A Crisis of Perception

ALTERNATIVE MODELS FOR SOCIAL CHANGE

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Social Inequality and the Media IMA 780.27 • Professor Isabel Pinedo
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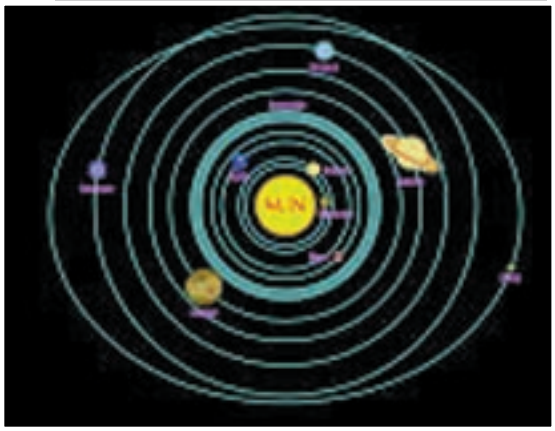
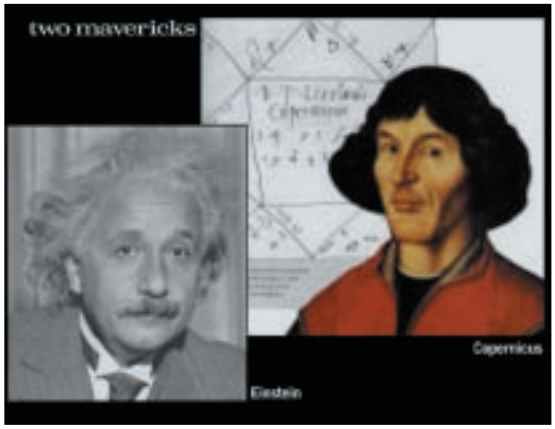
Above:
1. Electrons
2. Fritjov Capra
3. Historic woodcut of a 17th century science lab.

In 1982, Dr. Fritjof Capra, a Viennese physicist, wrote a book called "The Turning Point". It wasn't written for other physicists, but instead it was aimed at helping the rest of us understand some very important new developments in the world of quantum mechanics and how these developments might affect our daily lives:

> The new concepts in physics have brought about a profound change in our world view; from the mechanistic conception of Descartes and Newton to a holistic and ecological view, a view which I have found to be similar to the views of mystics of all ages and traditions.
>
> The new view of the physical universe was by no means easy for scientists at the beginning of the century to accept. The exploration of the atomic and subatomic world brought them in contact with a strange and unexpected reality that seemed to defy any coherent description. 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. Their problems were not merely intellectual but amounted to an intense emotional and, one could say, even existential crisis. It took them a long time to overcome this crisis, but in the end they were rewarded with deep insights into the nature of matter and its relation to the human mind.
>
> I have come to believe that today our society as a whole finds itself in a similar crisis. We can read about its numerous manifestations every day in the newspapers. We have high inflation and unemployment, we have an energy crisis, a crisis in health care, pollution and other environmental disasters, a rising wave of violence and crime, and so on. The basic thesis of this book is that these are all different facets of one and the same crisis, and that this crisis is essentially a crisis of perception. Like the crisis in physics in the 1920s, it derives from the fact that we are trying to apply the concepts of an outdated world view – the mechanistic world view of Cartesian-Newtonian science– to a reality that can no longer be understood in terms of these concepts. We live today in a globally interconnected world, in which biological, psychological, social, and environmental phenomena are all interdependent. To describe this world appropriately we need an ecological perspective which the Cartesian world view does not offer. What we need, then, is a new "paradigm" a new vision of reality; a fundamental change in our thoughts, perceptions, and values." (1)

what is a paradigm?





Dr. Capra talks about creating a new paradigm for society. But exactly what is a paradigm?

According to Dr. Thomas Kuhn, professor of philosophy and history of science at M.I.T., a paradigm is "...a constellation of concepts, values, perceptions and practices shared by a community which forms a particular vision of reality that is the basis of the way a community organizes itself." (2)

Dr. Kuhn argued in the "Structure of Scientific Revolutions" that your typical scientist was not a free thinker at all. He was mostly a conservative individual who accepted what he was taught and applied that knowledge to solving the problems that he was presented with, based on that knowledge. Scientists ALREADY accepted a paradigm, an arch typical solution to a problem, such as Ptolemy's theory that the Sun revolves around the earth and would work from there, incorrect as we now know that is. In that way, scientists are not much different from politicians, corporate VPs and medical doctors.

During periods of expansion and experimentation, scientists tend to resist research that might signal the development of a new paradigm, like the work of Copernicus who asserted that the earth traveled around the sun. Eventually, Professor Kuhn said, situations would arise that contradicted or were not accounted for in the accepted paradigm. Then, a revolutionary would appear, commonly a young scientist who was not indoctrinated in the accepted theories, like Einstein for instance. These maverick scientists would discover ways to see into the new models of reality, and the old paradigms would be swept away.

These revolutions, he said, came only after long periods of tradition-bound science. "Frameworks must be lived with and explored before they can be broken." (3)

While the education and work of physicists is highly specialized and often focused out of immediate practical application, I think that what they experience in encountering a new model of reality is very similar to the experience we would have in encountering one. Physics is the only discipline so far that has embraced the starling conclusions of a new model of reality through the discoveries of quantum mechanics.(4)

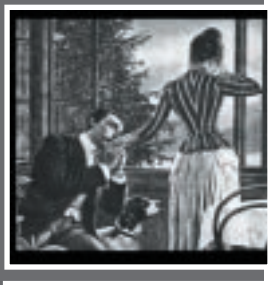
I believe that as media makers engaged in positive social change, we are conflicting with the power structures of an old paradigm, a way of thinking and a set of values that permeates everything we do, see and say. We are in a kind of war against an elite few in control of our media, as we seek to find ways and means to tell stories that are not in the interests of the media power-elite: stories that might uplift, encourage and inspire our fellow human beings out of victimization and powerlessness. If physicists are struggling with understanding models of reality, what can we learn and apply from their revelations to our own media activist work? How can looking at alternative modes of thinking and valuing our lives that might directly affect what we are creating?

how do we recognize a paradigm?

1. A Paradigm is a Mental Model

2. A Paradigm is a Way of Seeing

3. A Paradigm is a Filter for One's Perceptions



4. A Paradigm is a Frame of Reference

5. A Paradigm is a Framework of Thoughts or Beliefs Through Which One's World or Reality is Interpreted

6. A Paradigm is an Example Used to Define a Phenomenon

How do we recognize what a paradigm is in our own lives?

These six ways of conceptualizing a paradigm allow us to see how fundamental these processes are, in terms of the way we perceive our world and our society. They were created by the Computer Science and Engineering Department from the University of California at Riverside:

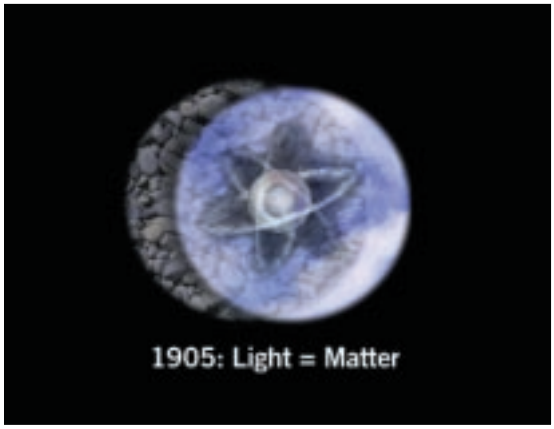
1. A Paradigm is a Mental Model
This is not just the pictures in our head, but also a related phenomenon referred to as "focusing", that is, the tendency for people to consider only what is represented in their models of a situation. Focusing, as we show, occurs in decision making: people focus on what they have represented in their models of the options.
2. A Paradigm is a Way of Seeing
"I see with my eyes." I do not see with my feet for instance. My feet are not a paradigm for seeing, in this case, my eyes are.
3. A Paradigm is a Filter for One's Perceptions
"I get beat up because I'm bad. My husband doesn't mean it."
4. A Paradigm is a Frame of Reference
"I am down here shooting up into space."
5. A Paradigm is a Framework of Thoughts or Beliefs Through Which One's World or Reality is Interpreted
"No matter what happens, Father Time will be there". "If I am a good person, I will go to heaven". or "I can't become a stockbroker because I am Mexican".
6. A Paradigm is an Example Used to Define a Phenomenon
Every shipwreck looks or acts like this. That's how we know it's a shipwreck.

Accepted paradigms of any society run deep beneath the activities of that society. Often, they are not even noticed, as they are seen to be fact and life is built around them. Simply put, social paradigms are "the way things are". Questioning them will often seem foolish at worst, whimsical and imaginative at best. I believe that these questions, however, can lead us in new directions and offer new solutions to problematic circumstances, if we recognize the ones we believe now to be more arbitrary than we were told they were.

How have we recognized or accepted paradigms through history? Here are a few simple examples:

1. The sun revolves around the earth!
In 1633, Galileo was sentenced to life imprisonment for proposing that the sun did not revolve around the earth. During his time, when the Catholic Church was fast becoming the world's first information controlling multi-national corporation, this kind of new idea, one that railed against the beliefs and doctrines of this corporate ruling class of the Church, could not be accepted. Since the earth did in fact make it's way around a sun at the center, of course, eventually, the truth won out. Church doctrine, the TimeWarner of it's time, had to be adjusted to make the new idea fit. Of course, what Galileo did was further prove his contemporary, the mathematician and astronomer Copernicus, to be correct. Copernicus didn't live in Italy. What the Church ruling class didn't want was the celebrated Galileo,

what have paradigms looked like before?



who held the chair of mathematics at the University of Padua, going against Bible tenets in their own country.

2. The earth is flat!
Christopher Columbus was not the first person to say or discover that the earth was round, but it was a commonly held belief amongst the uneducated masses in Europe for centuries that if one traveled far enough, you would fall off the edge of the planet. (Kind of like the "common knowledge" in our own time that Saddam Hussein is responsible for 9/11!) In the Western world, the Greeks had figured out that the earth was round long before Columbus set sail, but communication traveled slower in those days and the only ones who could read were nobleman and priests anyway.

3. Matter is solid and air is not.
Until the 16th Century in Europe, the scientific world view rested on two authorities: Aristotle and the Church. Aristotle said that everything in the world is made up of earth, water, air, fire and ether, that mysterious invisible stuff that was everywhere but couldn't be seen with the naked eye. Everything was solid and "stayed put" except ether. Since microscopes weren't invented until approximately 1590, there was no way to even see "inside" anything solid until that point in our history. So for the most part, Aristotelian scientific thought dominated European minds for 1800 years. That's a long time to accept something as indisputable fact! And until the microscope became really powerful during the 19th century, we couldn't have imagined that there was a world of activity inside a rock that we would come to call the quantum world of physics.

The electron was discovered in 1897 by Joseph Thomson and science proved once and for all that the solid is made up of a world of inner, invisible-to-the-eye movements; very tiny elements that can only be supposed but never "pinned down" concretely in space. By 1905, Einstein's Special Theory of Relativity suggests that light and matter are composed of the same energy. This means that during the twentieth century, we came to understand that matter and air are composed of the same elements, and that nothing in our universe is "solid" in the way we have always believed it is.

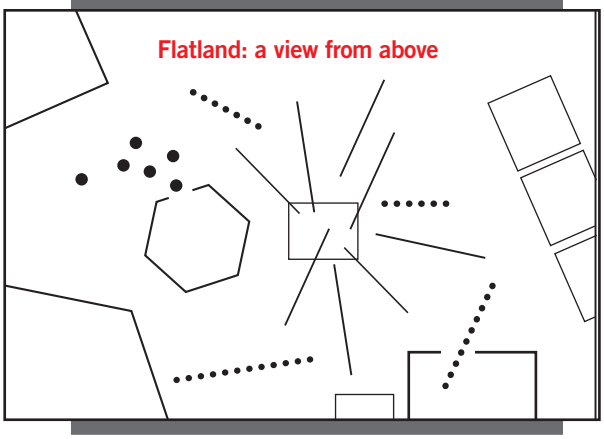
We have not yet come to grips with the "reality" of this newly found fact. Finding ways to interpret and incorporate this into our next world view may be a crucial step in our evolution and development, though.

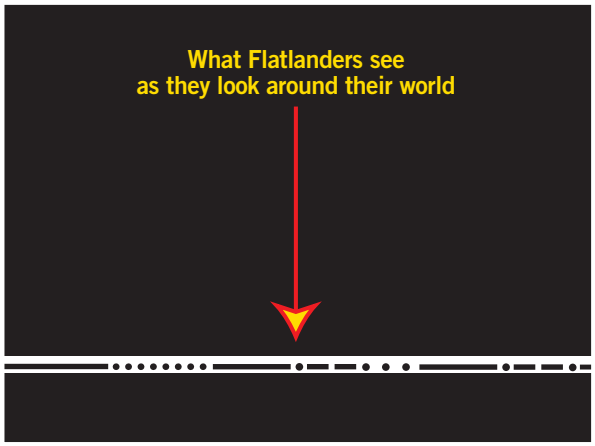
Other paradigms we have taken for granted at one time or another: The inherent inferiority of certain races; the notion that only birds can fly; the notion that women do not have the capacity to vote or the belief that mental illness or physical disease is caused by evil spirits inhabiting the body as punishment for sins. (See Paradigm Model 3). By now, these have been contradicted enough times to allow them to be swept away as working models, or facts that we build accepted social behavior on.

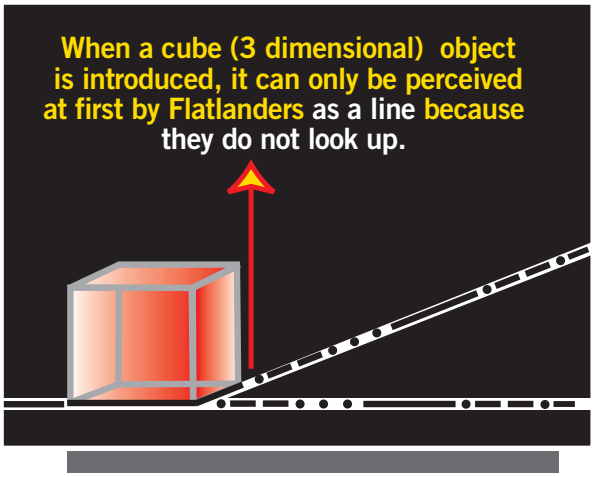
So how do we change or shift our models of existence to new ones? A good example of how to visualize a shift in reality comes from an

what would a new paradigm for our reality look like?

Edwin Abbott, author of “Flatland”







entertaining little book called "Flatland", written in 1884 by Edwin A. Abbott, a London School headmaster. In this make-believe world made up of lines and dots, perception is limited to two dimensions. Inhabitants, their homes and their surrounding environments are manifested as line, dotted line, or simply a dot. When a sphere enters this world, it is first perceived as a line, since none of the inhabitants of Flatland have ever looked up...it's just out of their model of reality – looking up is not part of their paradigm. The sphere lives in the space of the third dimension; it fills out an area that Flatlanders have never even imagined existed before. I think it's a good visual way to formulate what might happen when a new paradigm is introduced onto an existing one. "Flatland" has even been the inspiration for popular books on physics like "Hyperspace" by Michio Kaku, the preeminent American physicist working on string theory who teaches at City College, NY.

What would a new paradigm for our reality look like? Our present working paradigm is based on the Scientific Revolution of the 17th century when Descartes primarily brought those ideas to light through his philosophies and mathematics. It stresses the parts, not the whole, the machine, not the energy driving it.

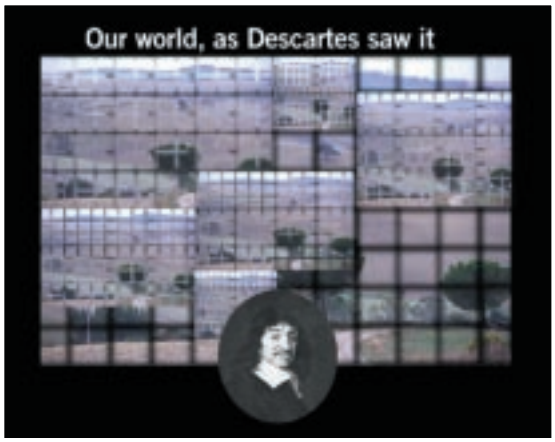
> "All science is certain, evident knowledge" he wrote. "We reject all knowledge which is merely probable and judge that only those things should be believed which are perfectly known and about which there can be no doubts." (6)

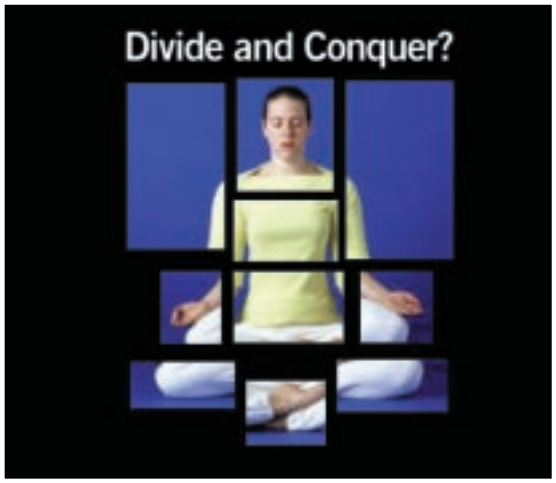
Three hundred years of Descartes has made an seemingly indelible imprint into our collective paradigms, Fritjof Capra writes:

> The belief in the certainty of scientific knowledge lies at the very basis of Cartesian philosophy and of the world view derived from it, and it was here, at the very outset, that Descartes went wrong. Twentieth-century physics has shown us very forcefully that there is no absolute truth in science, that all our concepts and theories are limited and approximate. The Cartesian belief in scientific truth is still widespread today and is reflected in the scientism that has become typical of our Western culture.
>
> Descartes' method is analytic. It consists in breaking up thoughts and problems into pieces and in arranging these in their logical order. This analytic method of reasoning is probably Descartes' greatest contribution to science. (7)

While the contribution of Descartes cannot be disputed as positive in many areas of our lives, it becomes horribly incomplete and fractional in our world today. Capra goes on to consider the modern legacy of Cartesian thought:

> It has taught us to be aware of ourselves as isolated egos existing "inside" our bodies; it has led us to set a higher value on mental than manual work; it has enabled huge industries to sell products – especially to women – that would make us owners of the "ideal body'; it has kept doctors from seriously considering the psychological dimensions of illness, and psychotherapists





from dealing with their patients' bodies. In the life sciences, the Cartesian division has led to endless confusion about the relation between mind and brain, and in physics it made it extremely difficult for the founders of quantum theory to interpret their observations of atomic phenomena. According to Heisenberg, who struggled with the problem for many years 'This partition has penetrated deeply into the human mind during the three centuries following Descartes and it will take a long time for it to be replaced by a really different attitude toward the problem of reality'." (8)

"To Descartes, the material universe is a machine and nothing but a machine. There was no purpose, life or spirituality in matter. Nature worked according to mechanical laws, and everything in the material world could be explained in terms of the arrangement and movement of its parts. This mechanical picture became the dominant paradigm of science in the period following Descartes. It guided all scientific observation and the formulation of all theories of natural phenomena until twentieth-century physics brought about a radical change. The whole elaboration of mechanistic science in the seventeenth, eighteenth and ninetieth centuries, including Newton's grand synthesis was but the development of the Cartesian idea.(8)

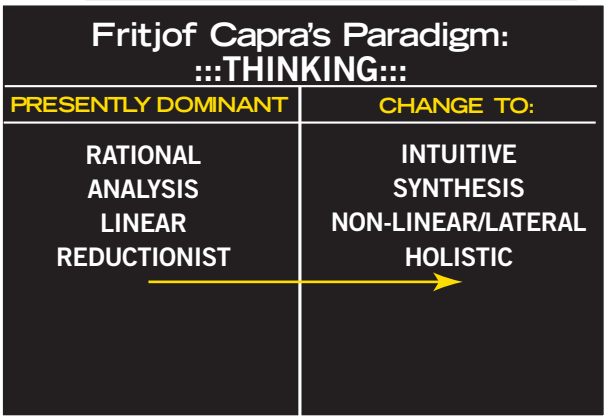
In his attempt to build a complete natural science, Descartes extended his mechanistic view of matter to living organisms. Plants and animals were considered simply machines; human beings were inhabited by a rational soul that was connected with the body through the pineal gland in the center of the brain. A far as the human body was concerned, it was indistinguishable from an animal-machine. (9)

Breaking reality into a lot of little pieces eventually led us to the new understandings of our modern science, but it has also assisted in moving us farther and farther away from our humanity, too.

"I do not recognize any difference between the machines made by craftsmen and the various bodies that nature alone composes". (10)

We may not like the idea of being reduced to a mere machine but Descartes ideas certainly weren't all bad. If not for him, we might still be diagnosing a virus by blaming the accidental ingestion of small elves during the new moon. While Descartes helped Western culture dismantle the absolute rule of Christianity over the scientific thought of the day, he couldn't recognize the limitations he would set into motion for centuries to come. His vision was incomplete precisely because we were growing "into it". And, today it seems that we have grown beyond it.

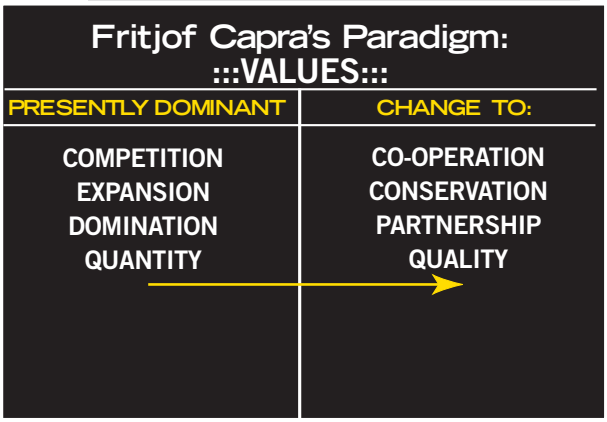
Capra outlines two new models of reality in "The Turning Point". These models relate to what and how we think and what we value.



In terms of the ways we are taught to think and the kind of thinking that is appreciated and rewarded, our present dominant world-views are:
Rational
Analytical
Linear
Reductionist

Instead of only focusing on rational thinking, Capra suggests we also include the intuitive type of comprehension as well. Instead of purely analyzing, he suggests that we learn to synthesize disparate information as well. Linear thinking (which also always brings us to the few at the top of the pyramid, once we follow the line) changes to lateral and non-linear points of view, encouraging us to allow for a broader perspective, one that may not have an immediate goal in sight. And reductionist beliefs and ideas no longer seem useful when we pay attention to the process and the pieces that we have eliminated in order to focus on the particulars.

Capra, at the edge of the new science during our own time, sounds like he's going back to an almost ancient paradigm, when human beings connected with their surroundings, used their intuitions more and didn't see themselves as a series of controllable "parts". But perhaps what Capra is really doing is coming full circle to a more durable model of reality. Descartes after all, pulled everything apart to see how it worked. Capra is encouraging us to put the pieces back together again, now that we know so much more about them! We don't need to denounce Descartes; we need to incorporate his ideas when they can apply to a broader notion of our world as it is unfolding now. Small understandings are integral to a larger view, and now that quantum mechanics offers us a new perspective, we must step back to see it.



In terms of our value systems, our present dominant paradigms are:
Competition
Expansion
Domination
Quantity

Instead of measuring everything through what we call "healthy" competition, Capra suggest co-operation instead. He maintains that conservation rather than irresponsible expansion needs to be considered (our familiarity with this comes mainly through the work of ecologists, but we can see it as a metaphor for the consumption of goods and services as well). Domination, a fundamental human model that has great psychological impact as well, needs to be weakened by partnership, in Capra's view. We have already seen the danger of an unquestioned domination of government, religion and even science. Finally, instead of "how many"...the idea of quantity would be less important in this new paradigm, and quality would supplant amount.

The media monopolies of our time represent all the old dominant world-views that Capra identifies. They are able to successfully propagate the old values of competition, expansion, domination and

How does all this new paradigm stuff affect us as media makers?

quantity. Through the machine of marketing, the consumer has been reduced to working part, a necessarily silent cog of the mechanism that puts huge amounts of money into the hands of a few at the top. These monopolies function through the a high regard for the rational, analyzing market data (which by the way, are also made up of the immeasurable whims of human beings!) into the "bottom line" of product development and stock market prices.

Their thinking moves in a linear fashion; quarterly reports move companies "into the future" or provide what they might consider premature endings to jobs and resources. And their reductionist thinking maintains that humans are the most valuable when they are the end-users of a product, service or idea. Human needs are primarily considered only insofar as they participate in sales or in the media that creates revenue or specific behaviors, measured by ticket sales or cash register receipts. This takes Descartes beyond his wildest dreams, and possibly not where he had imagined his ideas would travel. His model of the universe as machine has been formulated into a modern market-driven media economy.

Herbert Schiller wrote in "Information Inequality"

> Most jobs in the cultural industries today are with corporations that preside over vast chunks of the production and distribution of cultural outputs. Though there are tens of thousands of independent or freelance writers, filmmakers, video producers, photographers, musicians, dancers, and actors, the bulk of the cultural work provided to the American public is organized and controlled by a handful of giant businesses. (11)

We've already figured out that if a handful of businesses control what we have come to call "culture", and the behaviors of our society in general, then creative participation in making culture and society will be limited to the needs and perspectives of those who stand to benefit the most...the businesses in control. The corporate machine we live in propagates the notions of domination, competition, expansion without responsibility and always seems to honor measurement over quality. Have we adopted those values, those models in our own lives? Would we be able to see the ways in which we have adapted these assumptions, even if as we maintain our position as anti-corporate media advocates? How does the dominating paradigm manifest specifically in our own personal lives? How do we, unknowingly perhaps, apply this kind old paradigm thinking in our everyday life and how does it limit us?

Our social, economic and energy problems may be traced back to the continuation of these fundamental models of thought and value over these 300 years, but they are no longer useful to us as members of the new global village. The handful of giant media businesses formulates a Cartesian model of reality which our scientists already know is inaccurate, based on their broader view of the universe. As media makers, using "Flatland" as an example, how can we represent the cube in a world of lines and dots?

application of new models

The Hunter College IMA graduate program is actually an example of new paradigm thinking. In the IMA/MFA program, we are asked to synthesize a variety of communication tools, rather than focus on parts and specific functions of media alone. But non-linear and intuitive thinking is new to us all...this kind of approach to problem-solving is like uncharted territory and we might not be so sure how to travel within it at this point. As we venture into disciplines that are out of our expertise and familiarity, finding ways to communicate new messages of co-operation, conservation, partnership and quality, we will need to stop thinking in terms of the linear more and more.

While Capra's new paradigm model was not meant to be applied to media making, I can't help but imagine that it might help us consider concepts that will eventually offer us an entirely new perspective – a new model for how we work and what work we will actually make when we get there. It's not a map, so boundaries are still up for grabs. We haven't reached any destinations yet, so we can't send back traveling directions or predict bad weather. Our guides are still experimenting too, so there are sure to be lots of mistakes in the process of this paradigm shift. Here are some ways we can reflect on application of these new models:

Linear thinking – point A to point B and all that – should be considered useful but no longer definitive as we move forward. We need to remind each other that when the examination of how 9/11 happened, a lack of imagination on the part of our government was at least a factor in explanation. Linear thinking is not imaginative thinking. "The powers that be" are not all that imaginative. This is a powerful thing for us to remember.

A synthesis of ideas does not refute analysis, it builds on it. It uses imagination to create new concepts...it's more courageous than analysis, though, since end-results of synthesis thinking may not be recognizable to anyone else upon first glance (or maybe second and third as well!) Unlike purely pulling apart the pieces – the function of analysis– putting them together again in a synthesis requires a kind of fearlessness, since there is no "recipe" to follow. Remembering to be brave in the face of possible ridicule is another tool we might bring into new paradigm-making.

Holistic views seem cumbersome and difficult to manage at first glance, (I believe we keep thinking that a broader, inclusive way of thinking is too sloppy or just plain unmanageable) but we have actually seen reductionist views to be far more dangerous to us in the long run. Biologists have benefited enormously from reductionist points of view, but the realization that the drug you take specifically for liver disease may cause heart disease and a list of other new diseases you didn't have before you started, is the result of this kind of reductionist thinking; taking the body apart piece by piece.

Separating organisms and ecosystems out, one from the other – even though they are interdependent – has caused the environmen

how do we personally experience our own resources?

the macro influences the micro and vice versa

tal crisis we are facing today. We need to see all kinds of systems (social, political, cultural, as well as ecological) in their overview. We must start seeing these social systems as interdependent as well and find the areas where they might overlap and share common needs. Ideally, we would be willing to see more than the little "part" that affects us in the immediate present, right now. I believe that the great "comforts" we have grown used to in our modern lives – instant gratification and speedy end-result – have created deeper separations in society and even within our own minds and hearts. We must allow ourselves to slow down and connect the dots of the problem first before we try to react to it.

While the benefits of expansion have been the driving force of capitalism, corporations have gotten huge without being responsible to their own employees. Millions of people are "left out" of this sort of growth. We have somehow come to accept that "bigger is better" but expanding without ever having to answer to communities of the newly unemployed creates enormous difficulties for the working class – the biggest percentage of all populations.

Conserving instead of [irresponsibly] expanding has been the battle cry of ecologists for a long time. But conserving can be seen to represent many other things to us besides recycling a tin can. In a market-driven consumer culture, the idea of conserving seems ridiculous; we are constantly goaded into thinking we must replace, renew or just experience something "different".

But conserving is not synonymous with stagnation. It just means that growth is slower and more manageable as we get to look more clearly at where we're coming from before we jump off the cliff. Thinking of conserving instead of expanding or consuming will be a difficult new paradigm to achieve in our society as it stands now. We might consider using our imaginations to find a better response to conserving in our own lives. How we personally use our own energy and resources each day so that we don't waste them, for instance? Capra's main tenet in "The Turning Point" is how the macro influences the micro and vice versa. That's a very interesting revelation of the new physics.

As a society, we are not quite convinced that changing the way we think about things has any significance in terms of making our lives and the lives of others better. This is almost humorous, since the way we think and what we believe creates how we react and choose to live in our world. But in our consumer-driven, media-market American culture, we have been brought farther and farther from even wanting to consider or reflect on what we "think" about!

The paradigms that rule our lives are not easy to see. They are the "why" of what we do and if we are brave enough to probe deeply into them, with the help of a few quantum physicists, we might come up with new ways of being in the world, new answers to apparently frustrating questions and make media that could make a

real difference. Perhaps it is the quality of our work, and not the numbers we seem to reach that will create an unalterable change in the world around us. That is, if we stop seeing the world as we have been told it is for three hundred years, and start using our imaginations towards what we would like it to be. •

1. *The Turning Point* by Fritjof Capra, page 15
2. *The Structure of Scientific Revolutions* by Thomas Kuhn
3. Ibid
4. Robert La Sardo
5. *The Turning Point* by Fritjof Capra, page 59
6. Ibid, p. 57
7. Ibid p. 59
8. Ibid p. 60
9. Ibid p. 61
10. Rodis-Lewis, Genevieve. 1978. "Limitations of the Mechanical Model in the Cartesian Conception of the Organism." In Hooker, Michael, ed. "Descartes. Baltimore: Johns Hopkins University Press
11. *Information Inequality* by Schiller, Herbert, p. 7
email@clareultimo.com