after school was 14, for working during school hours was 16, and for working at hazardous occupations was 18. Proefrock concludes:

> *The child labor laws complemented compulsory education in the establishment of adolescence as a social fact. They set what is seen as an arbitrary lower age limit for the period of adolescence; that is, they set the age at which a person passes out of childhood and is allowed limited entry into the labor force (1981: 853).*

Juvenile Justice System

The first juvenile court was established in Illinois in 1899. The juvenile justice system was originally established to protect juvenile offenders, but there were some side effects to this "protection." Many rights which were guaranteed for adults could be set-aside for the adolescent delinquent. So it was that until recent Supreme Court action, young people could be brought to court without having violated any laws, due process could be suspended, and guilt did not have to be established beyond a reasonable doubt. Proefrock reports that:

> *The separate juvenile justice system went further in formalizing the social fact of adolescence legally by establishing different standards of behavior for adolescents. It also acted further to demark the boundary lines which had been set by compulsory education and child labor laws. After the establishment of the juvenile justice system, adolescence was a social fact (1981: 853-54).*

These three social developments: compulsory education, child labor laws and institutionalizing a system of juvenile justice were the foundation for the establishment of a new class of individuals called adolescents. The milieu that produced this phenomena was the expansive industrial economy. Adolescence, therefore, is not a universal. There are cultures that have never developed an industrial environment and where the transition from childhood to adulthood is not marked by a long period of preparation. Margaret Mead explored one such culture in Samoa. According to Mead (1958:34), "Adolescence as a growth period of personality is a function of the complexity of society, not merely of the human life cycle."

> *In Samoa, where she (Mead) first made her discovery in 1922, children were given many duties and responsibilities within the context of the extended family, ceased participating in their age-graded peer group before puberty, and experienced a smooth transition from child to adult status. Quite simply, in the Samoa studied by Mead, no social category of adolescence was produced by the economic organization of the society. (Starr, 1981: 211)*

As society moves from the mechanistic-industrial age into the information age, the experience of adolescence has spread from culture to culture around the world. The complexity of life in the twenty first century dictates a prolonged period of preparation between puberty and entry into the work force. However, as we shall see, it is the task of educator, psychologist and social scientist to provide an effective bridge for this transition - one that intersects the needs of youth with the needs of society.

CHAPTER EIGHT

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THEORIES OF ADOLESCENCE

With the social fact of adolescence established by the turn of the century, G. Stanley Hall proclaimed adolescence as a psychological concept when his landmark book, "Adolescence," was published in 1904. Hall considered adolescence to be a period of "storm and stress" - it was a psychopathological approach characterized by a disruption of the personality (Bakan, 1971). If the adolescent period is scientifically regarded in this light, it would reinforce a societal attitude that abridges the rights of adolescents and supports the notion that they can not be responsible for their own behavior. This was the climate during the first half of the twentieth century. Hall writes:

> *The teens are emotionally unstable and pathetic. It is a natural impulse to experience hot and perfervid psychic states, and it is characterized by emotionalism. We see here the instability and fluctuations now so characteristic (1904: Vol. II:74-75).*

Since Hall published his findings other writers as well as the press and media have based their understanding of adolescence on his ideas. Anna Freud (1937) supported Hall's conclusions by claiming that the psychological defenses developed in childhood are not sufficient to deal with the upsurge of instincts that occurs at puberty. This results in a psychic imbalance and leads to emotional upheaval.

However, Coleman asserts that there is very little experimental evidence behind this psychopathological viewpoint and suggests that

empirical data obtained since 1950 clearly indicates that "teenagers reported remarkably few crises, and on the whole, describe their adolescence as being relatively peaceful and calm" (1978, 3).

Perhaps the divergence between the empiricists and the supporters of adolescent "storm and stress" is not an either-or situation. Certainly one can question both approaches. One would have to examine the methods of data collection used by the proponents of the empirical viewpoint as sure as one would have to question the universal labeling of all adolescents as psychopathological.

We now know that there are major transitions that occur in the family life of adolescents which contribute to the instability of the age. It is oftentimes a period when father and mother are going through their own "mid-life crisis" - father's mid-forty identity crisis, and mother's re-entering the work force or going back to school; when grandparents pass away; when the adolescent is moving from dependence to independence with the corresponding struggles. But we also know, according to empirical data, that many families remain stable during this time and that there are indeed many adolescents who experience a very smooth transition to adulthood.

To help understand recent developments in adolescent psychology, let us explore the challenge which youth faces in modern society. Here are six important tasks that are necessary for adolescents:

1. adjusting to physical changes and new drives accompanying puberty
2. establishing autonomy from parents
3. developing affective relationships with peers
4. preparing for a vocation
5. constructing a value system
6. creating a sense of identity

To ascertain how the adolescent approaches these tasks and "graduates" into the adult world we will explore the research contributions made

by Erik H. Erikson, Elizabeth Douvan and Joseph Adelson, Lawrence Kohlberg, Jean Piaget and David Elkind.

ERIK H. ERIKSON

One of the major tasks of adolescence is the achievement of a sense of personal identity. No longer a child and not yet an adult, the adolescent is busily engaged in determining who he is and what he is to become (Erikson, 1950). Adolescence is the fifth stage in Erikson's "Eight Stages of Man" wherein the young person goes through a period of identity verses role diffusion.

> *Faced with the psychological revolution within him and tangible adults ahead of him, the adolescent becomes preoccupied with how he appears to others, compared with what he believes he is, and with how roles and skills cultivated earlier will articulate with occupational prototypes of the day (Rogers, 1969: 157).*

In earlier periods of our history and in less industrialized societies the task of finding one's identity is less diffuse. But in our highly advanced technological age, there is a long period of dependent student status which makes it difficult for an identity to emerge. The adolescent does not see himself as a high level functioning person and wonders about his future role.

When Erikson talks about identity it may have varying connotations. For example, it may refer to a "conscious sense of individual identity;" or an "unconscious striving for a continuity of personal character;" or as a "criterion for the silent doings of ego synthesis;" or a strong association with a "group's ideals and identity" (1956). In a constantly changing and diversified society such as ours, it is not easy to attain a consistent, comfortable interpretation of oneself. When ego identity is successfully achieved, it is a stable feeling of confidence that one knows

who one is.

During adolescence the young person separates from the older generation, re-evaluates his parental models and their values, and searches for new relationships and ideals. It is a phase of intense conflict, of insecurity and self doubt, of reduced ego-strength, and of struggle with the environment (Erikson, 1950).

Erikson has called adolescence a normative crisis. Its outcome depends on the strength of psychological and social factors, on the inner balance that can be maintained, and on the impact of the outer world. If all goes well this crisis will find its resolution in a new, integrated and stable identity, which enables the young person to define his place in society and go on to intimate relationships. If this resolution fails and the crisis continues, the young person may end in a state of role confusion, isolation, and alienation. Erikson explains:

> *In general it is the inability to settle on an occupational identity which most disturbs the young people. To keep themselves together they temporarily overidentify with the heroes of cliques and crowds to the point of an apparently complete loss of individuality (1968: 132).*

What is thought of as rebellious and independent action is really a giving up of one's identity and individuality. Usually these periods of hero worship over rock stars and other heroes and heroines dissipate as youth latches onto some tangible career direction. In the extreme case the adolescent loses him or herself completely in the abyss of indecision - It has been said that, "Adolescence begins at puberty and sometimes ends!"

For Erikson, identity formation is tied closely to the concept of ideology. That is, those individuals who succeed are the ones who have worked the hardest and deserve the success. It is very important for the adolescent to discover a sense of ideological control because he can then become "a vital regenerator in the process of social evolution" (1968).

DOUVAN & ADELSON

Let us examine some of the concepts and perspectives used by Douvan and Adelson (1966) to form the background for their research: psychosexuality, ego processes, and the self and identity. Their research was an attempt to look past contemporary myths on the perception of adolescence by collecting empirically-based data that would shed new light on the experience of adolescence.

Psychosexuality

At puberty the biological changes seem to upset the "balance between ego (self) and id (primitive urges)"...and the "fine articulation between drives and the control processes is endangered" (1966). Douvan and Adelson explore further psychoanalytic assumptions concerning the "instinctual" life during adolescence:

> *The instincts are defined to include more than genital sexuality. Pregenital drives, oral and anal impulses, for example, and aggressive drives are held to be of greater importance in the adolescent instinctual upheaval, and indeed are felt to produce far more intrapsychic disturbance than genital eroticism.*
>
> *Sexuality does not arise new in adolescence. The youngster has experienced an earlier meeting with the impulse life in the first years of childhood. His reaction to*

the adolescent instinctual revival repeats and reflects that previous encounter. In adolescent sexuality, the past reemerges and must be dealt with again (1966: 5).

The emergence of these instincts or impulses create a new dilemma for the adolescent. Orality may manifest itself as compulsive eating or compulsive dieting. Anality may appear as "ostentatious slovenliness," or "frenzies of cleanliness." Aggressiveness sometimes shows itself as arrogance, bad tempers or an over-concern with being good.

Ego Processes

Anna Freud (1937) discusses the defense dynamics in adolescence as a function of ego and id processes. Defense mechanisms stiffen and become more rigid as a reaction to the threats perceived by the adolescent from rapid physiological and psychological changes. During adolescence the youth's behavior may exaggerate difficulties experienced during earlier years. For example, "moderate intellectuality during latency deepens to a pathological bizarre hyper-intellectualism during adolescence" (Douvan and Adelson, 1966: 9).

These defenses originate from the struggle to differentiate from parents. A love-to-hate relationship, dependence-to-defiance, self-love to self-hate, and a hypochondriac preoccupation are all symptoms of the difficulties that the adolescent undergoes which manifest as ego defenses (Douvan and Adelson, 1966).

The Self and Identity

Adolescence is a time for self transformation and this is reflected in the heightened self-consciousness of the period. Douvan and Adelson attribute this to the fact that the body is in a state of rapid and constant

change and that new desires and feelings emerge. They call this period one of "transition," - a "status between statuses."

Douvan and Adelson explain that the concept of identity does not start at adolescence. "At adolescence, however, the commitment to an identity becomes critical. During this period the youngster must synthesize earlier identifications with personal qualities and relate them to social opportunities and social ideals" (1966: 15). It is clear, therefore, that environment, opportunity, intellectual ability and sex role are all ingredients in the identity process.

LAWRENCE KOHLBERG

Jean Piaget was the first modern psychologist to document the fact that the child's conception of social rules evolves in stages, but this theory does not fully describe the precise order of moral development. Lawrence Kohlberg, a psychologist-educator has argued that moral ideas evolve in a constant developmental sequence, proceeding in the same order in each society and moving toward a more comprehensive, rational, and ethical philosophy (Kohlberg, 1969).

Kohlberg identifies three major categories of moral development, each subdivided into two stages (see Table 2). During preconventional moral thinking the child is responsive to cultural rules and labels of good or bad,right or wrong, and interprets these labels in terms of the physical or pleasurable consequences of action - or in terms of the physical power of those who enunciate the rules. Stage 1, the "punishment and obedience orientation" occurs between the ages of four and eight; Stage 2, the "instrumental relativistic orientation" occurs between the ages of eight and eleven.

At the level of conventional thinking, there is a clear effort to define moral values and principles which have validity and application separate from the authority of the group. This level also has two stages: Stage 3,

the "good boy/good girl" orientation, and Stage 4, the "law and order" orientation. Conventional thinking encompasses the general period of adolescence and most adults in our society attain this as the upper limit of their moral development.

Principled or postconventional thinking is attained when the individual is able to define his or her moral principles in terms separate from the authority of the group and the society. Stage 5 is the "social-contract legalistic" orientation, and Stage 6 is the "universal ethical principle" orientation. Only twenty percent of the American society attain Stage 5 thinking. [See Kohlberg (1969) for a more complete picture of these moral stages of development.]

As noted above the adolescent operates out of the conventional mode of moral thinking. He is "concerned with other people and their feelings and is motivated by what others expect of him" (Miller, 1978: 242). In terms of moral development during Stage 3, praise and blame are important influences on the adolescent. This stage dominates during the high school years. Miller explains:

> *The individual, for example, is concerned about being a good boy or a nice girl and maintaining mutual relations. The person is also aware of shared feelings and agreements in these relations and mutual expectations become the reference point for moral decision making (1978: 242).*

As the person moves from Stage 3 to Stage 4 he or she becomes concerned with the maintenance of the social order and with the rules that support that order. Youth begins to see society prior to the individual and believes that "the individual exists to serve society." Stage 4 usually does not manifest itself until ages 16 to 18 but may appear earlier.

As a conventional moral reasoner, "the adolescent values maintaining the expectation of his or her family, group or nation for its own sake, disregarding immediate consequences" (Hayes, 1982: 155-6).

KOHLBERG'S STAGES OF MORAL DEVELOPMENT

Principled	Stage 6	This is a stage of fully internalized principles that the person holds as universally valid. He believes them personally and has not adopted them just because they have been laid down by authority. For example, the only soldier who refused to obey orders at the My Lai massacre during the Vietnam War had reached this stage. A person at Stage 6 believes that an act is right if it follows from self-chosen principles, principles that may even demand deviating from rules. The universal ethical principles of Stage 6 are based on a deeply balanced sense of the relationship among human beings and emphasize mutual trust and respect. A person at the highest level might say, "Do unto others as you would have them to unto you."	Individual Conscience
	Stage 5	The person at this stage recognizes that, for the sake of agreement, rules or expectations must contain an arbitrary element. Rules are social contracts made for a purpose, and specific social purposes can change. The essential obligation is the contract, not the content of a specific rule, and majority will and welfare are extremely important. This stage represents a loosening of commitment to the expectations of others and the conventional order and an emphasis on personal standards of social responsibility. The Stage 5 person recognizes these standards as valid even when special circumstances might justify deviation. A person of this stage might say, "The end doesn't justify the means."	Social Contract
Conventional	Stage 4	Sometimes people call this the law-and-order stage because a person at this stage bases his thinking on the dictates of established authority. Examples of this stage are numerous, because many people never get beyond it. Confronted with moral choices, a person in Stage 4 is likely to say, "Because he is the President" or "Because the Bible says so" or "A rule is a rule." He sees value in rules and obligations because he sees them as necessary for a stable society ("What would happen if everybody...?"). The Stage 4 person does his duty and shows respect for authority.	Law and Order
	Stage 3	A person at this stage internalizes the values of others. He makes up his mind about a moral dilemma on the basis of how he believes his parents or his peer group would behave or want him to behave in the situation. He wants to please and help others, thereby gaining their approval. He believes that behavior should conform to stereotypical images of appropriateness. A person at this stage might say, "It's better to give than to receive."	Good Boy/ Nice Girl
Premoral	Stage 2	The overriding concern is satisfying a person's own needs, and he is keenly sensitive to the consequences of any action. The Stage 2 person thinks acts are good whose outcomes are to his own advantage. He is inclined to exchange favors - "I'll do this for you, if you'll do that for me" - but he is satisfying his own desires. He does not share the perspective of others.	Instrumental Relativism
	Stage 1	Children or adults tend to decide on the basis of personal fear and the avoidance of punishment. The physical dimensions of an act or its consequences loom large as the basis for judging its degree of badness. The Stage 1 person avoids trouble by obeying powerful authorities. For him, "Might makes right."	Punishment ar Obedience

TABLE 3

Kohlberg and Gilligan assert that the "core phenomenon of adolescence as a stage (is) the discovery of the subjective self and the subjective experience along with a parallel questioning of adult cultural reality" (1971, 1059). They site four stock themes in this process:

1. *the discovery of the body and its sexual drive and self-conscious uncertainty about that body*
2. *the romantic concerns and hopes for the self's future*
3. *the need for independence, for self determination and choice as opposed to acceptance of adult direction and control*
4. *adolescent egocentrism and hedonism (1971: 1052)*

Adolescents need to have experiences that help them work through these themes and develop to their potential. Kohlberg and Gilligan call for a new focus on the adolescent's school environment that would provide positive reinforcement for the processing of these skills. Their insights will be discussed later.

In her later work Gilligan (1977) deviates with Kohlberg and concludes that developmental psychology has not given adequate expression to the concerns and experiences of women. Whereas on the moral scale for males such attributes as autonomous judgment and action rank as highly important, there is no recognition of the feminine qualities of intimacy and care. Gilligan argues that there are different paths to maturity and asserts that almost all work in this area has been done by men. She says that one core human dilemma is to be "both close and separate from others," and that maturity is the integration of these polarities (1977).

Gilligan rewrites the moral scheme for women to reflect responsibility and caring. For Gilligan, women, in order to preserve relationships are unable to assert themselves so they deny themselves. Women individuate through relationship and discover the aspects of individuality much later. Kohlberg's emphasis is power, hierarchical, while Gilligan's is closeness.

JEAN PIAGET

Piaget sites four stages or eras in logical and cognitive development (see Table 3). The individual moves from sensorimotor intelligence (birth to two years); to symbiotic intuitive or prelogical thought (two to five years); to concrete operational thought (six to 10 years); and finally achieves formal operational thought at around age eleven (1950).

The change from concrete operational thought to formal operations is so dramatic that it thrusts the youth into a whole new realm of existence. This new mode of thought is responsible for a series of attitudinal changes and self discoveries that are made during adolescence. Piaget gave the name "formal operations" to the ability to engage in propositional thinking enabling young people to go beyond the here and now. Because of formal operational thinking the adolescent is able:

1. to think about thinking
2. to deal in possibilities
3. to grasp simile and metaphor
4. to comprehend abstract concepts of space and time
5. to handle multiple variable interactions
6. to develop theories
7. to understand proportions
8. to determine cause-effect relationships scientifically

Formal operational thought is a new tool for adolescents, enabling them to perceive the world as it is and as it might be.

> *...in formal thought there is a reversal of the direction of thinking between reality and possibility*

Era I (age 0 - 2) The era of sensorimotor intelligence

tage 1. Reflex action.

tage 2. Coordination of reflexes and sensorimotor repetition (primary circular reaction).

tage 3. Activities to make interesting events in the environment reappear (secondary circular reaction).

tage 4. Means/ends behavior and search for absent objects.

tage 5. Experimental search for new means (tertiary circular reaction).

tage 6. Use of imagery in insightful invention of new means and in recall of absent objects and events.

Era II (age 2 - 5) Symbolic, intuitive, or prelogical thought

ference is carried on through images and symbols which do not maintain logical relations or invariances with one another. "Magical thinking" in t
ense of (a) confusion of apparent or imagined events with real events and objects and, (b) confusion of perceptual appearances of qualitative a
uantitative change with actual change.

Era III (age 6 - 10) Concrete operational thought

ferences carried on through system of classes, relations and quantities maintaining logically invariant properties and which refer to concrete object

Substage 1. Formation of stable categorical classes.

Substage 2. Formation of quantitative and numerical relations of invariance.

Era IV (age 11 to adulthood) Formal-operational thought

ferences through logical operations upon propositions or "operations upon operations." Reasoning about reasoning. Construction of systems of
ssible relations or implications. Hypothetico-deductive isolation of variables and testing of hypotheses.

ubstage 1. Formation of the inverse of the reciprocal. Capacity to form negative classes (for example, the class of all not-crows) and to see relatio
simultaneously reciprocal (for example, to understand that liquid in a U-shaped tube holds an equal level because of counterbalanced pressure

ubstage 2. Capacity to order triads of propositions or relations (for example, to understand that if Bob is taller than Joe and Joe is shorter than Dic
en Joe is the shortest of the three).

TABLE 4

in the subjects' method of approach. Possibility no longer appears merely as an extension of the empirical situation or of actions actually performed. Instead, it is reality that is now secondary to possibility....In other words, formal thinking is essentially hypothetico-deductive (Inhelder and Piaget , 1958: 251).

Adolescents consider themselves change agents, projecting themselves into a more successful and more dynamic role than their predecessors. It is this thinking in a new key that enables them to relate to future events and develop theories on how to effect change. Again, Inhelder and Piaget underscore this by explaining:

The adolescent not only builds new theories or rehabilitates old ones; he also feels he has to work out a conception of life which gives him an opportunity to assert himself and create something new. Secondly he wants a guarantee that he will be more successful than his predecessors (1958: 342).

From the cognitive point of view, as opposed to the psychoanalytic point of view, the major task of early adolescence can be regarded as having to do with the conquest of thought. Formal operations not only permit the young person to construct all the possibilities in a system and construct contrary-to-fact propositions, they also enable him to conceptualize his own thought, to take his mental constructions a objects and reason them out.

Piaget asserts that during each cognitive stage of development there exists a different form of *egocentrism*. Egocentrism generally refers to the lack of differentiation in some area of subject-object interaction. It stems originally from Piaget's theory of cognitive development and is defined as the lack of differentiation between one's own point of view and others.

As the egocentricity of one stage gives way to the egocentricity of the next, the child moves toward more universal thinking. This process of movement from lower to higher forms of egoescence has already been

addressed. It is because of this task that adolescents "play" with ideas about the world and how the world sees them.

> *...the adolescent not only tries to adapt his ego to the social environment but, just as emphatically tries to adjust the environment to his ego....The result is a relative failure to distinguish between his own point of view...and the point of view of the group (Inhelder and Piaget, 1958: 343).*

The ability to think about one's own thinking and the ability to recognize possibility as well as actuality contribute to the emergence of adolescent egocentrism (Looft, 1971). As youth conceptualizes his own thought he is also able to conceptualize the thought of others. Since his foremost concern is with who he is and what he will become, he conveys that task on others which contributes to his egocentric behavior.

> *This egocentrism emerges because, while the adolescent can now cognize the thoughts of others, he fails to differentiate between the objects towards which the thought of others are directed and those which are the focus of his own concern. The young adolescent, because of the physiological metamorphosis he is undergoing, is primarily concerned with himself. Accordingly....he assumes that other people are as obsessed with his behavior and appearance as he is himself. This belief that others are preoccupied with his appearance and behavior constitutes the egocentrism of the adolescent (Elkind, 1981:91).*

Adolescents surmise that they become the objects of the thoughts of others as if all others were personally concerned with them. "This egocentrism is one of the most enduring features of adolescence; it persists until a new and later decentering which makes possible the true beginning of adult work" (Inhelder and Piaget, 1958:343)

Formal operational thought and the emergence of egocentrism has led to several cognitive and affective corollaries. Psychologist and noted interpreter of Piaget's work, David Elkind, has made some important contributions in this field.

DAVID ELKIND

According to Elkind the advent of formal operations brings about a "Copernican change in young people's thinking" (1978). These new thought processes lead to some stage-appropriate behavior that shall now be discussed.

The Imaginary Audience

Young people, as a result of adolescent egocentrism, think about other people's thinking - often projecting that the "others" are really thinking about them.

> *This new found ability to think about other people's thinking, however, is coupled with an inability to distinguish between what is of interest to others and what is of interest to the self. Since the adolescent is preoccupied with his or her self-all the physical and physiological changes that are going on- he or she assumes that everyone has the same concern. Young people believe that everyone in their vicinity is preoccupied with their behavior and appearance as they are themselves. They surround themselves with an imaginary audience (Elkind, 1978:129).*

become very self conscious - you feel that you are the focus of attention. Elkind reports that fantasies of appearing in front of large audiences are common amongst early adolescents - where they become the center of focus.

Since the imaginary audience is a result of the adolescents own thought pattern, he or she knows exactly what this audience is looking for in terms of clothes, hair, breast development, physical skills and overall body configuration (Muuss, 1982). It is a self constructed critical audience that seeks to measure the adolescent's social norms and capabilities. As the adolescent matures and begins to realize that others have their own preoccupations, the imaginary audience behavior declines. In its height it accounts for self consciousness, ill-mannered behavior, and in the extreme -vandalism. Vandalism is the result of the adolescent's desire to get a strong response from his imaginary audience.

The Personal Fable

Since adolescents are convinced that people are observing and thinking about them, oftentimes they get an inflated opinion of their own importance (Elkind, 1984). They believe that they possess unique and special characteristics. The conviction of many adolescents that their beliefs, feelings and ideals are very special and that others do not have the same feelings and cannot understand them is called, "the personal fable."

> *He or she assumes that what is common to everyone is unique to themselves; and what is unique to themselves is common to everyone. These personal fable confusions result in behaviors which are as familiar as they are annoying to parents and to teachers (Elkind, 1978:131).*

The daughter who tells her mother, "You don't know how it feels to be in love," displays a typical reaction from the perspective of the personal fable. No one can understand how she feels and it is presumptuous for her mother to claim that she does! Here, there is a confusion between feelings and needs which are common to everyone and those feelings and needs which are unique to the self.

According to Muuss, "Another part of the personal fable is the belief in one's indestructibility" (1982:256). In this regard the adolescent believes that "it can't happen to me" - others may die in auto accidents; others may become pregnant; or others may become addicted to drugs.

As young people move into more intimate relationships with their peers the personal fable begins to dissipate. Older adolescents tend to be more realistic and open with close friends and this helps them develop a clearer sense of themselves.

Psuedostupidity

At the onset of formal operations the young adolescent is besieged with new and powerful thought processes - but they are not yet fully under control. As noted earlier formal operations brings with it the ability to hold many variables in the mind and, at the same time, conceive ideals and contrary-to-fact propositions. Elkind explains:

> *The capacity to conceive many different alternatives is not immediately coupled with the ability to assign priorities and to decide which choice is more or less appropriate than others. Consequently, young adolescents often appear stupid because they are, in fact, too bright. (1978:128-129)*

Very often young people approach their academic work in a complex manner when, in reality, the tasks are relatively simple.

"Such behavior on the part of the young adolescent is what I call pseudostupidity" (Elkind, 1978:128).

Apparent Hypocrisy

Adolescents are often confronted with situations where their ideals seem to conflict with their actions. There is a discrepancy between one's words and actions. Elkind concludes that this is "another by-product of formal operations." He asserts that "in early adolescence the capacity to formulate general principles of behavior is not immediately linked up with specific examples" (1978:132).

Young people believe that if they can conceive and express high moral principles, then they have in effect attained them, and nothing more in a concrete way need be done. In this way the idealism of the adolescent clashes with the pragmatism of the adult. Encouraging adolescents to get jobs is one way to help them understand the relationship between imagining a goal and making it a reality.

If we are to help the rising generation make a meaningful contribution to society it is necessary to take what we know about adolescence and apply that knowledge to the institutions that service the youth community. In this light, the school becomes a point of focus for research because, as this writer believes, a substantial educational reorientation is needed in order to meet the developmental needs of adolescence.

CHAPTER NINE

***

DEVELOPMENTAL IMPLICATIONS FOR SECONDARY EDUCATION

Five Recommendations for Reform

Developmental psychology is the study of changes in behavior over the life span. Since 1950 there has been a vast increase in research and discoveries along developmental lines of inquiry. For adolescent psychology this has meant an unfolding of the behavioral patterns of youth that heretofore were conjecture and assumption, or based on the pathology of youth. In the previous chapter we reviewed the work of Erikson, Douvan and Adelson, Kohlberg, Piaget and Elkind as it relates to adolescence. In this chapter we will study the implications of that work for secondary education.

Eisenberg advocates a developmental approach to adolescence as a means for changing societal conditions and maximizing the adolescent's potential.

> *...careful assessment of the needs of adolescents at all levels of developmental integration could lead to the design and provision of external conditions that would greatly accelerate the rate, and markedly increase the ultimate level, of the development of the adolescent's full potential (1969: 24).*

Over the last 100 years our industrial and technological society has

created the adolescent period, but we have done very little to develop age-appropriate experiences that enable youth to participate in that society. Instead, the school, the single most important institution during these years, models itself after a factory system that has just about perished in modern times. It is a model that keeps youth in a perennial stage of preparation - preparation for some future time. It takes the young person out of the mainstream of societal influence and provides a series of unrelated learning experiences. The curriculum is a construct of arbitrary time sequences and arbitrary subject boundaries.

Because the secondary curriculum is often incongruent with the developmental needs of adolescents a new curriculum is required that considers the adolescent's needs as the central focus. Piaget, Kohlberg and Erikson's work has set the stage for a new view of adolescence based on a developmental perspective. Piaget's work on cognitive development leading to formal operations; Kohlberg's work on moral development leading to conventional and principled moral thinking; and Erikson's ideas on identity formation, give us significant insights for the establishment of optimal learning environments for youth.

Autonomy occurs when individuals, in making decisions, look within themselves at their own thoughts and principles, rather than responding to external stimuli - as in the peer group or television commercials. Elkind refers to this response to external stimuli as growth by substitution, resulting in the "patchwork" self (1984). Adolescents seek autonomy through cognitive, moral and ego development. If young people do not have a positive identity they will not act according to their moral principles. They will have difficulty using their new-found abstract thinking abilities for positive differentiation and individuation.

The fully integrated person must function in the moral, personal and cognitive domain. Erikson explains that: "man must learn to raise truly less exploitable men - men who are first masters of the human life cycle and of the cycle of generations in man's own lifespace" (Miller, 1978). Piaget argues for an education that is conducive to autonomy:

The principal goal of education is to create men who are

capable of doing new things, not simply of repeating what other generations have done - men who are creative, inventive, and discoverers. The second goal of education is to form minds which can be critical, can verify, and not accept everything they are offered. The great danger today is of slogans, collective opinions, ready-made trends of thought. We have to be able to resist them individually, to criticize, to distinguish between what is proven and what is not. So we need pupils who are active, who learn to find out for themselves, partly by their own spontaneous activity and partly through material we set up for them; who learn early to tell what is verifiable and what is simply the first idea to come to them (Pulaski ,1971: 200).

Finally, Kohlberg suggests that education should be designed to facilitate the eventual adult attainment of the highest stages of autonomous moral reasoning.

Both Kohlberg and Piaget give us some healthy insights into the possibilities of adolescence. Nevertheless, the facts remain that:

> Only 50 per cent of the United States population reaches Piaget's stage of formal operations (Dulit, 1972).
>
> Less than 20 per cent of the population attains Kohlberg's final stage of moral autonomy (Kohlberg, 1969).

What implication do these statistics reveal for identity formation?

Why are we not living up to our potential?

Could it be that education - specifically secondary education - is, in fact, retarding human development?

If so, can secondary education be reformed to facilitate stage integration and foster autonomy?

A review of the literature and research was conducted in order to obtain

a correlation between adolescent psychology, the experience of adolescence, and secondary education. Five specific re-commendations are offered based on this research and comparison coupled with my own personal experience.

I. Secondary school teachers should be more aware of the principles of development psychology; and courses in psychology should be taught to junior and senior high school students.

II. Work experience and community involvement should form part of the secondary curriculum.

III. Secondary schools should be reorganized, fostering the small school concept.

IV. An interdisciplinary approach to curriculum is most desirable.

V. A different kind of secondary teacher training is essential.

I. KNOWING AND TEACHING DEVELOPMENTAL PSYCHOLOGY

Knowing Developmental Psychology

Most colleges and universities that prepare teachers for careers at the secondary level emphasize the teacher's area of specialization (e.g., mathematics, foreign language, science) along with certain methodologies and strategies, but usually do not present a systematic study of adolescence. Whereas elementary teachers receive instruction in educational psychology, secondary teachers are expected to work with adolescents without such preparation.

This lack of background in the psychology of adolescents may historically be due, in part, to the lack of relevant data on youth as a developmental stage. But all that has changed dramatically in the last 30 years and it seems more than appropriate to include this new knowledge as part of the preparation for secondary teachers. Miller suggests that:

> *Some curriculum developers have not been aware of the different stages of development and thus their materials (and methods) make erroneous assumpt-ions about how students are reasoning at the secondary level (1978: 249).*

Knowledge of developmental psychology helps the teacher understand the cognitive, moral and social transitions that are made during the secondary school years. Without such knowledge the curriculum may actually impede the young person's maturing process.

> *It is important that the teacher realizes that adolescents are at different stages of development. Many adolescents have not yet achieved formal operations or conventional morality. As a result, the teacher should consider the*

implication of differences in developmental levels and provide conditions so that students at concrete operational and preconventional morality do not become "locked" into these levels (Miller, 1978: 243).

If teachers have this knowledge they can train themselves to be good listeners and become more aware of the different levels of moral reasoning that are in the classroom. This helps to create age-appropriate groupings for moral discussions. It has been found that individuals lean toward the next higher stage of moral reasoning; and, placing them in groups with others who are at that next stage fosters moral growth. However, placing them with others who are two or more stages beyond, tends to work against higher moral development because there is less understanding.

The teacher who has studied adolescent development will also understand the implication of identity formation. To illustrate this point, a teacher who knows about the concept of "negative identity" can help the youngster move away from "becoming exactly what ...the community expects him to be" (Erikson, 1968: 196)

Psychologists recognize that dynamic conflict is instrumental to human growth.

The implication of Piaget's and Erikson's perspective on conflict is that educators must accept and, in fact, confront the child at the appropriate moment with conflict resolution tasks. Kohlberg is in agreement with this perspective and has constructed a number of case studies which pose moralconflict questions. For these moral dilemmas there is no right answer, but the child's attempt to wrestle with them is generally facilitative to moral development. Kohlberg has developed a number of dilemmas but the teachers and students should be encouraged to develop their own (Miller, 1978: 245).

Adolescents could be involved in the examination of conflicts that

exist in their own lives and for which the individual adolescent supplies the content for that experience. In this way education involves adolescents in the active process of their own judgment.

As discussed earlier, egocentrism is part of the normal developmental process during adolescence. Adolescents, even though they may have reached the operational stage of thinking, still think in ways that are qualitatively different from those of mature adults whose thought processes have become sociometric. This difference needs to be recognized and appreciated in the daily interaction with adolescents in the classroom.

During early adolescence there is a lack of differentiation between one's own point of view and the views of others. This egocentric behavior makes it difficult for the young person to consider the implication of his actions on others. To help the adolescent in the process of moving towards a societal point of view, Muuss suggests that educators should set-up learning opportunities "that would require (students) to project themselves into the psychological situation of another human being."

> *Some possibilities would be role playing, theater production, movie making, and verbal exercises... to assess egocentrism (Muuss, 1982: 262).*

Taking the other person's place and seeing things from another's perspective enables the young person to put a wedge between his egocentric behavior and becoming an affective social being. Too often the secondary classroom becomes a series of adult "telling" experiences with little participation, interchange, and conflicting viewpoints. The teacher who understands the developmental implications of these stifling attitudes can help the adolescent move towards a more sociometric point of view.

Teaching Psychology

> *"...involvement of adolescents in a systematic program of psychological education designed to stimulate development to higher stages should be a central purpose of the high school curriculum" (Hayes, 1982: 159).*

The teaching of psychology to secondary students provides them with insight into the hows and whys of human behavior at a time in their lives when such knowledge can be used to develop a stronger sense of self. The attainment of formal operational thought and conventional moral reasoning is enhanced through activities that give the young person some clear understanding of effective behavior and living skills.

Activities may include, but are not limited to, lectures and discussions on the foundation of psychological thought and application, debates, and seminars on: communication skills, assertiveness technique, sexuality and sexual development, guided imagery and relaxation techniques. Muuss encourages teachers to teach youth about the consequences of egocentric thought:

> *Teaching adolescents about the concept of egocentrism may help them understand and deal with the problems that emerge from egocentric thought; these would include peer group conformity, preoccupation with physical development and physical appearance, excessive concern with what others think, and the egocentric need for risk-taking behavior with its social and health implications (1982: 263-4).*

In 1972, Mosher and Sprinthall published a report which calls for a curriculum in psychological education for secondary students. The

ideas are based, in part, on the work of Piaget, Erikson and Kohlberg. The objectives of the program are:

1. *The development of a more complex and more integrated understanding of oneself.*
2. *The formation of personal identity.*
3. *Greater personal autonomy.*
4. *Greater ability to communicate and relate with other people.*
5. *The growth of more complex ethical reasoning.*
6. *The development of more complex skills and competencies - in part by trying prevocational and "adult" roles (Mosher and Sprinthall, 1972: 300)*

The course focuses on three stages of development: early childhood, adolescence and adulthood. The students investigate the work of Piaget, Erikson and Kohlberg as well as other theorists, reading novels and biographies, and viewing films that deal with the adolescent period. This continuous course of study enables youth to create a ground-figure relationship, giving them an opportunity to see their own emerging selves in the context of their newly gained knowledge. In addition Mosher and Sprinthall have created a series of laboratory activities which include: film making, teaching others, volunteer work, student-initiated action projects, communication skills, theater improvisation, group process and counseling.

The aim of developmental psychology study during the secondary school years is the facilitation of stage integration and the eventual realization of autonomy. Too often programs and curriculum materials assume that the student has already achieved formal operations and post-conventional moral reasoning, rather than stimulating development towards these stages.

II. WORK EXPERIENCE AND COMMUNITY INVOLVEMENT

Prior to the twentieth century, young people became active participants in the life of society at or before puberty. Meaningful work and its parallel economic connotation fostered personality development and the acquisition of culture.

> *Man has progressed from historic times to his present state only as he has been able, through work, to change the environment so that his many abilities might emerge and develop. His evolution is not so much a process of adjusting to the environment, as adjusting the environment to suit his needs and emergent abilities. Work is closely related to individual personality and to culture (Klausmeier, 1969: 220).*

The modern day secondary school virtually ignores the adolescent's need to interface with the community. Learning experiences are designed as a future preparation for work without any attempt to connect that experience to real life situations. Eisenberg reports that:

> *The psychological basis for a sense of individual worth as an adult rests upon the acquisition of competence in a work role during adolescence. A sense of competence is not acquired on the basis of "reassurance," but rather upon the actual experience of succeeding in a socially important task (1969: 28).*

The structure and organization of junior and senior high schools is not geared to create community involvement, let alone work experience. Instead, the reality has become one of instruction and study without

regard to the historical nature of youth or their present day psychological needs.

It has been suggested that the adolescent experience should support formal operational thought and conventional moral judgment, while contributing toward positive identity formation. For the school to promote such an experience, it must give students access to the society.

> *The adolescent is successful in this search for self to the extent that this search leads to some comprehension of society. Consequently, the nature and extent of experience at this interface of self and society is of great importance for educational interventions with adolescents (Hayes, 1982: 160).*

How, then, can schools facilitate getting the student into the community for experience? One such avenue is the development of an internship and work program. A United States Government report on, "The Education of Adolescents," states that:

> *Out-of-school learning experiences seem to offer a great potential for individual cognitive and affective development....Community involvement opportunities -a part time job, an internship, artistic performance- appear to offer a much greater variety of possibilities for successful experience than the traditional high school (1976: 48).*

Further evidence is cited in Muuss' report on adolescent egocentrism:

> *...early work experiences...may enhance the development of social understanding during adolescence and thus serve as a partial antidote for adolescent egocentrism. Working experiences are assumed to have a potentially positive impact on the worker by advancing social*

as well as cognitive development. In the work setting, the adolescent must learn to shift between very diverse roles quickly and effectively....In the economic marketplace, egocentrism, pseudostupidity, and social insensitivity... are not rewarded, but are quickly extinguished.... It has been claimed that the kind of role-taking skills that the work setting requires will enhance the acquisition of skills that are not usually taught in school, and thus will contribute to the development of responsibility and a sense of competency, lessen feelings of alienation and purposelessness and help break down intergenerational barriers (1982: 263).

At Piedmont Secondary School *(see Chapter 10)* young adolescents apprentice in businesses or offer community services for three one week intervals during the school year. They keep a journal of their experience and meet at the end of each internship period for discussions and analysis. Here is an excerpt from a student's journal which underscores the intent and purpose of such programs:

Today I watched Chip enlarge negatives for "Mitchell's Formal Wear." It took about three hours. We kept on going back and forth between the drawing room and the dark room until Chip was satisfied with the result. I also went out with him to meet his attorney. Chip had to talk to him about capital, which means money. He also taught us what "scope" means -the ability that humans have to imagine and no one can stop you from thinking and creating. Chip also took us out for lunch which was nice of him. Michael (another intern) and I found out that Chip spends his free time dancing. I think he is unique in his own way. He tells me that I am doing a good job. He might be

saying that to make me feel good, but I think he's telling the truth.

Here the student is examining her self worth and making a positive statement about her value. She is also working with adults which helps her acquire skills and social awareness usually not learned in school.

Both Piaget and Erikson seem to advocate work in the community in order to give students a forum for applying their ideas. Indeed, this would assist in identity formation and role differentiation.

Havighurst (1976) and Montessori (1937) discuss the need for acquiring some form of economic independence during adolescence. For Montessori this was the essential reform for secondary education:

> *...to put the adolescent on the road to achieving economic independence. We might call it a "school of experience in the elements of social life." The work itself is of greater importance than the kind of work (1937).*

The school can foster this form of independence by helping young people create a student-owned and operated business. This cottage industry might be a bicycle repair shop, a printing shop, a photography lab, growing plants for resale, or any number of student originated projects. The adolescents would be responsible for the "doing" as well as the marketing and financial planning. Profits could be either reinvested, used for a collective endeavor (such as an extended trip to another country), or proportionally divided amongst the student workers.

Youth has a history of being empathetic and compassionate for those who are less fortunate. During natural disasters, such as earthquakes and floods, one always seems to hear about courageous adolescents who come to support and help in relief efforts. While the youngster is in the appropriate stage for the attainment of Kohlberg's conventional or post-conventional moral thinking, it would seem fitting for the school to provide further experiences enabling youth to make these kind of commitments.

Many youngsters recently responded to the famine in Africa. Why couldn't the school provide an environment that fosters this kind of moral principled support? One does not have to go to Ethiopia to find people in need. In every urban setting there are indigents who need food and clothing, or sick people who need companions. The experience of helping individuals who need assistance provides personal satisfaction and spiritual equilibrium.

III. SMALL SCHOOLS

Have you every tried to talk with someone in a large metropolitan high school about a particular student and his or her problems? The results are quite interesting. It is difficult, if not impossible, to find one person with enough information about that student to be helpful. It takes several adults sitting together to collectively draw the whole picture from the parts they know in what the school system commonly calls a "staffing."

Between 1945 and 1980, as a result of school consolidations, the number of school districts in the United States shrank from 100,000 to 16,000 (Ravitch, 1983). These consolidations resulted in the large comprehensive high school with 1,000 or more students. The reasoning behind this shift was not just economic -it came at a time in our cultural history when "bigger" was "better." Enlargement of schools meant exposure to a more varied setting, diversity of curriculum, and interaction with a broader variety of ideas and people than was possible in a small school. It is a typical *Humanity over Nature* form.

> *The trade off was that bigness meant impersonality, bureaucratization, diminished control between faculty and*

> *students, formalization of relationships among colleagues, and a weakening of the bonds of community (Ravitch, 1983: 237).*

According to Elkind the large school makes the construction of an identity more difficult. He explains:

> *From a small, orderly world of knowns, certainties and reasonable expectations, students have entered a world of unknowns, uncertainties, confusions and often danger (1984: 143).*

Elkind proposes that the adolescent's efforts toward self-definition are aided by a "mentoring" relationship with adults. Since the large school is strikingly impersonal, mentoring is more apt to occur in a less formal setting. In the small school adults/teachers not only help the marginal student, but provide guidance and direction for the gifted students as well.

As discussed earlier, intimacy with peers and adults provides youth with experiences that tend to diminish incidents of egocentric behavior. Close relationships help to eliminate "the invisible audience," and the "personal fable," because they help the adolescent become more at-ease with himself and more real with his associates. For a young person who is just attaining an identity, the evaluation and responses of a variety of different people who are really known to him, contribute to a solidly grounded identity. A large circle of close friendships is the generalized outcome of relationships in a small school.

Ravitch (1983) suggests that bigness contributes to the prevalence of substance abuse, theft, vandalism and violence in high schools. Social controls are weaker in large schools than in small schools, just as they are weaker in large cities than in small cities.

The organization and structure of the large secondary school also contributes to a lack of opportunity for strong personal relationships to develop. As Schmiedeck reports:

> *Students individually select different subjects every year or even semester, and find themselves with a different group of peers in almost every course. As a result there are no classes in the traditional sense, no small, coherent communities of children who go through high school together (1979: 193).*

He goes on to make a case for what might be considered a good peer group size:

> *What is missing is groups of a size and mixture which permit unification on the one side, and definition by contrast on the other. There is reliable evidence that such groups should contain no more than 20 to 40 people. In a psychological test on interpersonal relationships the number of people "who have been important in your life" centers around 15, and in no case exceeds 40. Experiences in group therapy...point to the fact that effective interaction is limited to groups of even smaller size (1979: 193).*

Small group size generates more bonding amongst the students which, in turn, generates greater continuity. These bonds are helpful for the individual in the process of defining him or herself and others.

Because the large school is "efficient," it measures student achievement in terms of Carnegie Units of credits received. It is suggested here that mastery should be the single most important criteria for awarding credits and not time spent in class. The movement of students from class to class every 50 minutes or so, results in an artificial standard of time for learning sequences. Instead, class hours should be flexible, allowing for long or short periods as necessary. Units of credits based on hours in-class and standardized scheduling are more readily modified in the small school.

The United States Government report on "The Education of Adolescents" states:

An educational environment which combined a small facility with diversity in offerings and choice would likely produce some good results:

1. Face to face relationships among teachers and students lessens discipline problems.
2. Adolescents should be involved with younger children and older adults on a regular basis -bringing new vitality to community life.
3. The small school format would provide opportunity to redesign the relationship between schools and adolescents helping adolescents relate as increasingly full and responsible members of society. (1976: 31)

How does one differentiate between "large" and "small" schools? Some suggest that the optimal size of a secondary school is around 500 students, but it is maintained here that for optimal personality growth and character development that number should be closer to 300.

IV. INTERDISCIPLINARY CURRICULUM

All knowledge is interrelated. Any attempt to categorize or compartmentalize knowledge into different subject areas is at best artificial. Secondary schools have been organized by subject area from the outset

because they are modeled after the ultimate factory system -the assembly line. The assembly line efficiency is relentless. *The product (student) marches from one station (class) to the next in a precision-like manner; at these stations different operations are performed by specialized mechanics (teachers); and no single mechanic can claim to "know" the "whole" product.*

Our society has determined that each high school graduate must possess a certain core of information. It breaks that information down into subjects like algebra, chemistry, physics, history, and English. However, the adolescent does not receive an image of the "whole" as a result of getting that information in a series of unrelated sequences. Instead, he becomes fragmented and enmeshed in a net of special interests.

Elkind (1984) refers to the "smorgasbord" curriculum -an offering of an unlimited number of courses, most of which do not relate to each other. He suggests that:

> *From the standpoint of self-differentiation and identity formation, the contemporary high school curriculum has two negative effects. One of them derives from the smorgasbord component of the curriculum and the other derives from the core component. A healthy sense of self and identity is acquired by differentiation and higher order integration. An integrated curriculum fosters such growth at both the personal and intellectual level....When a student learns something in one class that sheds light on another, when he or she realizes what a scientific discovery, for instance, did to the political thinking of an era, there is growth by differentiation and integration.*
>
> *A smorgasbord curriculum has obvious dis-advantages in defining a person's identity. Studies that do not relate in any way to each other....are likely to foster growth by*

substitution both intellec-tually and personally. Knowledge is kept in separate categories that cannot be related or brought together. This gives rise to a kind of compartmentalization of thinking about the self as well (1984: 150).

In Chapter Six we explored and interrelating across disciplines that are usually taught separately. Such an approach is the backbone of an interdisciplinary curriculum. Whole personalities can emerge through these integrative approaches.

An interdisciplinary curriculum, one that crosses over itself and is open to both horizontal and vertical studies, one that presents an integration of skills, knowledge and values, provides the adolescent with a model for constructing an integrated self of social skills, knowledge and values.

V. THE SECONDARY SCHOOL TEACHER

It may be alarming to some, but often true, that many secondary school teachers are not required to study the psychology of adolescence. Specialization and teaching "strategies" overshadow the knowledge of the person in-process. If teachers are to help prepare young people for their role in society -act as mentors, so to speak- then a different form of teacher preparation is required.

According to a study conducted by Galbo, adolescents, themselves, describe the qualities of the significant adults in their lives and found that:

The personal qualities youth preferred in adults fell into three categories, none of which were mutually exclusive. They were:

1. Modeling and admiration. Youth described significant adults as worthy of respect and esteem, intelligent, and living an interesting life.

2. Reciprocal friendship. Adults treated the adolescent equally, shared experiences and problems with them, and were open minded.

3. Adult was trustworthy, showed interest in youth, was friendly and nice, had a good sense of humor, and took time to listen to youth (1983: 421-2).

In this same study it was found that teachers are infrequently selected as a significant adult. No wonder, many schools that train teachers are not concerned with these issues either.

Schippers in an article on change and the adolescent experience describes another characteristic for the teacher:

> *In addition to the traditional role of helping adolescents acquire their niche in society as an adult through vocational education, college placement and preparation for family life, one must assist in helping the adolescent to understand and cope with change and a social order in flux. (1978: 147)*

Empathy is yet another important quality for the teacher. Specifically, there is a positive correlation between teacher empathy -or the ability to envision the student's perspective- and student development. Where the teacher is empathetic, the students tend to have a more positive attitude towards self and tend to use their abilities more fully in school achievement .

Montessori explains that:

> *The teachers must have the greatest respect for the personality of the adolescent, realizing that in the soul of the adolescent, great values are hidden, and that in their minds lies all our hope for future progress and the judgment of ourselves and our times (1937).*

Additional teacher qualities, characteristics and attitudes that should be considered include: knowledge of developmental psychology, versatility and flexibility, the ability to facilitate and mediate, good listening skills, a belief that young people will operate in their own best interest if given the proper environment, and finally, a belief system that includes faith in the future of humankind. The adolescent period is one of sensitivity to the world and having teachers that are positive rather than negative, hopeful rather than filled with despair, is a critical modeling virtue during these tender years.

How can the prospective secondary teacher develop these attributes we have been discussing? Teacher training institutions need to shift some of their emphasis from core studies to these affective areas. A new teacher's curriculum would include courses in the psychology of adolescence (developmental psychology and therapeutic applications); as well as organized seminars -discussion groups that explore the goal of education, adolescent needs and contemporary dilemmas in education.

Teacher preparation would of necessity deal with the implementation and value of change. Adults who work with young people in this era of transition must be able to manage the process of change, which is not rational problem-solving, but surveying what has been and what might be.

In order to help learners prepare for "life after high school" today's secondary teacher should possess some generalized knowledge concerning the changing nature of society. They need to be aware of the possibilities for change in the application of the curriculum. Continuing education course could provide this kind of support.

Adequate teacher preparation alone will by no means shift the

secondary school emphasis in a new direction. A wholesale reeducation of the population toward understanding the need for reform and the recognition of the adolescent's worth is required.

In the concluding chapters the adolescent's themselves speak out concerning their school experiences. Their comments, these five recommendations and the new educational framework are integrated, providing a new paradigm for secondary education.

PART FOUR

SYNTHESIS

CHAPTER TEN

***

ADOLESCENCE AND THE NEW FRAMEWORK FOR EDUCATION

The founders of the American High School undoubtedly envisioned rows of attentive students happily absorbing lesson after lesson. One hundred years later the reality is far from the vision. Even in a very good high school... students are neither attentive nor happy, and they are probably absorbing only a fraction of the information being presented.

Csikszentmihalyi and Larson
"Being Adolescent"

"What is important to me is to be self sufficient and to rely on myself, to teach myself. At Piedmont we just don't get stuff to memorize and then take a test. It is more like putting the information you have collected into a project. Here we do things because we want to learn; its not just the grade."

Sara
Piedmont Secondary School

In February, 1986 four ninth grade students from an open classroom setting and four ninth grade students from a traditional setting -all fourteen years of age- were interviewed in order to gain perspectives on each of their environments.

Setting A: *This is a private school that had expanded from its lower levels to include a secondary program two years prior to the interviews. This open classroom environment had a population of thirty students in grades seven through eleven. They were from both white and black upper middle class backgrounds. Two full time and three part time teachers were responsible for implementing the entire program. Four students from this setting visited the traditional school and attended all of its activities for two days. This setting will be referred to as Piedmont Secondary School (PSS).*

Setting B: *This is a large "comprehensive" public secondary school located in an affluent upper middle class community. The population included over one thousand students in grades eight through twelve and was predominantly white, although a small percentage of black students were "bussed-in." Four students from this school visited Piedmont Secondary School attending all of the activities for two days. This setting will be referred to as Suburban High School (SHS).*

In addition to the above interviews, four graduating seniors from Setting B were interviewed in May, 1987 in order to obtain their reflections on their high school years.

The most salient school related issues for this group of ninth grade exchange students involved relationships with teachers, rela-tionships with peers and the ability to "move at your own pace." For the most part, students from Suburban High School were puzzled by issues such as freedom of choice, group processes and developing community. Students from Piedmont Secondary School had many more opinions on these subjects.

DECISION-MAKING

Fourteen year old Ann (PSS) discusses her school's environment: "I have learned to make decisions for myself. You have to make a lot of them every day, personal as well as academic. I have experienced a drive to learn because it has come from my own choices. I have learned how to deal with people and how to communicate." Her classmate, Don, adds his support: "Most of the time I choose what I need to work on. I still have requirements and deadlines, so it is not like I can put things off."

In contrast, Leslie (SHS) explains that she has no controls over her school activities. "At Suburban we are told what to do and when to do it. We have very little choice. Oh, sometimes we can request one particular project over another, but I could never continue my math work in my English class. That is a choice I can not make." George (SHS) puts it succinctly. "Everything is planned for us and our only responsibility is to carry out what the teachers tell us to do."

The art of learning how to manage one's time, to be an active participant in the learning process is directly linked with students' initiatives and the commensurate responsibility for performance. As discussed in Chapter Six, this is the key to raising responsible people for a democratic society. Self-direction, freedom of choice and independent thinking are generally the outcomes when there is more freedom of choice and where there are opportunities to govern oneself. Some of these objectives are best realized in the small school setting where the locus of control is more easily managed by both teachers and students.

PEER RELATIONSHIPS

In talking about peer relationships it was evident that there were positive and negative influences in both schools. "There are not enough students at Piedmont. They can't have team sports. There's just not enough people to meet," explains Ricky (SHS). Suburban student George,

adds, "There are a lot of people here (SHS), and I have the opportunity to meet many of them. There are a lot of clubs and next year I will join one." Piedmont student, Ann, sees it from another angle; "In some ways our small size is an advantage and in others it is a disadvantage. It would be nice to meet more people. Sometimes I would like more structure. I would like to know more about what is going on." Denise (PSS) enjoys her close relationships at school. She asserts, "The peer group is wonderful. I can talk to almost everyone -even the boys- about personal problems, and I get their support. I see my classmates as a family. I can always be myself around them." And Leslie (SHS) said she liked the student population size at Piedmont because, "When you're with same people all the time you can be yourself and get close to people."

Peers play a dominant role in the life of the adolescent as they seek their independence from the family. A large circle of close friendships breeds intimacy and negates some of the influences of egocentrism and the patchwork self. Humanistic education gives a high priority to the interrelationships of people and the affective outcomes from being "oneself."

RELATIONSHIPS WITH TEACHERS

By far, the most important school issue for the students concerned their relationships with teachers and principals. Here is a sampling of their comments:

> "My teachers trust me. I can talk to them about problems and they care about how I feel and what I think." (Don, PSS)
>
> "The relationships I have with my teachers are terrific. It's not like they are high up or anything. They are there for us and consider our problems. I have a friend in another school who never talks to her teachers unless she is answering a question in class. I like to think of my

teachers as friends." (Sara, PSS)

"The kids at Piedmont know the principal real well. At Suburban most of the kids don't even know the principal -his name, yes- but not what kind of guy he is." (Carol, SHS)

"At Piedmont the teachers and students are very close. That was nice. They even call the teachers by their first names. At Suburban we hardly know our teachers. There is no time. I think it would be nice to talk to them about things that are not related to school work. The communication with my teachers at Suburban is not that good. They are more concerned about teaching you what they want to teach you and that is as far as it goes." (George, SHS)

"There are a few teachers that are really enthusiastic. If I get them, I'm lucky, because they make it interesting. That's the best quality in a teacher because if they've got it, then everything else pretty much comes. They can get me interested and that's what counts!" (Leslie, SHS)

"The student-teacher relationship here is wonderful. You learn much more when you are good friends with the teachers." (Denise, PSS)

"Teachers don't have enough patience. They want you to remember things right away, and if you don't, they make you feel stupid. I think some of them only care about the money they are making." (Ricky, SHS)

"My teachers are real friends. My creative writing teacher moved away and left school, but we still keep in touch and write to each other. We even call each other up. I consider her a close friend." (Ann, PSS)

The interactions young people have with adults outside of their family can contribute positively to their growth and development. Teachers, as explained in Chapter Nine, are rarely selected as significant adults in the adolescent's life and, yet, they spend much time together. The teacher as mentor deserves further exploration as we seek to discover

those experiences and relationships that aid the adolescent in the process of entering the adult society.

Ted Sizer calls for a "coaching" philosophy on the part of the teacher:

> *Information is plentiful, cheap; learning how to use it is often stressful and absolutely requires a form of personal coaching of each student by a teacher that is neither possible in many schools today nor recognized as an important process (1984: 89).*

Sizer claims that skills are best learned through experience and are taught by coaching -and that this philosophy should carry over into academic areas. Coaching means spending individual time with students, drawing on their experience and refining their own processes based on what they already know. It involves the principles of democratic, humanistic and experiential education and can best be accomplished in smaller schools, or within smaller subdivisions of larger schools.

PACE OF LEARNING

Most of the ninth grade students interviewed had something positive to say concerning individualized instruction. Denise, a transfer student at Piedmont shared her perspective; "At my other school the teachers made you go at their pace; here, you can go at your own pace because each teacher can give you personal time. In math everyone is at a different point. This fits my needs." Upon reflecting on his visit to Piedmont, Ricky (SHS) explains, "It was my impression that the students did what they wanted to; you know, they were able to move at their own pace. If you are an advanced student you can pick up and go further than at Suburban. Here, when you learn quicker than others, you

have to wait for them to catch up. Personally, I like moving right along."

These comments remind me of the industrial scenario around which secondary schools were conceived. Can you imagine assembly line workers asking their supervisor to change the speed of the line so that they could "go at their own pace?" Whether the request was to accelerate or to decelerate, the question itself would have been absurd because the system only worked according to a prescribed format. Today we have replaced most of these workers with automated machinery or robots since they can follow the needs of the line more "efficiently."

But what about the secondary school? It still remains a sanctuary for uniformity and boredom. Individuals are collected together and stuffed with the same data, at the same time, regardless of their capacity. They move with machine-like regularity from one station to the next in order to get the next load of information. This is the antithesis of a democratic learning model. Again, a smaller school setting can do much to decentralize learning and accommodate the needs of individuals.

GROUP PROCESS

In order to be a high level functioning person in our society one needs to develop group interaction skills and the ability to confront and resolve conflicts. These abilities are integral to the democratic, humanistic and holistic framework discussed earlier. However, most of our large comprehensive high schools are too busy plugging away at academics and tight scheduling to provide youth with some of the real skills they will need. Suburban High School was no exception.

In response to a question concerning learning experiences at school that prepare you for life, Carol (SHS) replies, "Not the bookwork stuff. If you are not counting the teaching part, then really nothing!" When talking about group problem solving, Leslie (SHS) was not quite sure how to respond. "What do you mean? If someone is misbehaving the teacher will

punish that person. If she does not know who it was she might punish the whole class. We don't discuss these things. We don't have discussions about anything unless it has to do with school work, and then most of the time it isn't even discussion. It's just answering questions."

Students from Piedmont, where group process is a high priority, meet regularly to discuss issues, resolve conflicts and work through problems. Piedmont student, Ann, explains, "We have group meetings to discuss problems and everyone gives their opinion and view. Usually consensus determines the outcome. Sometimes we have to go to a majority vote. Like last week we were talking about fund raising for our Colorado trip because a few people had set up a system where kids would only get fund raising credits for the amount of money they brought in. Some of us thought it wasn't fair. So we had a discussion and a vote. Sometimes the teachers call the meeting because we haven't been keeping good care of the environment. Then we all try to come up with a system to keep the classrooms clean."

What we are talking about here is the value of open-ended discussion as well as the value of questioning. The group process enables adolescents to test and mold their own belief system, to build character, and to develop the skills needed to interface with the social life of the community.

INTERNSHIPS

As already noted in Chapters Six and Nine internship programs are an important aspect of experiential learning that allow students to be directly involved in the social life of the community. Piedmont student, Denise, explains, "Everyone gets a chance to go out and work at a business. This is to help us learn how to be in the real world. It is interesting because we pretty much get to choose the place we want to go. My last internship experience was at Barbara's Decor -a decorating studio. I helped with designing frames and putting pictures in them and I learned how to stencil. The owner showed me her secret process for stenciling

designs onto tiles and firing them. These tiles are put in kitchens and bathrooms. I hope I can go back to this internship next fall." Other Piedmont students interned at a florist, a soup kitchen for the poor, and a printing shop.

Suburban students rarely have an opportunity to leave their school. The internship process was explained to Leslie (SHS) and she was asked about participating in such a program. "If I had to do it, yes. But I would not bring it up for something to do. We have enough work at school to keep us busy."

SCHOOL SIZE

Graduating seniors, reflecting on their years at a large traditional comprehensive public high school, centered most of their comments on the issues around school size. All four students who attended Suburban High School would have opted for a smaller school with a student body in the 500 to 700 range. They justify this in terms of five outcomes:

1. A smaller student body would permit more individualized instruction -a very high priority for each student.
2. With a smaller school they could establish closer relationships with more students. This would evolve because class sizes would be smaller and they would get to know each other more intimately.
3. Similarly, they claimed that they would get to know their teachers as people.
4. Flexible scheduling might be another outcome of a smaller school population.
5. Two of the students speculated that "prison-like" rules and regulations might be relaxed, especially in the last two years.

RELEVANCY OF LEARNING

In addition graduating seniors (SHS) felt that learning should have been more relevant to their experience and that teachers should explain why each subject was being taught. It was these graduating seniors who were also inquisitive about "how it all hangs together." They had been through the entire secondary school experience without some kind of grounding in how courses related to each other. They needed the "whole" picture.

This last point again brings to mind the changes we are undergoing in our society. We are moving from the mechanistic-industrial mind set of Humanity over Nature, where the image of the factory model is that each department has little knowledge of what is going on elsewhere, to the information age of Humanity through Nature, where there is greater emphasis on networking, systems and wholes. It is not an accident that today's youth are becoming aware of their own personal need for viewing the larger picture.

CONCLUSIONS

The results of these interviews emphasize the importance of the recommendations made in Chapter Nine calling for five different interventions:

I. TEACH AND KNOW DEVELOPMENTAL PSYCHOLOGY

To help youth understand their own cognitive, moral and social transitions in order to stimulate development to higher stages. To help the teacher "know" the learner and thereby understand what is, and what is not appropriate. To emphasize the importance of

communication skills, conflict resolution and role playing as instruments by which adolescents will more easily differentiate into the adult society.

II. INTRODUCE WORK EXPERIENCE AND COMMUNITY INTERACTION THROUGH THE SCHOOL

To help youth interface with the community and to succeed in a socially relevant task -developing independence, self respect and self confidence. To improve social understanding and cognitive development. To remind youth of their responsibility to others through social action projects.

III. DEVELOP SMALLER SCHOOLS OR SMALLER DIVISIONS IN LARGE SCHOOLS

To allow adolescents to create more intimate relations with peers and teachers. To create clearer and closer social controls. To foster the unfoldment and experience of the democratic process. To permit more flexibility in scheduling. To create an atmosphere where mentoring can take place. To enable schools to take a closer look at grading; perhaps moving from efficiency credits to mastery. To humanize the learning process.

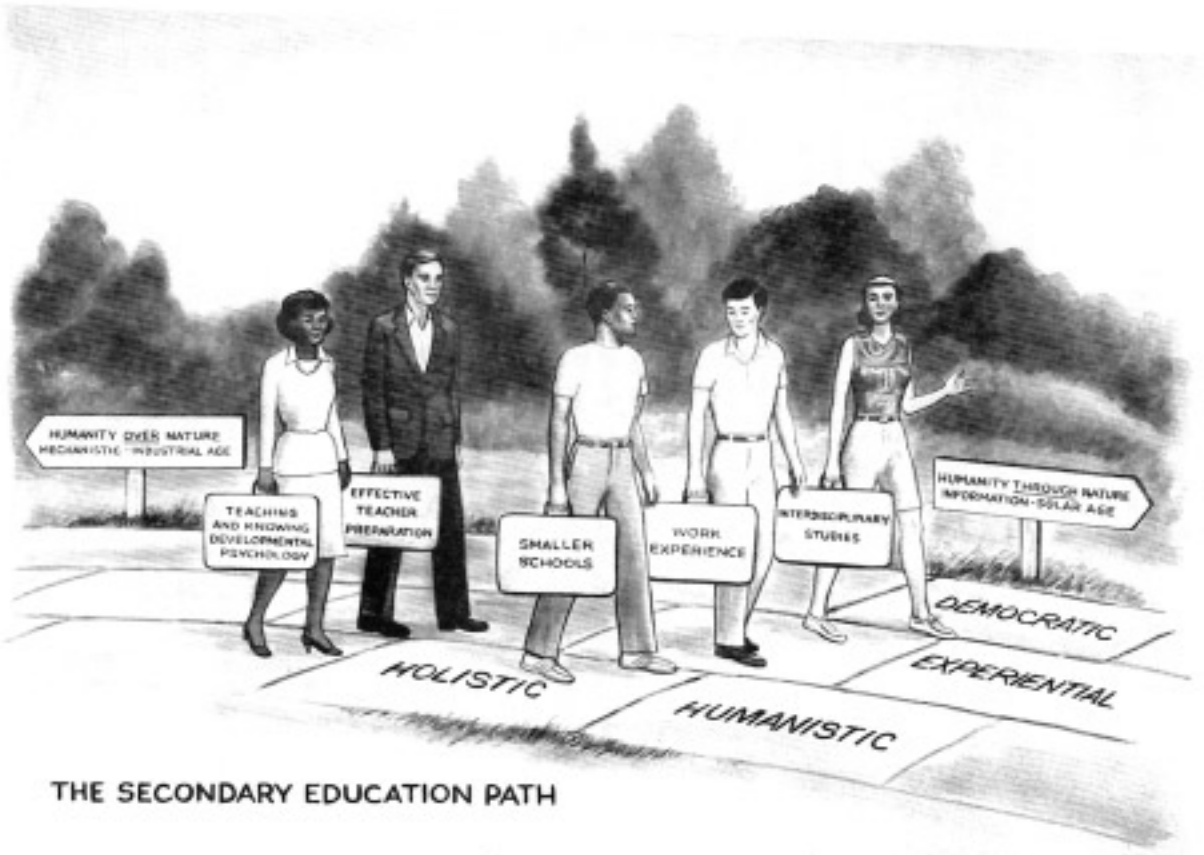
IV. PROMOTE AN INTERDISCIPLINARY AND GLOBAL APPROACH TO STUDIES

To eliminate the fragmentation of knowledge. To foster growth by differentiation and integration. To emphasize the networking and interconnection of all life.

V. CHANGE SECONDARY TEACHER PREPARATION

To emphasize the affective component in learning. To learn the art of coaching. To understand the history of adolescence and secondary schools. To enable teachers to learn about the dynamic changes that are taking place in society and how to become an instrument for planned change. To give teachers a new view of adolescence and the opportunities that the school might offer. To incorporate interventions I through IV above into the strategies for secondary education.

For adolescence these five messages are the instruments by which the new framework for education will carry them forward to Humanity through Nature. (See Figure 5.)



THE SECONDARY EDUCATION PATH

Figure 5

CHAPTER ELEVEN

***

THE POSSIBLE ADOLESCENT

It is time we stopped putting so much energy into waiting for problems to occur. We should challenge teenagers, make them feel part of their communities and channel their energies to positive ends. Given the opportunity for responsible, useful involvement and the chance to contribute, they will acquire a stake in their communities that will help them mature into successful adults. What is needed is an approach that gives them the message that they are responsible and are needed... Society is faced with a choice. We can continue to deal with pathologies and delinquencies, treating symptoms instead of addressing the core issues. Or we can rethink and rework the attitudes and myths about adolescence. Communities, to there delight and surprise, will be rewarded for defining meaningful roles for their young citizens.

John A. Calhoun
"The Way to Help Teenagers"
New York Times
May 31, 1986

For the past one hundred years our society has viewed the period of adolescence with dynamic ambivalence. On the one hand, we want youth to be prepared for adult responsibilities -by doing well in school and being obedient at home- and; on the other hand, we really want very little to do with these impetuous people. They are considered impossible to be around and most parents and teachers consistently remind themselves, "One day, these kids will grow up and we will have survived their

adolescence." In the meantime, we have not created meaningful experiences that enable adolescents to eventually merge with the adult society.

In primitive cultures, young people experience certain rites-of-passage during early adolescence which mark the movement from childhood to the world of adult-like responsibility. In our society today, rites-of-passage are, at best, difficult to perceive; for the period of youth and dependence lasts from about age twelve until the individual has completed his or her formal education -which could be as many as sixteen additional years.

One hundred years ago, when we removed youth from participation in the adult world, we did not recognize that we were depriving them of experiences that were innately critical to their development. We exploited them in order to meet society's requirements and objectives; that is, we needed more skilled and educated individuals to power the industrial economy; we needed to remove huge masses of young people off the streets and out of the unemployed ranks; and we needed a way to indoctrinate immigrant youth into the American ethic. Adolescents, just like our natural resources, have been exploited to meet the immediate needs of society, without a thorough understanding of the implications of such interventions. Obviously we are witnessing today the results of our exploitation of natural resources in the deterioration of the environment and its threat to the biosphere.

We have yet to fully come to terms with what we have done to that period we commonly call adolescence. In a manner of speaking, we are threatening their very nature, because the structure of society is such that it deprives them from important experiences which could help bridge the gap from childhood to adulthood. We tend to view the period of adolescence from the downside -its pathology- rather than from the perspective of possibilities and opportunities. The possible adolescent is one who lives out a social life as an active participating member of society while he or she gains the skills and knowledge necessary for functioning independently in that society.

In Chapter Eight six tasks of adolescence were outlined. The reader is now asked to consider changing the word "task" to "opportunity." Instead of tasks we would say, the opportunities of adolescence are:

1. to adjust to physical changes and new drives accompanying puberty

2. to establish autonomy from parents

3. to develop affective relationships with same and opposite sex peers

4. to prepare for a vocation

5. to construct a value system

6. to create a sense of identity

Opportunities become "freeing" and are built around the theme of possibility. We can look at these opportunities and create educational situations that would foster their development. For example, in exploring the second "opportunity" -establishing autonomy from parents- most families create struggles of power and authority around this issue. If, instead, the family viewed this as an opportunity to develop independence, the whole mind set changes. Parents would then see this time in their teenager's life as a period in which their own control has to be given up in order for their son or daughter to move forward; and the son or daughter would seize the opportunity for more control -a chance for learning- to see if they can prove themselves responsible.

In the largest sense, this whole inquiry has been about opportunities and possibilities. Our society stands on the brink of the enfoldment of a new wave of consciousness brought about by the major paradigm shift from the mechanistic-industrial age to the information age. The emergent Humanity through Nature is one that seeks to integrate humanity and nature, taking advantage of all the opportunities that are at hand. This can not be accomplished in a passive context. Individuals must be educated to the positive, transforming possibilities that exist in the world. They

should secure for themselves and their fellow humans an education that is enabling and empowering, so that we can meet the challenges that lay directly ahead. One such beacon of hope involves the possibility for change in secondary education.

The secondary school -as an instrument of society- can become an institution that recognizes the possibilities of youth by providing opportunities for them to actively participate in society, and to help them develop the skills and knowledge necessary to function independently.

EPILOGUE

Secondary education, like any other established agency in society, is conservative and tends to resist modification. Failure to make such adjustments when the need arises leads to the necessity for extensive reorganization at irregular intervals. The evidence is strong that such a comprehensive reorganization of secondary education is imperative at the present time.

Commission of the Reorganization
of Secondary Education
U. S. Office of Education, 1918

Has there ever been a time in the history of secondary education when all was well? Since 1893 there have been more than twelve major findings and reports from national commissions and task forces which were called together to explore the problems and status of secondary education. Each one advocated change and innovation for the American high school (Passow, 1975). But there has been little movement. Today's urban schools, especially inner city high schools, are in a critical state of gridlock. The situation has been steadily intensifying over the last few decades with student drop-out rates now exceeding 50 per cent. And still there is very little movement. The issues are hard, very hard, and the process of seeing through the issues sometimes seems impossible.

It is not as if the current gridlock was not predictable. It was a crisis waiting to happen. As has been pointed out in this study, secondary schools were not designed to fill a void in youth, but to fill a void in society. Eventually the gap between these two needs expanded to its present critical state. I believe that we will turn the corner and begin to work through the changes that heretofore have been avoided; I also think we needed to reach the current state of despair in order to be open to

dynamic innovation.

The means to achieving this turn-around is our challenge. Secondary schools do not need any national commissions to make pronouncements. They need action research and implementation at the local level. Seeds for change are best planted in one school, rather than a whole district. Community education is therefore the first priority for reform. Local communities need to be empowered. They need to be taught about the necessity for educational reform and then taught how they can organize themselves to promote that change within the system. In this way, ordinary people will become the catalyst for innovation, and not the educational bureaucracy.

APPENDIX A

Summary Of Emerging Paradigm Education Goals

Goals of Democratic Education:

To enable students to experience freedom of choice in an atmosphere that emphasizes personal responsibility.

To encourage self respect and respect for others, gaining an understanding for and an appreciation of, *"All people are created equal."*

To impart, by example, democratic values.

To help learners understand that a variety of solutions may be valid in any particular situation.

Goals of Experiential Education:

To bring about conscious awareness through active experimentation.

To create opportunities for productive involvement and participation in the social life of the community.

Goals of Humanistic Education:

To develop the humanitarian values of tolerance, freedom of thought and social responsibility.

To create an atmosphere where the whole personality of the learner can emerge - achieving a higher self concept, autonomy and integrity.

To emphasize the affective-feeling component in learning.

Goals of Holistic Education:

To give young people a vision of the universe in which all things are interconnected and unified.

To help learners synthesize and discover the interrelatedness of all disciplines.

To emphasize a global perspective and common human interests.

To enable the young to develop a sense of harmony and spirituality - which are needed to construct world peace.

APPENDIX B

Summary of Recommendations for Reforming Secondary Education

I. Teach and Know Developmental Psychology

To help youth understand their own cognitive, moral and social transitions in order to stimulate development to higher stages.

To help the teacher *know* the learner and thereby understand what is, and what is not appropriate for his or her level of development.

To emphasize the importance of communication skills, conflict resolution and role playing as instruments by which adolescents will more easily differentiate into adult society.

II. Introduce Work Experience and Community Involvement through the School

To help youth interface with the community and to succeed in socially relevant tasks -developing independence, self respect and social confidence.

To improve social understanding and cognitive development.

To remind youth of their responsibility to others through social action projects.

III. Develop Smaller Schools or Smaller Divisions within Large Schools

To allow adolescents to develop more intimate relations with peers and teachers.

To humanize the learning process and create clearer and closer social controls.

To foster the experience and enfolding of the democratic process.

To permit more flexibility in scheduling.

To create an atmosphere where mentoring can take place.

To enable schools to look closer at the grading system; perhaps moving from efficiency credits to mastery.

IV. Promote an Interdisciplinary Approach to Learning

To eliminate the fragmentation of knowledge.

To foster growth by differentiation and integration.

To emphasize the networking and interconnection of all life that can lead to a more peaceful society.

V. Modify Secondary Teacher Preparation

To emphasize the affective component in learning

To understand the history of adolescence and secondary education.

To enable teachers to learn more about the dynamic changes that are taking place in society and how to become agents in the transformation.

To give teachers a new view of the adolescent and the opportunities that the school might offer.

To incorporate interventions I through IV above into the strategies for secondary education.

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Inspired by his many years as a holistic educator and his training in science and engineering, Gang develops a new philosophy for changing the context of educational thought. This book represents a fresh new look at first principles and how education can be guided by universal matrices.

The philosophy is applied to the adolescent years resulting in five major recommendations for reforming secondary education.

If you are interested in education or adolescence or science this book is an exciting, well documented journey. ***Rethinking Education***

Phil Gang is a leading international proponent for integrative, systemic and transformative approaches to education. He is presently Academic Dean for a Master of Education Program in Integrative Learning organized by The Institute for Educational Studies (TIES) and offered through Endicott College in Beverly, Massachusetts. He has been part of pioneering teams in the field of graduate study distance learning that emphasize collaborative learning communities. He is also Executive Director of the Global Alliance for Transforming Education, a worldwide network of global-holistic educators and founder of TIES.

Gang has extensive experience as an international lecturer, seminar leader, consultant, school head and teacher. His presentations have included lectures, courses and workshops throughout Europe, South America, Asia and Oceania. He and his wife, Marsha Snow Morgan, have developed **PARADIGMA:** *Learning Communities: Communities of Meaning* — a participatory-interactive seminar designed for individuals and organizations interested in exploring a natural systems view of learning and governance.

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