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## ROME 2017

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*2<sup>nd</sup> International  
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**Effective Learning in  
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Rome, Italy | November 16-18, 2017

# Revisiting our Evolutionary Path: The Search for Holistic Education in a Fragmented World

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## Abstract

*When the World Academy of Art & Science (WAAS) was founded, it sought to address the gap between science and society, or rather the apparent unwillingness or inability of scientists to address their responsibilities as important members of society. This problem is related to the growing disparity between tool making and symbol making, those ancient skills that brought humans to the highest stage in the evolutionary process (at least until now?). Symbols—language, mathematics, graphics and other pictorial and linguistic representations, as well as clothing, hairstyles, etc.—when used to establish social rank, may serve to give legitimacy to the current social order or may serve to criticize and change it. Reincorporating science into society would require that scientists, as well as every member of society, recognize this. This would require an educational system that would give equal emphasis to tool making and symbol making, and this would help students to understand how society is a product of both of these processes.*

*[Professor X] was a mathematician who liked to think of himself as a philosopher, though this was professionally dangerous to admit.*

— James Gleick, *Chaos: Making a New Science*, p. 65

## 1. Introduction

James Gleick's comment shows just how far we have come from the Ancient Greek view of knowledge and education, from a culture in which philosophy was the beginning and end point of all learning, in which art and science were instruments in the quest to understand the meaning of life. We now must believe that science is the master of all knowledge and that philosophy and art are interesting hobbies for those so inclined, but not to be taken seriously as a real source of knowledge.

This is not to denigrate in any sense the enormous increase in knowledge, especially of the material world, provided by science over the years, especially since the Renaissance, but many observers of our current global culture are questioning whether there might have been a critical sacrifice of our spiritual being along the way to this material progress. Artists, especially writers and philosophers, have been asking this question for many years now, (Mishra 2017) but it was the eruption of protest in the sixties that illustrated how far into society this dilemma had reached. In 1968 alone, protests by young people extended from Beijing to Prague to Paris and Chicago, demonstrating that the political economic divisions between capitalism and communism were not the main issue. And these protests were not violent; they were not terrorist attacks on the system, though they brought forth substantial repression from the established centers of power in these varied social systems. Indeed, these were emotional and spiritual protests against the alienating impact of non-democratic control over the lives of everyday people provided by the extension of deterministic science and technology deep into our global culture. For example, as John Taylor Gatto (1990) had declared,

*Schools [in the USA] were designed by Horace Mann and Barnard Sears and Harper of the University of Chicago and Thorndyke of Columbia Teachers College and some other men to be instruments of scientific management of a mass population. Schools are intended to produce through the application of formulae, formulaic human beings whose behavior can be predicted and controlled,*

and

*Lives can be controlled by machine education but they will always fight back with weapons of social pathology—drugs, violence, self-destruction, indifference. . . [etc.]*

We may view science and technology as extensions of our tool-making capacity, something which archeologists and evolutionary biologists have given great importance to. But human beings are also symbol-making animals (Burke 1961, 1968a, 1968b, 1969a, 1969b), something, which, among other things, has also made the continued development of our tool-making capacity possible. Symbol making and using are much more than a means for facilitating the extension of technology, however. They are also very important in maintaining the social order, necessary for our survival. This is an aspect of education that has been neglected in our rush to improve our 'tools'.

## 2. Culture as Education

Education begins at birth. Its first stages are an introduction into one's culture. Culture is the ancient survival response of human beings to the physical and social environment in which we find ourselves. But it is not just a linear reaction because we ourselves have always participated in creating even our physical environment, as it appears to other species (Lewontin & Levins 2007). Culture is an attempt to formulate moral rules of behavior and the social roles to carry them out. This enables cooperation among individuals, which we Homo sapiens have long discovered is the means of survival in the Darwinian world in which we find ourselves. We have

done this as a result of our reasoning and our ever more sophisticated means of communication, something which has allowed us to switch our evolution in the food chain from prey to predator (Sussman 2008, Sahlins 2008).

Therefore, in order to explain human behavior it is necessary to understand the relationship between what we are thinking and what we are doing. This is something that anthropologists have always known, of course, since they have often been working in cultures different from their own where the taken-for-granted rules and roles were different from their own. The creation of culture is an ongoing process, not only for the individuals who are born into a culture but also for all of its members young and old. This is because of the fact that the social and physical environments are constantly changing. They are changing in large part owing to the changes in knowledge that a culture's members themselves create because of their human capacity to reason and communicate.

Science is a product of this dialectical process. It is the latest stage in the evolution of knowledge. Science has its own evolutionary trajectory, as Thomas Kuhn described in his classic study *The Structure of Scientific Revolutions*. This book was unsettling to many scientists as it upset their conventional view of science as an incremental, linear process of accumulated and verified knowledge. It was something of a cultural shock because it suggested that human beings not only discover but also create scientific knowledge, which is then subject to human misunderstandings and revision, making it not unlike other human endeavors to understand and act in the world. An astrophysicist friend suggested that scientists do indeed solve puzzles of nature, but in so doing they discover many more things that they do not know and in the process constantly expand the overall size of the puzzle.

This has had the result of shaking somewhat the almost religious-like belief in the certainty of scientific knowledge about nature. This may not be all bad because the effort to apply this belief with certainty to human society has had even more unsettling effects. In other words, science plays a social, symbolic role in culture. Science has been very successful in controlling nature and providing economic benefits to its users. As a result, it has gradually sought to assert itself as the only true source of knowledge about social reality similar to its role in understanding nature, ignoring the role played by alternative forms of human consciousness in organizing human behavior. Or rather one might say that society has allowed science to monopolize human consciousness so that the role of culture in organizing human cooperation would be defined only in scientific and engineering terms, ignoring art and philosophy as possible important contributors to this process.

Not that science has not and does not contribute to our knowledge about the human social order. It is simply that scientific knowledge about society is not an end in itself, as many scientists might appear to believe. It forms part of the moral and philosophical system that judges how to use this knowledge, i.e., that judges whether any existing social order should be maintained at any expense, a position usually held by the more privileged strata in any society, or should lead to changes, often the position held by the less privileged members in a society. Scientists and engineers proclaim themselves to be value-free. Yet they also have moral obligations. They are, especially as scientists, also members of society, and are not divorced from and/or above it. Most importantly, they must evaluate how and where their scientific knowledge is to be dispensed, especially the form in which this information is to be presented. This, of course, has nothing to do with the separate issue of their value-free stance in creating this knowledge. In the process of reflecting on the uses of the knowledge they create, they could learn to recognize both its symbolic and instrumental uses.

At the same time, positivist *social* scientists see no significant difference between society and nature and believe that the same epistemological and ontological assumptions can be applied to both. Thus, they use a sophisticated set of abstractions to communicate their theories and research findings. They do this in order to maintain their particular position in the social and/or professional 'food chain'. These sophisticated abstractions would, however, be quite inappropriate if these scientists were to believe that everyone should be informed about any current injustices and/or tipping points in the social system that could be corrected through structural changes. Such a belief would require a much simpler form of communication, not unlike one used by advertisers, for example. In other words, *there is a huge information gap between the highly specialized social and natural scientists and everyday citizens, which obstructs the exercise of democracy in the modern world*. Somehow a revised educational system must confront this issue, if culture is to evolve and keep up with our advanced tool-making capacity.

Scientists, in other words, especially social scientists, are key players in *constructing* social reality, given that they have an enhanced understanding of how society is formed and reformed through feedback about the consequences, intended and unintended, of everyone's actions in that society. How and to whom they communicate this understanding is not a value-free decision, or somebody else's problem, which is a common response by scientists and engineers in today's fragmented and highly specialized social world. It is everybody's problem, especially as it is now revealed in the newly perceived holistic world presented by systems theory, structuralism, complexity studies, quantum theory, chaos theory, etc., where everything is seen to be connected to everything else. This is an insight that appears to be generally more acceptable to women than to men, if current research on the brain is to be believed (Gutenschwager 2017).

A rising educational level, especially among women, may explain in large part the reasons behind the Cultural Revolution that began in earnest in the 1960s (Roszak 1995 [1969]). Many commentators on Roszak's book believe that this youthful revolution failed, perhaps because it was too idealistic. But cultural revolutions take a long time and their evolution into an organized and significant movement of people to change the world may take decades or even centuries. At present there is a substantial number of people who are 'revolting' by withdrawing, at least spiritually and morally, from modern society (Ray and Anderson 2000). These people, labeled by Ray & Anderson as 'Cultural Creatives', now (2008) amount to 70 million adults or a third of the adult population in the United States, with a likely similar number in Europe (Inglehart 1997). They were discovered quite by accident during many years of survey research and in-depth interviewing in the 1980s and 1990s, not only by Ray and Anderson but also by many other

researchers mentioned in their book. Many of the Cultural Creatives do also participate in active demonstrations against corporate efforts to dominate and rule the entire world through trade agreements, financial manipulations and the like. All of this gives witness to the continuing importance of the Cultural Revolution in today's society.

At the same time there is a growing awareness that the *uses* of science and technology are as important, if not more important, as the actual discoveries of science itself. Many scientists are not prepared to consider themselves to be a part of this process, believing it to be 'somebody else's problem': the political scientist's, the sociologist's or that of whomever, but not theirs. They confuse the effort to escape bias in their search for knowledge with the actual role played by that knowledge in society. Culture is the creation of rules and roles, something of concern to all members of society reached by those rules and roles. As the reach of science and technology has become more and more global, the process of creating modern culture now includes everyone on the planet.

It might help to consider two different ways that science may be understood in its application to society: as a deterministic endeavor or as a heuristic endeavor. The deterministic scientist believes that science allows us to discover the universal laws of nature, laws that control both living (including human) and non-living nature. In other words, for them, human behavior is not controlled by ever-changing human thought and intention, but by laws that are discovered by science and which therefore give to the scientist the privileged status of apparently knowing in advance what humans are going to do in the future, usually within some kind of evolutionary theoretical framework. The deterministic scientists are understandably indifferent to the social and moral implications of their findings; they bring certainty to an uncertain world. Since they attach no moral judgments to their scientific findings about society, they also enjoy all the social and material support of the ruling classes and thus, at the same time, fulfill their need for power, even if only vicariously (McClelland 1975). They are well within the ideological framework of modern society, a framework characterized by modern economics as some form of 'survival of the fittest', claiming, more or less, this as the proper scientific framework for understanding human society.

Heuristic scientists, on the other hand, believe that they are part of a collective philosophical effort not only to understand society but also to fulfill their moral obligations to make it a just and happy society as well. The word 'heuristic' derives from the Greek word "εὐρίσκω", which means 'to find', and is also found in the English word "eureka". In the case of social science, heuristics can help society to reinforce philosophical ideas, such as those of Epicurus about the essence of happiness (Ypijakis 2013), or to understand better the meaning of Lord Acton's 1887 philosophical insight that "Power tends to corrupt, and absolute power corrupts absolutely" (Useem 2017, Owen and Davidson 2009). Science can also be used to discover often unanticipated consequences of intentional actions, using methodologies ranging from statistical analyses to mathematical model building. These findings do not suggest a deterministic social process but rather disclose important information that can be fed into a philosophical discussion and any consequent social and political decision-making process that seeks to avoid possible undesirable consequences. All of this is complicated by the unequal distribution of wealth and power, which may result in the withholding and/or distortion of scientific findings so that the democratic process is compromised. Thus all scientists play a crucial role in society with the power to expose important information to the public, but are sometimes at the risk of losing their financial and institutional support. Using a deterministic and/or value-free mask allows scientists to avoid this moral dilemma, though it does not disappear as a result, of course.

Unfortunately, we now have very few institutions for democratic participation at the global scale. In fact, every technological advance requires a period of years, if not decades or centuries, in order for culture to be reorganized to accommodate those advances. This was true of the technological innovations that allowed the domestication of plants and animals which produced the surplus of food necessary for urbanization to occur. It required hundreds of years before the Ancient Greeks were able to establish institutions for managing society at a new scale. Their cultural innovations are still part of our ideological tool kit today, even if they have become increasingly ineffective, as technology has increased the scale and complexity of society over the past several hundred years.

This can also be seen in Hugo Boyko's statement during the founding moments of the World Academy of Art and Science:

*[Technology] is an example of how the tempestuous technical development tends to throw mankind off its psychological equilibrium and possibly to destroy it physically (Boyko 1961).*

In other words, the dialectic between consciousness and behavior that produces a culture is neither a mechanistic nor even a very efficient process. One reason for this is that those who benefit either materially or psychologically from a possibly outdated view of reality will use their executive powers to bias communication and forestall an awareness that would keep up with changes in the 'real' (material) world. It's also true that average people do not change their belief systems very easily, something that is true of scientists as well, as Kuhn demonstrated in his book. Such change often requires a profound effort, as belief systems are as much emotional as they are rational.

### 3. The Role of Science in Society

The actual role of social, and sometimes natural, science is not only to understand, but also to construct society. This can best be seen in the social science of economics. In order to present itself as a science, economics has had to make a series of normative assumptions that it never examines empirically, but takes for granted, as if everyone in the world already believed them to be true. The most glaring of these is the assumption that everyone pursuing his own selfish interests will produce the best common good. This may be proven mathematically but unfortunately not empirically, unless the empirical facts are so carefully chosen and/or doctored as to make it appear to be true. So much has been written about these and other shortcomings of economics as a social science that



it is hard to believe that it is still believed to be a creditable approach to understanding, let alone constructing human society, except somehow in a heuristic manner (Schumacher 2010 [1973], Harvey 2005, Magnuson 2007, Keen 2011, Quiggin 2010, Perelman 2011, Smith & Max-Neef 2011). Among other things, economists substitute the market for true democracy, perhaps because true democracy is so rarely seen, but also because democracy is a much more difficult and complex social phenomenon to study.

There are no human beings in economic theory except the caricature, the ‘economic man’. Thus, there is no consciousness and there are no intentions outside of this normative formulation; there are only mechanistic causal relationships. Thus there is no way to judge anything in an economized society outside of monetary values; there are no moral values. Economics sees itself as a natural science trying to understand society, but without trying to understand human beings and how they actually construct society. Ordinary people do this with values that do, of course, include money, but actually also much more. Economics enters this process of helping to create culture with only its ‘Homo economicus’ vision of the human being. This vision it seeks to *impose* on society by persuading through symbolic techniques that this is the only proper way to view oneself and others in the Social Darwinian world we inhabit. It is a heartless, predatory world that economists have helped to construct, creating profound alienation that the Cultural Revolution is seeking to correct.

Economics, based on Newtonian physics, can be useful in pointing out the sometimes-unintended consequences of our intentional actions, especially those influenced by the normative presuppositions of economic theory. But this is not sufficient for providing moral guidelines, inadvertently perhaps, for human society, or for any other living system, for that matter. Increased wages, for example, do not result in speculation, but inequitable distribution of wealth does. Profits from speculation may be a necessary evil, not an indication of a healthy, productive economy. Economics, as we claim, is not an empirical science but rather an ideology that is active in constructing society by persuading people to act in specific ways, but without including any other moral values except greed and envy. Policy recommendations in this framework are not based on empirical science but rather on this ideology.

So why is economics so important in today’s society, including in academia? It is supported because it plays an important *symbolic* role in legitimizing and justifying the position of the ruling class, a class that uses both technology and symbolic means to maintain its controlling position in the social hierarchy (Ryan 2017). Even other natural scientists are powerless to confront this symbolism, both because their education, absent philosophy, has ill prepared them to understand this problem, and because their very livelihood depends on not challenging this social hierarchy. This is true even though one may realize that the natural world itself is being destroyed as a result of the shortsighted understandings prevalent in the idea of the ‘market’ (Commoner 1966, 1972, 1990).

This is not to argue that economics should be eliminated as a holistic social science, simply, it should not govern and dominate the system of moral values on which the social system is constructed. It should constitute a heuristic science, offering insights on the likely consequences of various courses of action taken by social actors who might or might not subscribe to the current ideal of individual rationality and egocentrism.

One more recent holistic scientific effort to understand society is through the use of chaos theory. Chaos theory refers to non-linear dynamic systems, not unlike those referred to in earlier uses of systems theory. It has been very useful in explaining events in nature that do not lend themselves to explanation within the traditional Newtonian framework of reductionist, linear, and reversible mechanisms (Gleick 1987). Here a whole range of events in nature, such as sudden moves from order to disorder or its opposite, can be understood as a product of thresholds that move a system to a new state, otherwise unforeseeable in a simpler linear framework.

On the positive side, chaos theory, systems theory and complexity theory are very useful in shifting attention to a more holistic framework. They must also, however, like other efforts to apply natural science theory to society, arrive sooner or later at the same point at which economics has now become stalled, thus revealing their *social and symbolic* nature. In other words, they may be seen symbolically as ideology in the deterministic sense of the word. And this has to do with the role of consciousness in constructing the social world. Thus, any social finding established through the use of natural science methodologies will enter the consciousness of the members of society making it possible for them to change the initial conditions of the system, i.e., their thoughts and intentions, such that the outcome will be different from the prediction in any model, mathematical or otherwise. The Cultural Revolution we are (perhaps dimly) perceiving as going on in the world today is nothing more than an effort to change the initial conditions of the social world we inhabit.

#### 4. Education for a Democratic Society

Therefore, if we wish to change the initial conditions of the world system of thought, i.e., the moral and intellectual values governing education, we should hopefully see a change in the systemic outcomes. That is, if we believe in the idea of democracy, then we must educate our children to understand how the social world is constructed. Alongside the current emphasis on tool making, we must better reinforce our understanding of symbol making, and the manner in which these symbols are used to condition our thought and thus create the social world we all inhabit.

Ruling classes throughout the ages have always sought to exercise control over the symbol systems used to create society. Alexander, the Great, sought to do this, for example, when he wrote to Aristotle begging him not to make public the philosophical understandings he had about society. Aristotle’s response was not unrelated to the symbolic use of mathematizing in current economic discourse. He replied to Alexander that the people did not understand what he was saying in any case, so there was no need to worry. Immanuel Kant apparently said the same thing to the King of Prussia regarding his own philosophical insights (Theodorides 1981, p. 113).

Education is the means currently used for embedding the ruling ideology of our historical period (Ryan 2017). This is accomplished in the schools and via the mass media. Meanwhile, because of the proclaimed value of democracy, it is now seen as necessary to educate everyone in society so that they might all participate in political decision-making. Thus, education through high school is free in most of the industrialized countries in the world, and at the university level in many, though not all. However, this education is directed to a large extent to tool making, that is, to technology and to the skills and knowledge necessary to participate in the technological society. Very little emphasis is given to the character and use of symbols in creating society. Literature, theater and art are only of secondary importance in this educational system, and students emphasizing these skills know that they are destined to second-class citizenship in later life. Not that even tool-making skills are at this moment a total guarantee of employment in the turbulent world of our currently decaying economic system. Still, hopes must be placed somewhere, and science and engineering still seem to offer the greatest employment opportunities.

What would an educational system more geared to democracy look like? Needless to say it would give equal emphasis to both tool making and symbol using skills. Anthropology and psychology would play a key role in such a system. Students would learn how societies are created and maintained through the use of symbols of all kinds: through language, art, theater and literature, clothing and hair styles, body language, the uses of education, etc. They would be taught to see the relationships between thought and behavior, between how we are taught to perceive the world and how we learn to behave in such a world. They would learn how these meanings are taught from the very first moment of life by our parents and/or their surrogates, and how these constitute our culture, with often significant differences in these basic moral and emotional meanings found throughout the world. They would learn that these meanings are couched in terms of good and evil and accompanied by deep emotional feelings, and with greater or lesser tolerance to other cultural systems, depending upon how they are taught. They would also learn that science and engineering do not replace this relativity, but become a part of it with all the symbolic means at their disposal. Their success is not just symbolic, however, as they seek to replace everything human with robots, thus making all this discussion redundant. But, then, that is what the Cultural Revolution is all about!

Students would also be taught to appreciate the importance of history as a means for understanding how thoughts, beliefs and their associated behaviors have sometimes misled people in the past, resulting in the breakdown of cultures and whole social systems. This is not a deterministic process and each experience illustrates a somewhat unique situation. What is important is the recognition that symbol systems play a crucial role in convincing people to act in certain ways, often long past the time when those behaviors are appropriate to maintain the system. Here the study of art, literature and theater can be useful in illustrating how this dialectic actually works, showing how symbols have played a critical role in supporting and/or criticizing the system existing at the time. Thus, in addition to the present emphasis on tool-making skills, reformed education would help to illustrate how this emphasis has conditioned modern social reality and has left little room for society to adjust, in order to regain a semblance of humanity.

As not all symbols are bound by the highly specialized nature of tool-making knowledge, they would allow a more holistic perception of social reality, where, as seen in the quantum and chaos worldview, everything is connected to everything else. This may also be more compatible with the female brain, as mentioned above, which is why symbolic reality is more likely to be feminine based. In other words, symbols are closely connected to the social hierarchy and to judgments about its appropriateness at any given time in history. This appropriateness has to do with the moral values of the time, as well as with the apparently timeless ability of different social systems to somehow survive within their natural constraints. Humans, in other words, are seen here as partners of nature, rather than their lord and master, which is a too common misperception that the successes of science and technology in controlling and exploiting nature have sometimes fostered.

## 5. Conclusion

We live in a fragmented world, held together by the forces of the 'market' and the demands of technology, neither of which offers much emotional or moral solace. Hence the widespread indications of social pathology: drug abuse, suicide, divorce, child abuse, pornography, etc. There is no philosophical framework to speak of, to address these problems and to bring some unity to society. Education could fill this gap, but it would require a major shift from an emphasis on tool making in the current western model to a more holistic one that would give equal emphasis to symbol making and using. Here we are talking about art and literature, about theater and the proper use of aestheticism, about a closer contact with nature, and ultimately about the reintroduction of philosophy into both academia and everyday life. Here we would stop dividing the world into them and us, and allow everyone to express their thoughts about the meaning of life in a true democratic manner. This was the spirit of life within the ancient agora, which should now be extended to all members of society and not just propertied men. This would require a major effort to educate all human beings about the complexities of modern society. It would also mean using symbols to accomplish this goal rather than using them to establish one's place in the academic 'food chain', as dictated by the spirit of the 'market' so common in academia today.

The development of technology has extended way beyond the ability of society to adjust its institutions to maintain some semblance of democracy, the ideal that is still part of the vocabulary of modern and even postmodern human beings in today's fragmented world. The disillusionment of today's electorate with the often-distorted processes of representative democracy has already given rise to major social unrest. The restricted involvement of scientists in confronting this problem and their belief that it is somebody else's problem may also have deleterious effects on science itself, as the recent marches for science illustrate. In other words, today's social problems are everybody's problems; our fragmented perception of life must become more holistic if our children and grandchildren are to enjoy a stable and productive future.

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