FUTURE-TIME-SPAN AS A COGNITIVE SKILL IN FUTURE STUDIES

by

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INTRODUCTION

Future Studies is a field that began to develop in an established way during the Second World War, when armies were required to make what were called at the time "five-year plans." This endeavor was developed primarily to plan the movement of forces during future battles, logistics, and so on. Over the years, hundreds of methodologies were developed, with whose help futurists studied future trends in various areas and ranges of time (Armstrong, 2001). Nevertheless, thinkers and leaders continued to make projections, and developed various estimates of future developments without availing themselves of proven research tools. As opposed to the latter, the futurists of the 20th century militated for the establishment and development of methods for evaluating trends whose validity could be monitored and whose reliability could be measured. When the field was, to a certain extent, expropriated from the thinkers and leaders, the state of mind, or skill, which had guided the thinkers in the fashioning of their evaluations of the future, was lost to the researchers of Future Studies. This article focuses on one of the characteristics of the state of mind which led the thinkers to evaluate future trends.

In this article we maintain that Future-Time-Span is a state of mind that characterized thinkers in ancient times. With the help of FTS they succeeded in making future evaluations, and in assessing their significance and implications—basing their thinking on the jumble of information that was available to them, on their value emphases, and on their personal styles. The goal of this article is to define the nature of this state of mind or skill, to illustrate it with examples, and to begin to develop tools, or to harness existing tools, so that it may be bequeathed to the leaders of the future.

In this article, we will attempt to bring back this skill to the collective state of mind of humanity. It was a skill which once characterized the thinkers, but whose value was diminished by the futurists. Our goal is to harness that skill for the preparation of the leaders of the future. It is a skill that speaks of humanity's ability to break through the barriers of time, by employing vision and a broad enough view of events so that human beings become able to understand and to have an effect on that which will take place in the future.

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TIME PERCEPTION

Time is one of the central and most vital dimensions in our lives. It would be difficult to describe modern life in a western, industrialized society without referring to time. However, despite time's centrality in our lives and in the lives of other organisms, science hasn't recognized a sensory organ which is directly responsible for the perception of time. Moreover, we are unable to identify information which comes from the external environment and which brings about activity in a sensory organ in such a way that a sense of time is created. This is in contrast to other central perceptual dimensions such as the perception of color, or the intensity of a sound (Zacay, 1998). In order to develop sense of future-time, we will first present briefly what we know about the essence of time and how the awareness of it begins to develop in the first years of our lives.

DIFFERENT KINDS OF TIME

We can distinguish between different kinds of time: physical, biological, and psychological. Physical time is time measured by the clock. We may look at it as a continuum, which moves from the past to the future in a direction defined as the arrow of time. Biological time represents the occurrence of biological processes that are defined and controlled by biological "clocks," which determine the cyclical behaviors in living organisms. Like physical time, biological time is continuous. It moves in the direction of the arrow of time and is connected to physical time. In contrast to the first two kinds of time, psychological time is experienced by consciousness. It is not continuous, and appears to be composed of discrete modules. This means that it is built of units of time, each of which is called "a psychological moment." There is no chronological order in this unit of time. On the contrary, all the stimuli, which are absorbed by our senses, are processed and translated into one perceptual experience (Zacay, 2000).

Ben-Baruch (2000) adds another kind of time: socio-cultural time. He maintains that every person, group, organization, and culture understands the concept of time in a different way, and relates to it differently. To a great extent, every culture is characterized by the way its adherents relate to time. A culture may ascribe a high degree of importance to the past, present, or future, and may focus its adherents' activities on one or two of those times. A focus of this sort has a decisive influence on people's decisions at every juncture or crossroad of their lives. For example, different cultures have developed different attitudes toward the future: "Fate determines all," "All is determined

but free will exists," and others. Apart from the general perception of time in a given culture, the individual also develops his own relation to time, based on his unique, personal experiences as an adherent of that culture.

Western technological culture's attitude toward time reflects its worldview in which physical perception is dominant. This perception is indifferent to time. Except for the decomposition of radioactive material, all physical laws hold, even when one reverses the processes and observes them from finish to start.

This perception is called the perception of quantitative time. One of the things that characterize this kind of time is the existence of precise linguistic terms for the small units, which comprise time: second, minute, or hour. They have no parallel in defined natural phenomena. This is an abstract attitude to time.

In non-western cultures, as opposed to western cultures, a qualitative perception of time was developed whose units are not of standard length. Time is not divided into small units. The units of time which appear in eastern cultures, generally speaking, are only those that have parallels in concrete natural phenomena. Quantitative and qualitative time express themselves in different approaches to time-determined behavior. For example, they express themselves differently in the perception of the vector of time. In western culture time is linear. Time makes a connection between the past and the future, and passes through the present. For that reason, it is a continuous dimension and a continuum which flows in an orderly manner, in a set form and rhythm. This is a future that can be planned, because it is about to arrive and has yet to happen. In non-western cultures there is cyclical time ("That which was is that which shall be" or, "There is nothing new under the sun"). This approach leads to a focusing on the present. There is no point in planning the future, according to this outlook on time, as the future is only a repetition of things that happened in the past (Zacay, 1998).

Ben-Baruch (2000) maintains that, beyond the linear and cyclical views of time, a third approach developed in modern, technological society, which maintains that *time* is a part of the task. This society ascribes great importance to achievement. An achievement is something that one wants to obtain in the future, thus the desire for achievement develops a future orientation. This kind of orientation requires the desire and the ability to set out goals, to initiate planned action, and the ability to postpone immediate gratification for the sake of the planned goal. One could say that this is a goal-oriented perception of time, as opposed to the first, linear perception of time, which one could call a fate-oriented perception. Seeing into the future, therefore, plays an important role. Without a view of the future we would exist in an environment devoid of time. In such an environment, control over our lives would be surrendered to blind

chance; to probabilities versus possibilities. By means of goals and initiative, we open the door to the achievement of possibilities that we have created. The linear perception of time starts with the assumption that the future is formed primarily by the present and the past. The third perception, meanwhile, assumes that the present and the past are formed by the future. According to this perception of time, the past and the future are the raw materials for the molding of present behavior. From this point of view, we all are projecting a constantly dynamic picture of the future on our screen of consciousness. This invisible structure of assumptions fashions our personality, and provides consistency and coherence to our behavior in the present. The future enters the present in order to mold itself, long before it becomes real.

THE DEVELOPMENT OF TIME-PERCEPTION IN CHILDHOOD

In the literature that deals with the development of time perception from earliest infancy through puberty, we have found two principal psychological approaches—the psychoanalytic approach and the cognitive approach (Eyal, 1996).

The Psychoanalytic Approach

According to this approach, the perception of time is part of the development of the ego and of the building of the child's ability to postpone gratification. Freud, the founder of this approach, maintains that at the outset of childhood, the infant has the feeling that he/she exists in an infinitely present time. The desire and its gratification occur simultaneously, without any reference to time. "I am hungry, therefore I want to eat right now." In the course of development, the infant learns to postpone gratification. The experience of time becomes tied to the gaping interval between the need and its satisfaction. The infant's mother provides her child with the experience of time via situations in which he/she must postpone gratification. "I am hungry … I wait … Mother gives me food." In this way the infant learns to adapt himself to external rhythms, to family and societal frameworks. In early childhood, time is separate moments; brief events that are not connected one to the other, and which are forgotten immediately. As the child grows, memory also develops, and enables that child to make connections between events, and so to create a single continuum. Later on, the child begins to note recurring patterns of time, and series of certain events. A time matrix is created in this way. The awareness of time, according to this approach, is connected to the system of ties between child and parents.

The Cognitive Approach

Piaget (1969) is one representative of this approach, and sees time awareness developing in the relationship between the child and factors of speed and motion. He maintains that the infant lives in a world without time, and that awareness of time develops slowly and gradually in the course of the infant's encounters with reality. At first, the infant learns to identify a continuity that exists between events. Afterwards, he/she begins to see connections between two events. Later on, the child is able to discern a gap that exists between the duration of things, which happen in events, and, finally understands that he/she can either speed up or slow down activities. In other words, there are two concepts of time: *Sequence* and *Duration*. Time is built in an arrangement of sequences of events, which are intertwined with the intervals of time between them. Piaget maintains that sequence and conventional duration of time are developed simultaneously. According to Piaget, the concepts of time are developed on the basis of earlier concepts: effort, work, strength, and space. Time doesn't exist separately from the events that take place in it. The child is able to relate to the future only after constructing symbolic representations for the reality of his/her world.

The process of developing a concept of time is a gradual one. It appears that month-old infants (and there are those who maintain that fetuses seven months old and older also have this capability) are sensitive to the dimension of time. This expresses itself in these infants preferring visual events having a particular type of rhythm to events characterized by a different type of rhythm. Researchers (Zacay, 1998) have concluded that these infants have sensitivity to rhythms, which are a way of relating to time, as rhythm is comprised of the splitting up of stimuli over time. Since the infant has not yet acquired a developed ability to remember, which is a precondition for the creation of consciousness of the past, present, and future, it is assumed that, in early childhood, time is experienced as a collection of isolated moments.

The young child, therefore, lives in a world that is all in present time. Only at the end of his fifth year does the child understand in depth the differences between past, present, and future. Full time orientation is reached about the age of seven. A complete mastery of all the dimensions of time, including the dimension of historical time, is achieved in adolescence, between the ages of 14 through 18 (Zacay, 1998).

As mentioned, the perception of time is divided into two principle areas: *Duration* and *Sequence*. Duration is defined as the intervals between different events, which continue for hours or days, and familiarity with the clock. Studies dealing with duration examine quantities of time as measured on a clock, as estimated as various units of time. Sequence is defined as the occurrence of events, one

after the other, in the range of days, weeks, months, and years, and as an arrangement of series of events in order of their occurrence. Researchers (Katzenberger, 1994; Fujisaki, 1998; O'Connell and Gerard, 1985) looked into the question as to the age at which the child is able to understand the meaning of temporal sequence. Others (Carni and French, 1984; Fivush and Mandler, 1985; French, 1989) asked if children indeed see logical connections between actions, or if they depend on knowledge of their world in arranging sequences of events.

The development of concepts of time is immediately reflected in children's language. The use of verbal language demands that the child postpone gratification, because an abstract word stands in the place of the object it represents. The words "now" and "fast" are usually the first time-related words that are learned. At the age of 18 months, children respond to the word "now," even though they have yet to use time-related words. At the age of 24 months, children still are living in the present, and use the words "now" and "today." While they are using those words, future time begins to appear in their language, and is expressed in concepts such as "already" and "wait a minute." For the most part, they have no special words that indicate past time. From the age of 30 months, children use different words for relating to the past, present, and future. At the age of three years, the child speaks about what he wants to do the next day: "Tomorrow I will go to kindergarten early, and I will be the first one to play with the new car." At the age of four, the child is already looking ahead: "The bicycle Daddy promised to buy me for my next birthday." The child absorbs different, multi-significant words and images related to time: "Time flies," Time creeps," "Resting time," "Time to behave like a big boy" (Eyal, 1996).

FUTURE ORIENTATION AND PERSPECTIVE

The idea behind the expression "future time awareness," is not new to the literature. It is better known as Future Vision, Future Imagery, Future Orientation, Future Time Perspective, and Future Awareness. The use of these expressions, in general, is enveloped in a thick fog. Norman (1999), for example, defines future orientation as the tendency to think about the future, and as being concerned about the results of present actions on the future. Generally speaking, the expressions are explained as insight into the fact that everything done in the present influences the future. Their significance is not necessarily in their being in thrall to the future, as they are directed more toward the present and its importance than to the future.

A number of studies were conducted in order to understand the development of future-awareness among different populations. Eshel-Bialer (1993) studied the connection between future orientation and

developmental roles among children in the early stages of adolescence. She found a correlation between psycho-social variables (identity, creativity, and intimacy), and behavioral ones (commitment and investigation), with their *emotional tone* regarding future orientation.

Another study examined the connections between the cognitive strategies of pessimists and optimists and the future orientation in the learning and social realm of 128 adolescents between the ages of 16 and 18. The findings show that optimism is tied to a more developed Future Imagery, which includes aspects of affective motivation, and behavioral aspects of future orientation (Snir, 1984).

An additional study in Israel compared the future orientation of 449 ninth-to twelfth-grade Druse students, with 308 Jewish students of the same ages. The results show that the future orientation of Jewish and Druse students differs because of the cultural differences between them. It was found that adolescent Druse focus on more existential and declarative areas, while the Jewish students focus on areas tied to their future lives. In both populations, interestingly, the future orientation of girls is more developed (Halaby-Khier, 1992).

The ability to envision the future and to project it, to make plans for the future, and to organize future possibilities, represents one of the unusual traits that characterize human beings. It seems that theories that deal with work motivation, rather than recognize this human trait, ignore the perspective of future time.

A recent study examined this point. The study involved 111 organizational leaders who were participating in a program for the development of `Future Vision,' and 50 organizational leaders who were participating in a program for managers. The study found that the ability to develop a vision of the future increased in the first group more than in the second. Similarly, their Future Time Perspective and Positivism correlated with their vision (Thoms, Greenberger and Meindl, 1998).

DIMENSIONS IN TIME AWARENESS

George (2000) makes an interesting distinction that suggests the existence of different dimensions in time awareness. He developed this approach in order to improve the preparation of organizations for understanding the present and relating to the future. He suggests six dimensions of time awareness, which have important implications for organizational behavior. Organizations need to teach their managers to master the meaning and significance of these dimensions of awareness.

- The first dimension is awareness of the past, present, and future, and the *subjective experience of time*. Time is connected to the

human experience in that the past and the future reflect the present. Not all the aspects of the past and the future are important in the definition of the present, but they are relevant for phenomena that are learned and analyzed by the individual, group or the organization. Organizational behavior makes an artificial separation between various units of time, which are assigned specific content. However, in order to grasp the essential nature of the phenomenon, it is important to understand how its existence at any given point in time is a reflection of the past and expectation of the future, at one and the same time. Man, therefore, experiences time subjectively.

• The second dimension is called the awareness of *time aggregations*, and is the awareness that brings people to think how they choose to store their experiences into a sum of events, so that they are able to assign them significance. For example, when a person thinks of leaving his place of employment, in reaching his decision he is able to think about the negative experiences he has been through in the past, or about the fact that, for the moment, everything appears in order, or he may focus on the future dangers associated with changing one's place of work, or, alternately, may consider all three at the same time.

• The third dimension is called the awareness of the *duration of steady states and rates of change*. Duration may be considered a variable in which some phenomenon exists in a permanent, non-changing state. The other side of duration is the phenomenon's rhythm of change, or the amount of time it takes to change one state and turn it into another.

• The fourth dimension is the awareness of *incremental versus discontinuous change*. Since most of the events in organizational behavior change over time, it is important to consider whether a phenomenon is changing incrementally or discontinuously. For example, if a person pleased with his place of work becomes very displeased with it, one must find out if the change happened all of a sudden, or if the person in question had been only somewhat pleased with his job, and later on became totally disenchanted with it.

• The fifth dimension is the awareness of *frequency*, *rhythm*, and *cycles*. In a situation in which some of the phenomena happen with great frequency, with a repetitive rhythm, and in cycles, their identification is often the key to the understanding of the phenomenon itself.

- The sixth, and last, dimension is called the awareness of *spirals and intensity*. There are phenomena that move in spiral motion during a particular period of time, so that the intensity of the phenomena increases or decreases swiftly and in a non-linear fashion. The phenomenon's intensity of change has implications for understanding its nature.

There are most probably interactions between the six dimensions of awareness mentioned above, but, at the same time, each awareness differs from the others in that it possesses a particular quality of time in a unique way which is tied to the understanding of the organizational situation.

One can see how a present-focused perception of organization affects future orientation, limits managerial activities, and creates apathy. Similarly, crisis situations, for example, are likely to make the leaders and the members of an organization rethink the role of past and present. They are likely to provide leaders with opportunities to change their perspectives regarding the future, and to change the organization's worldview.

LEADERSHIP DEVELOPMENT

There is an ever-increasing need for good leaders in our complex and changing world. People who are able to point out the right goal and to enlist others in the effort to reach it become especially in demand. Different frameworks for the preparation of leaders have existed since the last centuries. Military academies are just an example. However, at the beginning of the 20th century, different programs for the preparation of leaders for business organizations were established in universities, and advancement tracks were set up in businesses themselves for the purpose of providing knowledge, experience, and compensation for achievement. However, the greater part of those preparatory frameworks dealt with the imparting of professional and strategic knowledge for a particular area of endeavor, but did not provide content on the subject of leadership itself. The Second World War gave a major push to research into the field of leadership, and contributed to the development of new ideas on how to develop good leaders. In the following decades, additional, modern models were further developed in academia and in businesses as well (Saar, 1999).

Nowadays, the basic assumption at the root of the process of developing leadership on the level of the individual is that the person we want to develop has: a) innate leadership abilities; and b) the motivation to lead, to direct, and influence others. These two principles are basic, and, if they are present in a person, he/she is a possible candidate for leadership development (Rosenstein and Pressburger, 1999).

Today, there are innumerable institutes and programs whose goal is the nurturing of leaders according to models of various kinds. A partial, highly trimmed-down list of the goals of these programs includes: the trick of nurturing cooperation; how one can be a model to be emulated; how to encourage emotional coping; how to create shared vision; the drilling in vital skills; how to motivate through inspiration; how better to relate to the individual; how to cope with risk-taking; developing multi-dimensional vision; the development of personal awareness; and many others. In one such leadership program called the "Leader Lab," for example, a model was developed that included five clusters of relevant abilities (Saar, 1999). These were:

1. The ability to cope effectively with interpersonal relations;
2. The ability to think and behave according to systems concepts;
3. The ability to approach decision-making from a profit-and-loss point of view;
4. The ability to think and act flexibly; and
5. The ability to maintain emotional balance by coping with a lack of equilibrium.

An important and central goal in developing leadership, one which is not often mentioned, is the development of the leader's ability to think about the future itself (Future-Time-Span). Some programs (Altman, 1999) do point out the importance of developing what they call "the leader's span of control." The higher he climbs up the chain of command, the more his span of control is broadened. Despite this, to the best of our knowledge, it doesn't seem that the subject of increasing the leader's span of time vision is raised in any of the programs of leadership preparation, even though a vast amount of literature has already emphasized this need. This article will suggest a newer definition to that future time awareness and a model with which we can teach and enhance that awareness.

LITERATURE REVIEW

In recent years, we have witnessed a growing body of literature that deals with the great importance of developing awareness of the future. We have selected a number of approaches to future awareness from this varied literature. These selections strengthen the broader definition of Future-Time-Span, which is suggested later on in this article. Following is a small sample of the large body of literature dealing with future's awareness.

The book *Leadership and the Development of Leadership*, edited by Gonen and Zacay (1999), opens a window to the world of leaders and the led, and deals with two main areas—military leadership and the

development of future military leadership. The authors maintain that, in the future, the army will deal with issues of ethics and legitimization, will need to open itself to matters of concern to civilians, and will need to adapt to changing missions, environments, and organizations. Accordingly, they believe that the role of the military leader will become more complex, both socially and cognitively. In their opinion, leaders who are socially sensitive, who have values and vision, who can work as team members, and who can adapt to changing organizational frameworks should be educated and promoted. One can conclude from reading their book that the leader with future orientation is the one who has vision, with which he can see the direction in which he wants to lead his followers, while setting out the steps that must be taken in order to achieve his goals, and motivating his troops.

McCray (2000), in his book *The World in 2020*, understands that the significance of grasping the future is the ability to spread out and to broaden the perception of time. In his estimation, future awareness is a kind of multi-directional thinking, which considers the recent past, the present, and the future. This kind of thinking makes it possible to understand things that took place in the past, to identify the forces that are already giving shape to trends in the present, and to cope with the results of those trends. The process demands flexible thinking, creativity, openness, and the harnessing of new ideas. Thinking of this sort can produce an effective preview of the future: one which promises cultural power, well-being, stability, and balance among existing forces.

Friedman (2000) describes the system of globalization, which is developing rapidly in the 21st century, as opposed to its rate of development in the 20th century. His book *Lexus and the Olive Tree* describes different conflicts (Arab-Israeli, Serbian-Muslim), that revolve around the question of who will control the olive tree, which symbolizes the anchor of home (Lexus). The Lexus represents the high tide of market globalization, the financial institutions, and computer technology, by means of which we aspire to achieve a higher standard of living. According to the view enunciated in the book, future awareness is a perspective that provides the ability to see multi-directionally in any given situation that is likely to be on the verge of changing, on the way to a new phase.

Goldberg, Mazursky, and Solomon (1999) attribute Future-Time-Span to none other than the development of products. In their book *Why Didn't I Think of It First? The Anatomy of Successful Products*, they focus on the development of new products that were the results of systematic inventive thinking. They describe how to conceptualize the interaction that takes place between product and marketplace, and to distill from it a code, according to which it's possible to describe and analyze the changes that will take place in the product in the future. In

this way, the product will continue to answer the needs of the market for a long time. They maintain that if the "operational prescription" for the changes that took place in the product is intrinsic to its qualities, it should be possible to plan future changes on the basis of the artificial operation of that prescription. The present day consumer of the product recognizes his present needs alone. He isn't aware of needs that will arise in the future, and, therefore, is unable to provide information about them. The inner-voice of the product is what will show us the way to new and surprising ideas and products. Do they mean that the product has future awareness? One should ask them.

In *The Theory of the Bite and Nuclear Power*, Jameson (2000) points out that the future is liable to cause confusion and pressure related to coping with many changes in a short period of time. He ascribes a spiritual significance to future awareness. In his opinion, a person who has an internal nucleus of power, and has succeeded in having himself/herself grow, will understand the patterns of the future and the forces that shape the changes and the interrelations among them. He will be able to cope with them strategically, and will not be surprised by the challenges that arise, when they arise.

Baker (2000) ascribes an emotional significance to future awareness. In his book, *Sex In the Future*, he deals with the changes that will occur in human behavior regarding the way people conduct their lives, and the way they think about human reproduction. He says that, when the natural, random alternative method of reproduction will be replaced in the future by genetically assisted choice; when the genetic manipulations will bring about balance for the improvement of the species; when future technology will reign over the laws of evolution and will protect us all, the individual living in the present will need to develop the ability to make the relevant and correct choice, while developing the ability to be emotionally flexible, and the ability to function while in the process of change, if he wants to live.

Green (1999), in his book, *The Elegant Universe*, gives a new, astrophysical dimension to future awareness, and refers to String Theory. He projects that, in the future, our perception of time will change. As a result, this will also change the perception of our future time. In the reality with which we are familiar today, there is one dimension of time, and it has only one direction: to the future, and three dimensions of space—forward/backward, right/left, and up/down. He maintains, on the basis of probability calculations, that in the future we will be able to measure nine spatial dimensions, and an additional dimension of time of which we, at present, are ignorant.

Ben-Bassat and Netzer (1999) make an interesting distinction, which claims that future awareness is essentially Past-Time-Span, at least as regards astronomy. In their book, *Journey To Intelligence*, the authors give us a new look at the sensation of time. The starting point for looking into the depths of the cosmos is the realization that doing

so is staring out into the past. The more that we progress in understanding the world, the more are we able to return further and further into the past.

DEFINITION OF FUTURE-TIME-SPAN

In this article we are suggesting a term different from those discussed above. The characteristics of this term, in our estimation, are different from the terms that describe any sort of futures orientation. The term Future-Time-Span was proposed as early as 1966, when Kahn looked into the question of whether children's time orientation is connected to a kind of organizational, cognitive, and perceptual level. Kahn (1966) used the concept Future-Time-Span in the sense of future-time-perspective. Later on, Lessing (1970) also used the term Future-Time-Span, but he was essentially involved in a study of the future personal and socio-political time perspectives of African-American high school students compared with those of white students.

Here we suggest broadening Lessing's definition and delving into its meanings. Following is a suggested definition of the term and of the awareness it is meant to describe:

1. Future-Time-Span is a reflective awareness, which conceives the duration of time and events that take place in it, for increasingly greater ranges of time, and which is able to concretize the long-range implications of the things that might occur over that time.

2. This is an awareness that can motivate the ability to change behavior in the present, in light of the conceptualization of the future.

3. Future-Time-Span is the name of the mental action that describes conscious movement and an inclination toward, and breakthrough into directions of, events spread out over a wide range of phenomena. An action of this sort makes possible visionary thinking, a new perspective, flexibility, and maneuver-ability in the ability to act. This action liberates one from the chains of the present, and makes possible navigation to a more easily recognizable future.

A POSSIBLE MODEL FOR THE DEVELOPMENT OF FUTURE-TIME-SPAN

Can Future-Time-Span be developed through a training process? Is it possible to train people to be able to master this awareness? In this

article we assume that it is possible to learn from the history of the development of Future Studies, and to draw from it a model with whose help it will be possible to develop Future-Time-Span. A short description is in order of the history of the study of the future on which the model is based.

In the process of its development, the discipline passed through four basic stages (Passig, 2000), which developed, in turn, to four approaches dedicated to helping organizations to study the future in different ways.

The first approach, also known as the classical approach, focuses on the prediction of trends, and is based on the assumption that there is logic to evolution. The futurists of this approach try to find patterns of logic, which express themselves in evolutionary processes, and to translate them to valid, reliable models. The reliability of the models, according to a number of studies conducted during the last decade, runs on the average of 0.70 (Cornish, 1997). Futurists identified with this approach use these models to draft forecasts in order to help organizations adapt themselves to newly developing trends. This approach was dominant among senior decision makers in the 1940s and 1950s, primarily in the United States.

The second approach, the scenario approach, takes as its point of departure the assumption that, even with the understanding of evolution available to us today, it is still beyond the realm of the possible to understand sufficiently how systems develop, and to make predictions. This approach, which began to develop in Europe toward the end of the 1960s, maintains that the more the pace of change is accelerating, the less valid are the models we have at our disposal. For this reason, the practitioners of this approach suggest the preparation of a number of possible and reasonable scenarios. They suggest making a thorough analysis and formulation of those scenarios, together with the organizations, in order to plan the procedures of the organizations' response in a way that will be the most fitting for each scenario.

The third approach, in contrast, assumes that if an organization focuses on scenarios which, logically speaking, are unlikely to develop, and then, on the basis of those scenarios, prepares response procedures in case they might really happen, it will be preparing itself better for any complex and extreme possibility that might occur. The goal of the third approach is what is called the dealing of wild cards, and the preparation of the organization for any extreme situation.

The fourth approach, the approach of inventing the future, as opposed to the first three described above, assumes that it is the task of the futurists not to make predictions, but to help the members of any social, political, or business system to mold for themselves future images or a shared vision of the future stemming from their collective wisdom. This approach began to make headway in university

faculties in the mid-1980s, and today is considered the approach with the broadest acceptance.

We assume, in that case, that the putting together of a training program that walks the participant through all four of these approaches would help the future leader develop his own personal awareness of Future-Time-Span. The assumption at the basis of this article is that, if we lead our students through the stages passed through by the field of Future Studies in the course of its development, there is a high probability that the students will develop an awareness of Future-Time-Span.

THE ELEMENTS OF THE MODEL

The model we propose is built on three parameters, resting on three dimensions, X, Y, and Z, so arranged as to enable the model to be used for the training of future leaders. The first dimension is that of future learning/research strategies. The second dimension is the level of awareness of the duration and continuity of time in the future. The third dimension is future ranges of time.

STRATEGIES OF STUDY AND RESEARCH OF THE FUTURE

There are four strategies of conducting research on the future:

1. *Predictions.* The person working on this level of awareness will use models in an attempt to make predictions about the future.

2. *Scenarios.* This strategy is to prepare several possible and reasonable scenarios of the future, to analyze and formulate them thoroughly.

3. *Future Imagery.* This strategy is geared toward inventing images of the future, or generating a collective vision of the future, which stems from and reflects collective wisdom.

4. *Wild Cards.* On this level of awareness, there will be an attempt to think of the most illogical scenarios that could occur, and on the basis of such chains of events, to prepare response procedures in the event that they would actually happen.

FUTURE LEVELS OF AWARENESS

There are four levels of awareness in the model offered here. They indicate the cognitive development of the perception of time (Piaget, 1969):

1. *Continuity between events* – On the first level of awareness, the person perceives that there is some kind of continuity between different events.

2. *Connection between events* – After the person understands that there is continuity of some kind between events, he must learn to see the connection between the things that happen from one event to the next.

3. *Duration of events* – In the next stage, the person perceives that there is a gap between the duration of things that happen within events.

4. *Acceleration/deceleration of activities* – In the last stage, the person understands that it is possible to accelerate or to slow down activities, depending on the will of the person who controls them.

FUTURE-TIME RANGES

Today, future research focuses on five ranges of future time. Just as there are institutions, organizations, institutes, and experts who are involved with research into different aspects of the future, it follows that they specialize in different ranges of time (see Figure 1). Following are the five ranges of future time awareness discussed in the literature (Joseph, 1974):

1. *Immediate-range* — up to five years.

2. *Short-range* — five to ten years.

3. *Median-range* — ten to thirty years.

4. *Long-range* — thirty to fifty years.

5. *Very long-range* — fifty to one hundred years.

FIGURE 1 - FUTURES STRATEGIES — LEVELS OF FUTURE AWARENESS AND RANGES OF FUTURE TIME

According to this model, the student will learn and practice the application of the different approaches. As the student progresses in the training program, his awareness of Future-Time-Span develops according to the stages of development of time perception.

DISCUSSION

The ability consciously to absorb and process future time is evidently a cognitive skill, which is characteristic of homo sapiens alone. Man, of all the creatures in the world, is the only one who is able to think about future possibilities, and to dictate for himself, in the present time, behavior based on those possibilities before the future has rolled around. In contrast, many animals possess intelligence of various kinds, which, in many cases, surpasses that of Man. Animals are capable of thinking about the future only if it is immediate and threatening. The vast majority are able to respond with unsurpassed speed to a physical threat, which has begun to take place in their vicinity, and are also able to succeed in escaping quite successfully from terminal futures and situations. At the same time, we believe most animals aren't able to think even one step ahead of the present moment, or to consider alternative possibilities.

We don't know how human beings exploit the mechanism of consciousness by means of which we conceptualize future time. As we see it, this mechanism of humanity's is in the midst of an accelerated process of evolutionary development in many dimensions: neurological, psychological, social, and cultural. The fact that the discipline of Future Studies gained more and more momentum in the second half of the twentieth century is proof that humankind is beginning to become aware of the existence of that mechanism. People try to establish the consciousness that stems from it with the help of critical scientific tools so that this consciousness will not be doomed to linger in the great dark realm ruled over by astrologists, the readers of tea leaves, or by interpreters of the lines on the palm of the hand.

In our estimate, in the coming years we will see scientific experiments that will investigate the characteristics and components of future awareness, and its development with the aid of scientific

tools. At the same time, it's reasonable to assume that empirical tools will be developed which will enable us to measure different aspects of future awareness. Although the current experiments will soon be seen in retrospect as primitive, we mustn't ignore them or the results which they have begun to report. We will present below a brief report of these which have come to our attention. Even though, in our opinion, they are not intended to measure personal Future-Time-Span, their efforts are welcome, and are pointed in the right direction.

The Center for Research in Motivation and Time Perspective was founded in the Belgian University of Leuven, in 1961 (www.psy.kuleuven.ac.be/motivtim/). The Center deals with human motivation, emphasizing the cognitive characteristics of the process of motivation. The projects examine the motivational content and the resulting time perspective, and focus on three aspects: length and depth of time perspective, the structure of personal time perspective, and opinions about personal past, present, and future. This university-based Center developed a tool for the examination of attitudes toward time, called Time Attitude Scale.

Another researcher who works, among other endeavors, in this field is Lapierre, who used a tool for the examination of concepts of future time—the MIM (Motivational Induction Method). Joseph Nuttin and Willy Lens of the University of Leuven developed this tool in 1980. The MIM uses the technique of sentence completion, where the beginning of the sentence motivates the examinee to future orientation in special language, with the goal of having him respond in a personal and spontaneous manner. The MIM test is meant to give representative examples of goals, ambitions, and plans of groups and individuals (Lapierre and Bouffard, 1996).

Another center that works in this area is The Vision Center for Futures Creation, located in Sweden (www.framtidsbygget.se). This Center developed a test that makes an online examination of one's personal approach to the future—the Future Styles Inventory. This tool attempts to help the examinee evaluate his beliefs and activities with the goal of helping him cope with the swift changes of the future.

Future time awareness, therefore, is developing and being broadened in our consciousness. Our proposal here is to give this expansion of consciousness the name Future-Time-Span. This consciousness broadens our ability to conceptualize long-term processes with mental tools which are somewhat more orderly and controlled. We believe that this consciousness can be learned so that it can develop efficiently and quickly. This article is meant to expand the definition of this consciousness, to discuss its characteristics, and to propose a model—even a prototype of a model—that will help in teaching our future leaders how to use this consciousness for the benefit of the individual and of all humanity.

SUMMARY

The goal of this article is to make an additional theoretical attempt to clarify the old-new aspect of future awareness, and to enable the reader to envisage the full arrangement of skills we have called Future-Time-Span. We have tried to define its characteristics, to clarify its sources, and to place it in the context of the broad body of literature to which it belongs. Having said that, the challenge which stands before us now is to develop tools and strategies with whose aid we will be able to train our future leaders in this skill. In this article we have proposed a theoretical model with whose help, we hope, we will be able to pave the way to the transmission of this skill. We are, at this very time, working on the development of strategies for learning, and measurement tools which will help us examine the model and determine if it is effective. We hope that we will be able, in the future, to report on the results of these efforts in the pages of this journal.

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