

## Science Education and Mind Reformation; The Necessity of Science Education In a General Education Form And Its Implementation Purposes

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### I . Forword

Since the mid-19<sup>th</sup> century, the period when the world-wide movement has carried out to make science education available to the general populace, human beings began to accumulate vast and bountiful experiences in the various materials and methods employed in science education; such as, information dissemination, teaching theories, subject matter and text, experimental simulation, and the stimulation of high-achieving students. Generally speaking, to date, science education has developed to a certain level, such that it forms the fundamental theories of a discipline.

At the same time, the stimulation activation of coming from internal and external factors also resulted in giant breakthroughs to be made in natural science. Due to the unique nature of the methods in science studies, this field gradually evolved into the only field with marked success, during the past two to three hundred years. The expanse of its influence included the intergration of almost all academic subjects into the scope of science. Hence, in social studies, the method began to put emphasis on the quantitative approach. In addition to creating the title social of science, under the name of humanistic science, people would also often attempt to use scientific epistemology and methods to explain all the events and objects encountered in humanistic world. To some extent, religious and moral questions were also intergrated into the realms of science. This is inconsistent with the statement once made by Marie Curie, "Science focuses on

matter, it is not to treat with human problems." (Chao, 1994). On the basis of this trend, it may be noted that the role that science played is not only limited to the positive and negative effects it has on the material part of human life, but it also deeply and widely plays positive and negative influences on the human spiritual life.

During the middle part of the century, the negative influences experienced by human beings are directly manifested by the disaster that resulted from science and the technology that was born from it. Among which are the mutual disdain and contradiction that science and non-science communities had for each other, the energy crisis, pollution of the ecosystem, population explosion, the erosion of soil strata, spreading of the AIDS disease, the "Challenger" catastrophe, Tchernobyl nuclear disaster, and may more. Furthermore, the unilateral explanation provided by scientific positivism had rapidly put to an end the normative ethical effects of metaphysical requisite amoral characteristics, on human characteristics. In the way of thinking of the contemporary person, it is not a wonder that with such a blind extension of the parameters of moral neutralism, there are people who dare to openly come forward and, referring to some names in authority, challenge the traditional moral code observed to this day.

This kind of perverted mentality is enough to find excuses for those who has no contented virtue. Psychologically speaking, human nature is not enough to withstand the distortion and enouragement of moral neutrality, hence, it evoloves into a vicious cycle of mutual expression and mutual stimulation. As a result, we see the degeneration of morality as well as the wanting of traditional morals. In the aspect of individual behavior, we see the self-expression, boastful packaging and the development of a competitive or aggressive nature, as well as the development of a distorted sense of dignity and moral values. In the aspect of general group behavior, we may see that people would settle themselves in different of groups, according to their locations, ways of life, economic sources of income, religions and thoughts. They would form a unity and understanding within themselves, and in a smaller scale, form into a party or organization, in a larger scale, form into a state or country, which would then take opposing stands and compete with each other. In a matter of habit, these groups would act on a vague amoral value and, under the call of a noble and great purpose, expand the size of their territory to maintain the balance of power in their midst. They may also try to outdo or overcome the other for the benefit of their own interest. When the need arises, these varying groups may resort to a change of direction

and make an advance or fortify themselves, form into a huge hostile force, reveal its ugly face, and, under the name of survival, would seek for the expansion of the coalition's interests or group victory. Forming a comparison from a long period of observation, this kind of phenomenon is probably period in history when the general mentality is based on the most intricate, complicated and immoral characteristics.

In face of this enormous change in the world social trend, scholars would be specially bold in propounding righteousness and claiming themselves to be educators who shall be rectifying the ways of the people. How can they just lie and wait, as they are wooden and without feelings, but alive and full of concern? They may even raise the question why so much negative influence exists in humanity. In reality, in 1959, C.P. Snow already stated that "The thinkers of these generation are no longer capable of making a rational judgment for today's world." (Snow, 1959). In 1991, a professor of the Eotvos University of Hungary, Marx asked the following question: "Is the inner vitality of science sufficient to reverse the development of the social disease of the world? Can it be that science itself will hinder the development of human thought?" (Marx, 1991)

What misfortune is it that it is already gradually becoming no longer strange to find problems in all the various social phenomena that we notice today. The more human knowledge and civilization take a multi-faceted development, the more the general public wallows in insufficient knowledge, and it may be through the deceitful ways from others or through human beings own ignorance that their sense of judgment is no longer capable of telling the good from the evil, what is right from what is wrong, a true intent from manipulation, righteousness from prejudice, the general good from selfish needs. In view of a greater picture, human beings may possibly gather the needed power and strength to start another conflict that will bring further catastrophic disaster to the different independent groups or coalitions. Does the science education circle share the same view? If so, how could it find a confirmation for its findings? How could we foresee what lies ahead and be able to overcome the problems? Then, there is the proposal for teaching science in a general-education form for everyone, for everyone, will this make some sort of improvements?

In the following chapters, this paper shall first select the following 3 subdisciplines of ethics, metaethics, normative ethics and applied ethics, with the help of a broad definition of science, attempt to obtain a reason for mind reformation, as well as to obtain an understanding of their respective roles in the moral problems of today. At the same

time, an attempt will also be made to explain and evaluate the 3 principles governing moral behavior; namely, axiology, utilitarianism and deontology. This paper shall attempt to show that each principle has its own set of criteria used when deciding on a behavior, and it is also possible that the different principles may come up with varied and contradictory definitions for a single behavior. Secondly, this paper has specially stated some examples to explain historically human disasters within the period of human intellectual development. This is to show that the emergence of the double effect doctrine, the casuistics, and the almost parallel effects of cognition and moralism, play important roles in destroying the human right moral decision making. Thirdly, this paper shall attempt to explain the formation of the scientism, and its negative effects on the maintenance of order in regular interpersonal relationships. At the same time, we shall also refer to the prognostic warnings that Gandhi and President Chiang Ching-kuo once stated as examples proving that the current social chaos we are facing is something that had been predicted earlier and not an accidental development. Finally, in the conclusive chapter, this paper shall introduce the "unperturbedness" conception in the oriental philosophy, which advocates that one should keep unperturbed in meeting the rapidly changing society. Hence, people, under the environment of modern science should be able to preserve his philosophy of life.

## I . Ethical Argument and Moral Decision

This paper is aimed to study the development work done on public science education for science majors and layman people, at the same time, the prevention of the public mind from the negative influences of science amorality; hence, the public may be able to continue observing the good traditional virtues. Based on this, we shall first understand the philosophy moral virtues, i.e., ethics. Beforehand, there is a need to provide an explanation on the scientific implications that can easily confuse ethical concepts, to manifest the possibility that ethical argumentation may be deviated from right path by scientism.

Ethics may be divided into the following three subdisciplines: metaethics, normative ethics, and applied ethics. Metaethic is the branch of ethics which deals with the nature of ethics, such as ethical language, concepts and moral decision, as well as the logical part of this field of study. As we all know, ethical problems emerge when

people, in the process that they seek to acquire the best quality of life, hesitate, deliberate and exert control as they make their choices of behaviors. As advocated by the metaphysicists, "Do not do unto others what you do not want others to do unto you." Since the ancient times, the experiences that human beings in the course of time reveal that there are some who have an intuitive and naturalist mentality, who advocate that the choices in the moral behavior of people were made objectively. Besides, there are the emotivists or the prescriptivists, who advocate that choice is a subjective matter, or it may be somewhere between objectivity and subjectivity. Speaking of naturalists, what exactly is the nature? This becomes the primary question in hand. It is only by obtaining a thorough understanding of nature or what is natural that we may be able to comprehend it. Then, and only then, may we be able to confirm that moral judgment originated from nature, as well as prove that it is something that transcends time or space. Furthermore, we believe that out of necessity, it will also have a proper characteristic. On the contrary, oppositionists advocate that such a theory cannot be concluded under the premise that behaviors happened naturally, it is also not something that can be developed into the probability that it has a latent proper characteristic. The implications of the subjectivity or objectivity of a virtue, the judgment involved, and also the logical relationship between the moral concept and factual concept itself. When metaethics faces a higher scientific development in human society, all become confused among each other; this is a subject that awaits further clarification (Yang Chih publishing, 1993).

Due to the development of neoteric science is veered towards the acceptance of a relatively objective trend of thought, we have a broader treatment and different perception of the fallacies of naturalism. This new definition introduced a new dimension to behavioral judgment in metaethics and further complicated the issue. This is a development that can easily lead to public misunderstanding. The focal argument of normative ethics is the establishment of a set of standard and evaluative form of moral behavior system based on a specific set of norms. In the academic circle, during the popularity of the logical positivism and emotivism, normative ethics was constricted because of the conflict between objectivity and subjectivity. Until the late 1960's, when people began to return to their sense and started to deliberate on the kind of life that they should have, there existed a turning point, a time of alternating cheer and glum. This shows also the time when logical positivism gained or lost strong influential power.

By establishing a set of rules based on the principles of ethics, people often thought that the position of a person may generally be based on human nature, faith, environment and social relationships. When incorporated into human life, these basic factors have to go around a certain meaning or objective, in order to live well. Therefore, identification of these objectives would reveals their contributions into ethical argumentation and behavioral criteria. We can tell from this that by providing the normative ethics with these contents, there seems to be without doubt that the reasoning is attributed to teleologists. Whereas, if human behavior is regarded as the moral choice based on the rule of consequentialism, then this refutes the point of view advocated by the teleologists. Thereby, the determination of the right and wrong of a behavior, the good and evil, are then simply based on the actual consequences obtained from the particular behavior instead of the expected results. The two arguments stated in the above, have their own basis and advocates. The latter is also the foundation of utilitarianism. The golden age of utilitarianism started during the late 18th century and ended during the early 20<sup>th</sup> century. At present, this school of thought is under attack and, thus, we shall not over-elaborate on this. (Hong Yang Foundation, 1995). For example, the economic problems of the global population growth policy, which ponders on how much should the actual population numbers be in order to create a balance between production and allocation? This is a problem that utilitarianism and pleasure theory cannot answer.

During the 1960's, the advocacy and practice for the resolution of the applied ethical problems emerging in the various lines of professions became the focus of ethicists. This was also the time when moral philosophy and public service became closely related; applied ethics became the call of the times. This was the new dimension of ethics, and was also closely related to the development of modern science. The following are some examples, the equality of the race and sexes, the studies on the living environment for our future generation, the degree of acceptance for vitro fertilization and the sperm bank, development considerations based on gene manipulation or cloning, discussions on life and death, the prevalence of civil right movements, and so on. These are all included in the range of applied ethics. Applied ethics became a new important subject taught in schools. This is something that science educators, with the help of philosophers and professionals should formally and directly confront.

Furthermore, in ethics, if the consideration involved during the judgement of a moral behavior is the means employed and not the ends



to be achieved, then in addition to the standards in the consequence-oriented mentality, as aforementioned, it should also reflect such three-faceted decision-making criteria as the intent and the satisfaction of a person's conscience, the upgrading of the values propounded in axiology; and the fulfillment of the responsibility propounded in deontology. However, the latter is more concentrated on the eligibility of a behavior in terms of ethical obligations and does not put into consideration whether the expected or intended consequences have been obtained. In which case, the element of justice had to be added into consideration or that a vigilance for the possibility that behaviors prohibited by ethics or morals may take place (Lacey, 1986).

As afore mentioned, ethics is the principle that determines the morality of a behavior. And, the varying ideas and theories propounded by various school of thoughts and philosophers have no comparable foundation. In this era of contemporary science, each person holds an individual opinion. This is an era for self-awareness, so what principles or school of thought should one observe, to be able to establish the right mentality that will lead to proper behavior? This is something worth serious thinking. Otherwise, it is highly probable that one can be manipulated, misguided, or badly deceived. As a minor damage, this may lead to the disintegration of one's moral character, and as serious one would compose a threat as it would mean a major disaster to humanity.

### III. Intellectual Growth and the Disintegration of the Human Values on the World

As history has it, as human intellect gradually develops, it is also exposed to the baptism of modernization. Science and technology would also naturally develop from its budding state, gain size, and become directly embroiled in creations that would improve and make productivity more civilized. Based on this, human civilization would also evolve from the primitive society, to the agricultural society, feudal society and the civilized society of today. It is a pity that, during the process, human beings had encountered six major assaults that resulted in the collective destruction of human values. The introduction of technology had only further worsened the degree of cruelty, and comparable battles between wild beasts in the

primitive forests, they have become more violent.

In face of this reality, unless human civilization decides that the life of the violators, who committed the temporary "truth" that was generally recognized during those days and their conspirators are not to be spared; otherwise this would be worth our deep contemplation, evaluation, improvement and a sense of responsibility. In these events, will science and technology suppress or aid the start and development of collective destruction? Will they strengthen the power of human beings to mutually destroy each other? Did the scientists and technologists who aim to improve public benefits notice this? Do we presently have a mechanism to predict in advance the recurrence of this kind of event?

The six major events that generally destroyed human nature during the history of intellectual growth may be traced back to dawn of religious charisma that started after the birth of Christ, the Habsburg reign in the 13<sup>th</sup> century, the global supremacy of the British empire in the 16<sup>th</sup> century, the rise and fall of the Nazi regime, the Japanese Imperial reign and the Soviet Union in the 20<sup>th</sup> century. Strictly speaking, if we were to examine, in detail, the abuse of imperial orders, the fascination of the public which resulted in the loss of their power to make a moral judgment, the call for joint participation in small-scale wars that occurred during the period of these major conflicts, then we may notice that the advantages of technology were used in weaponry, as well as spiritual and material success, during the endeavor to conquer the opponent, control the other nation, and acquire natural resources; all these were aimed at the acquisition of selfish gain.

Looking back at the development that occurred since the birth of Christ, religious charisma, that once had its heyday, reveals to us that in the ancient Western society, most of the people were slaves, who led a very hard life, and so they find solace in the church. Therefore, churches in those days were extraordinarily humble, and its founder which was born around 6 years B.C., also had a very humble background.

This condition had a very strong appeal on the general public. This is also why the gospel of the church, to this day, still remains to be the worlds that people of the world listen to and abide. However, during around the 4<sup>th</sup> century, the church was transformed into the national religion, and by then, it was difficult to separate politics from religion. This kind of relationship would sometimes be strong and sometimes be weak, sometimes the two would contradict each other, yet at times, they would influence each other, reinforce each

other. As a result, in a number of occasions, this relationship would bring about the irrational and dark events in the history of the growing church organization. They may be the love and hatred or the devastation of the soul during the Crusade wars, or the wrong done to the martyr, Galileo; but it was not until four years ago that the Pope had expressed his regrets for latter event. Furthermore, there was Giordano Bruno, whose universal perception did not agree with the views of the church, thus, during the year 1600, he was burned on the stake. Finally, in face of the scenario created by nationalism, nominalism and the compromise between nations, the influence of religion begins to diminish. The 17<sup>th</sup> and 18<sup>th</sup> century marked the start of a new era. Sacrificial offering has once again regained popularity, and this is still true to this date, the church has become the pillar that maintained world order and peace.

The Habsburg is an old European royal family. It earned its title during the year 1000, and its monarchy was established in the Swiss Dioces Castle. For the period from 1273 to 1918, the various countries in central Europe has been the cradle of political power. In 1276, the Habsburg Dynasty won a lot of territories from Austria. Later, cross-marriages and alliances would result in the extension and retrenchment of its borders. Until 1908, the dynasty, with its multi-nation political system ruled over Hungary, Austria, Bosnia and Herzegovina (Winzer, Chinese version 1995).

The Habsburg Dynasty also saw its last days in Switzerland. During the time, it continued to maintain its royal tradition and held on to its Christian spirit. It was one of the conservatives. Due to the natural evolution of the times, the royal family finally vanished from the face of the earth. However, before the Habsburg court ended its reign, it triggered the second disaster that shook the world and killed several thousands of lives. In 1914, after the assassination of Ferdinand by a Serbian, the situation that followed was one where both sides were standing at each other's dagger end, sitting at the helm of this hostility are the two opposing groups, who had used all the influence of their crown and court to fan public sentiment, build up a strong and huge army and start a war against each other, for the attainment of their selfish interests. This conflict lit the fuse of WWI. For all that the little people that were caught in the cross fire, were opposed and abhorred such a war, yet there was nothing they could do about it.

Around 1500, the colonialism began to rise in Europe. The British Dynasty was the most outstanding during the time; it had created the most damage and had led the force that humiliated China for hundreds of years. This was a movement that started after the

Renaissance, sprouted together with the development of contemporary science and commercialism and reached its peak during the early part of the 20th century. Apparently, the colonialist mentality of Great Britain had started as a long naval battle for dominance that was later refereed to as the Hundreds years war. In 1737, George II became king. During the 7 warring years that ensued, Great Britain conquered Bangladesh, controlled Canada and the seas, and invaded the shores of Africa. Later, in 1840, at the outbreak of the Opium War in China, Great Britain used its giant naval fleet to invade southern China. It was the dawn of the foreign colonial rule in China during the past 2 centuries.

This was the start of the era of a superior nation, racial discrimination, arrogance of industrial growth and economic jingo that resulted in the development of the collective destruction of humanity. In the history of the West, it was the manifestation of the realization of patriotism, the spirit of outward expansion and benevolence, as well as the natural urge for adventure and overcoming of a difficulty. These fallacies were used in an attempt to cover up the crime that was committed, a crime of aggression.

Looking back at the rise of the Nazi regime, it becomes imperative that one has an understanding of Hitler's life. In 1932, the re-elected president of Germany, Von Hindenburg, nominated Hitler to the position of prime minister. Prior to this nomination, there had been two nominations that resulted in failure. Since then, power, survival, expansion and the interest of the race and the nation became the objectives of the political activity. Hitler used all sorts of measures, including threats, to win the ballots of the cabinet. In 1934, the aging president, who has passed his eightieth birthday, passed away, and Hitler junked the presidential system and became the national leader. Although, Hitler had previously served a prison sentence, yet he was able to win the majority votes from the National Assembly and brought the political arena to life. Under the banner of the "New Reich", Hitler started WWII. He had started another collective destruction of human values, the disregard for human life. This was something that was a cause for public alarm.

The purification and colonial expansion that the Nazi regime had executed for German people, to a certain degree, obtained the respect of the eugenists. Its implementation included the segregation of the Jews, and the promotion of the anti-Semitic movement, relegating them to the position of 2nd class citizens. This was also one of the major motivations in the absorption of the labor class by the Nazi regime.

In face of a human activity of this gigantic proportion, to date, there are still people who uphold the relationship between the countries of the world to ensure their own interests, and thus the opinion that war is inevitable is formed. This kind of world view seems right yet is not so; whether is human beings capable of finding the wisdom that will make a breakthrough? This is worth deeper contemplation and mutual encouragement. The right path to take, in terms of education and ethics, is that human beings must break away from the perception that war is inevitable, and make this their goal.

In 1931, before Germany invaded Poland, Japan, on the basis of its strong army, attacked the Northeast region of China. History records confirm that this was the year that WW II broke out. In 1931, the Bushido militarism advocates had control over the national politics. Basking on the success of its outstanding technology, this tiny island state still proposed "the integration of the neighboring areas under one same roof." Its ambition to invade another is very apparent, hence, it entered an alliance with Germany and Italy. In 1940, Japan changed its direction, it advocated the "Great East Asian Circle" and started to invade the Southeast Asia. In 1941, it attacked Pearl Harbor.

In an analysis of the causes that led to the outbreak of two world wars, we found that some of the causes may be attributed to the modernization, scientific-orientation, industrialization and urbanization. The implementation of these 4 movements actually issued the death sentence to the old social values. The new social values that emerged were restless, fighty, vulgar and helpless (Kuo, 1994). At that time, Nietzsche advocated the same perceptions that C.P. Snow propounded in 1959, he stated that the Western cultural spirit was already bound to dissolve and stray even before the war, it is imperative that we reconstruct our sense of values. Most historians also believed that after the two world wars, the world has entered into a more mature modern society, but is this enough to prevent humanity from creating another disaster? Who knows if, although it is not in the scheme of world politics, the emergence of the mentality of "the war to end war" is something that attracts world-wide interests can be predicted. How can the problem be solved? For solutions, we have to put more effort and work harder still in education.

The sixth disaster in human history mentioned in this paper is similar to the five others. During the course of its development, several thousands of lives were sacrificed. This was the Communist revolution in Russia, a revolution that swept across Europe and Asia and led to the formation of the USSR. In 1917, the reign of the Russian Czar came to an end, the Communist revolutionaries were

able to grab the power away from the monarchy and controlled the factories, farms, schools, news media and all other facilities that affected the lives of the people. From Lenin to Gorbachev, the Soviet Union had experienced a civil war and two world wars. Specially during the time of Stalin's regime and the high-pressure policies that were implemented before and after the transition period of his regime, political affairs were still executed under a certain control and balance. There were also remarkable success achieved in some certain aspects, e.g. hardware construction, military build-up, technology and aerospace development, etc... However, the Soviet experience also included the collective government of the civilian and family lives of the people and the realization of the world revolutionary goals. Although implementation of these plans contained a very scientific arrangement, the general suppression of human nature had finally resulted in regression and a slow and silent death. In other words, the Soviet Union was not able to reach the goals that it had set during its foundation, in fact, all going to nothing.

In review of the rise and development of the abovementioned six historical disasters, it was found that in addition to personal ambition, the first two disasters may be also attributed to the advances made by humanity in science and learning. They were the results of the residual conflict that came from the stubborn fight for survival put forth by the forces of totemic bulwark and ancient humanistic thought. The final three disasters resulted from the over-reliance on the advances made in science and technology, and the forced inclusion of such results in human life which led to the emergence of prejudice and bias in human relationships. As for the colonialism of Great Britain, a regime that lasted about two hundred years, it may be regarded as the result of the two factors mentioned in the above; however the level of participation and the role that these factors played vary under the atmosphere of conservatism and innovation. In short, these are the changes that humanity encountered with the times. There is a need for a high-level of intellectual coordination, as far as humanities is concerned, in order to avoid the bitter results of failure. This is an area that is worth looking.

Basically speaking, these disasters also reflected the following 3 important points: First, the more advanced cognitive studies, are the more it deviates from the code of ethics. Not only are the two incapable of advancing equally in a parallel pattern, but have the tendency to be self-defeating. Second, the catholic effect principle is mostly used by the ambitious, such that any violator or offender may be able to find a justification, a rationalization and legalization of its



deed as long as he is in control of power. Third, the abuse of authoritarianism has led to the rule of casuistry, and in abetment of its crimes. measures were instituted to deceive the public and the loss of human lives. Mind reformation must conduct an in-depth study and analysis of these three points; otherwise, it shall become the blind spot in the moral judgment for the general public (Lacey, 1986).

#### IV. The Rise of Scientism and its Effects on the Social Morality

During the period from 15 billion to 20 billion years B.C., which, as hypothesis has it, was the time of big bang. It was believed that the universe evolved from what was once a primordial fireball. In about a second after the explosion, the universe turned into a mass that was 10 gm about 10 billion times larger than its present mass. Another theory propounded that during as early as 10 sec. after the birth of the universe. it had underwent a 10 sec. of changes. Before its expansion, the universe, had a size of 10cm with a total mass energy of about 10kg. Another theory propounded that the universe expands and shrink alternately for a period of about 82 billion years. It is apparent that the theories in this area vary widely, and no definite argument was established. At present, the universe has a size of about 15 to 20 billion light years with a mass of about 10gm, and it is still growing.

The cooling resulting from the expansion of the universe and the mass solidification led to the formation of the planets and the stars. About 300 to 400 thousand years ago, homo sapiens began to appear on earth. After a long period of experience, they learned to make fire artificially and make their own stone weapons and instruments. About 10,000 years ago, the human race entered the era of the new stone age. Fire was later used in the pottery making and metal casting. From then on, human civilization made discoveries in physical and chemical sciences. During the period around 2,000 to 3,000 years ago, the development of the civilizations of Babylon, Egypt, India and China had influenced the birth of the golden age of ancient Greek civilization. This was a period of glory that the contemporary civilization admires and envies.

Because, just based on casuistic reasoning, the scholars of that time were able to build the foundation for today's science. these

achievements included the original theory of evolution advocated by Anaximander during the 6th century B.C. the theory of Phythagoras that advocated materialism and the "all matters are in numbers" argument propounding the existence of mathematics. Then, during the 5<sup>th</sup> century B.C., Empedocles advocated the model universe theory, Anaxagoras propounded that the light coming from the moon is a reflection, Leucippus and Democritus came up with the theory of the primary atom. Although, these findings were crude and primitive, yet they brought a highly significant message to posterity.

Later, we all knew that Socrates, as a pioneer advocated that academic society should pay attention to moral virtues and ethics; and he did some criticisms on the scholars that came before him. Plato advocated the school of thought based on form. Aristotle concentrated on the school of thought that speculated on the matter itself and its content. Ptolemy opened the curtains in the study of astronomy. Archimedes studied mechanics and became the father of mechanics (Russell, 1955).

During this period the Greek scientists were also the philosophers. Therefore, each made success in many aspects. If we put into consideration the facts that were not mentioned in the previous paragraph, then it may be said that Greek civilization dabbled in logic, psychology, geometry, medicine, meteorology, astronomy, biology, and engineering. What was admirable was they were able to come up with whatever was needed then. Impressed by the wonder of the civilization, there were some who asked the question why the present civilization is unable to surpass the ability of the Greeks through casuistry? Are there more efficient ways in which we may be able to study the problems through contemporary constructivist approaches?

During the Middle ages, there were no marked developments made in science as the times leant more on the development of dogma. To an extent, the old library of Alexander the Great had been gutted down by fire. It was not until the 13<sup>th</sup> century, when Roger Bacon appeared in the scene that a new development was made, the discovery of experimental science, as propounded by the experimental scientists.

During the last years of the Middle Ages, human civilization was resuscitated. It was the dawn of the Renaissance period. Humanity abandoned the perception that the universe is limited space and that all the events or objects in the universe take a natural position. They began to accept the theory that all objects or events have a life and death, and undergo changes. In the possible infinity of the universe,

each object is able to maintain a part of its characteristic that can be conserved. This transition may be explained by the scientific explanation by rationalism, a school of thought represented by Descartes. Finally, experimental scientists like Lock et al had broke away from the early rationalist school of thought and began their own explorations. Basically speaking, this was the tide of change in humanity's perception of the universe, it included the possibility of the hypothesis to be wrong, the innovation of the methods applied, the expression of cause-and-effect relationship into probability or percentage, the innovation of the analytical technology used in measurement and linguistics, and the supremacy of the theory of evolution; these became the great advancements made in the cultural construction of human civilization. Since the 18<sup>th</sup> century, under the effect of the intrinsic and extrinsic stimuli, new discoveries in science continued to emerge. This developments took great leaps to become what it is today. During this period, the procedure applied by each school of thought during the course of their scientific analysis started from the thought itself, followed by proving, and expression in the form of model or pattern. As a result, similar, conflicting and contradicting arguments were made before one could come up with an agreed paradigm. During this process, science philosophies undergo from prepositivism, logical positivism, critical rationalism, historicism and realism. It can not be denied that empirical approach of collecting, analyzing and inferring data play the most important role in evidence provision and object or matter explanation. Its effects are still better than the findings made from rational thinking.

Under the influence of enlightenment, Comte abandoned the argument that cannot be proven and borrowed the utilitarian hypothesis of Bentham and Mill, to propose the theory of scientific positivism. Later, in response to the call made by German materialist advocates Marx and Engels, a group of scholars convened in Austria to form the Vienna circle of thought, which further made a direct repudiation of various non-realistic problems; e.g. metaphysical arguments. Since scientific positivism focuses on objectivity implied in the experimental procedures, it became very popular. It became the dominant school of thought of its time and was popular in all parts of the world. Absolute truth began to vanish, it was replaced by the relative truth, which became widely applied. Almost at the same time, it became apparent that all what the scientific community used in the treatment of matter and event, was also used by the general public in their daily lives (Chao, 1994).

It has been perceived that in the public affairs of the same period,

human beings would follow the some line of thinking. This not only manifested their ambition, but also an intent to abolish absolute truth and concentrate in the discovery of a new and vague ethical code, as well as a belief that science is everything and that man can overcome the power of nature. The nationalism of the countries in Asia and Europe, under the excuse of world hostility, and continued to surge, likewise socialist politics also gained the upper hand through the popular resentment for royalty. Treatment of inhuman and material things were used to handle and settle matters dealing with people. At the least, the last few above mentioned disasters, in the collective destruction of human values, belong to this type. As a result, as had been early said, each came to its own fall. Whereas, scientism which had enjoy a smooth development during this period manifested an astounding power, hence it became the concept that more people embraced, and it even went to the extent that such an attitude transformed into an attitude of joint ownership,

Generally speaking, after the war, a lot of industrialized countries experienced lack of environmental control and pollution protection; this was the apparent proof that science was not the panacea that it seemed to be. Likewise, in science's search for truth, although the general public did not possess a deep scientific background, they still remain strong believers. Therefore, scientists can not silently accede to the time when they have to face the need to provide further explanation for scientific truth; otherwise, people would not support that humanities or science came from the same source or origin. This will result in an inevitable fall into the realm of self-contradiction, as Phillips had stated; "the scientific social schizophrenia." (Phillips, 1985)

The outstanding features of scientism may generally be categorized under five concepts: ① Science tends to integrate all the different fields of study, hence there is no need to separate humanities from science. ② In principle, the answers to all human problems may be obtained through experimental science. ③ Science is capable of allowing human beings to control the natural powers and enhance the mental powers ④ The experimental process must be able to reinforce the objectivity of a scientific finding. ⑤ Science is the most valuable knowledge that humanity has learned from natural studies.

To state the case of Taiwan, the effects of scientific development and economic prosperity on the ethical values of the society are explained as follows. On December 30 of last year, the United Daily News had an article which was entitled "Taiwan Falls Ill." The summary of the article is: In politics, the trend that the saying "As



long as I want to, why not?" has aroused has led to a cultural liberalization such that people do as they wish, and take advantage of others. In religion, the relationship between God and man has become a trade or business transaction. The society is paying a very slight regard for human dignity, dirty money is everywhere. As for the public mentality, one can read hopeless, fear, desperation and restlessness (Hsu, 1996). Since Taiwan is located right at the meeting point of the east and west, hence, it has a very dense population, performance is easily noticeable. However, this kind of phenomenon can also be found in the west. Liu Ta-chun at all mentioned the environmental problem in their book "The Essential ...to Western Civilization... very unstable peace and order conditions have been noted in these countries... drug dealing and crime continue to rise, it is likely the city has chosen its own death bed." We can tell the general picture from these statements (Liu, 1994).

During the early 1980's, the late president Chiang Ching-kuo cited a popular statement made by Indian leader Gandhi, he had warned the world to strongly put a stop to: "Immoral politics, undeserved wealth, improper form of luxury, irresponsible knowledge, unscrupulous business policies, inhuman scientific practice, and faith without sacrifice" (Chao, 1993). Obviously, the diseases that has afflicted today's society were something that had been predicted more than a decade ago, and yet we were unable to curb them and prevent them from happening, This problem is indeed worth serious thought. Specially as inhuman scientific practices are something that we can see everywhere. What are these science educators thinking? This thought is enough to draw a sigh.

## V. Conclusion

This paper had presented the past performance of science education, which had been outstanding. In fact, it has already made some indisputable results, which further fostered scientific development to a higher acme. Science had not only opened the minds of the people, it had also bring prosperity to humanity. It is the reason why modern civilization is what it is today. In the academic circle, to some extent, it becomes a field of knowledge that is capable of integrating the various fields of studies. As the main theme of this paper is mind reformation, it is inevitable that this topic is raised since the

advancement of science also brought about the degeneration of the social ethics. This paper has set this objective as the guideline in the compilation of the information presented in the above, and after classification and analysis, this paper hereby presents the following opinion that the author has formed.

1. From the aforementioned scientific developments, we learn that human beings are still in the dark about the events and objects that happened 15 to 20 billion years ago. The same condition may also be said about human knowledge concerning the future of the universe in the next 82 billion years. Obviously, the scientific method that purports explanation of the past, definition of the present and prediction of the future, is only effective in a limited scale, leaving a large space that present-day human knowledge is unable to explain. Therefore, in a supernatural form, people's beliefs in religion are something of *raison d'être* which might not be regarded as only superstition. However, the beliefs of these various religious groups should not be distorted or affected by the perception and needs of the common people. We can see from this that the dissemination of religious unification thoughts is indeed a feasible good strategy.

2. Under the influence of the advances of science, society has been transformed by the advances made in technology, interpersonal relations had also, because of this, taken a complete overhaul. The contradicting stand of totemic conservatism of the old society and the preservation of self-interest should be a reflection predicatable. Furthermore, it is also possible to arouse the psychological imbalance in people and a frequent violation of the ethical code, which will ultimately result in the degeneration of the ways of the world. The employment of a far-sighted education that can make every kind of different concepts come to a compromise in order to achieve a balance in the gain-and-loss condition, is something that enables us to create a new set of sense of values that is capable of establishing a new social order, which is free from conflict and where people live in less misery. We can see from this that there is still a way in which we may be able to reduce the social disorder that modernization, science, industrialization, and urbanization may bring. This is also the realization of what Russell stated: "The various advancements made by human civilization and education should be made in the same pace that science is developing, otherwise, not only will science lost its benefits, but also become a source of disaster" (Chao, 1994).

3. The contemporary science education is more concentrated in on constructionism and follows the guidelines of relative objectivism. Therefore, the question asking whether ethical code is a product of

natural or emotive thought shows the need for further explanation. Therefore, the act of criticizing the behavior of others during our daily life, in the confines of ethics is something that is considered as over-subjective, it is no longer regarded as the serious cause of the problem.

4. The argument of naturalist fallacy also possesses certain reservations on the point of view that an act is approved by the majority, such as, if it is not absolutely necessary, then at least it is proper. In today's scientific and democratic society, the public should confront the actual problems of this kind. This means that it is not possible to conclude that an act could be objective, invariant in time and space, and can exist based simply on its existence before. Otherwise, one will end up creating a real fallacy. This kind of thinking is something that should become an important consideration when making a decision on what act to make, during the time that one has come in contact with the society.

5. Since the 1960's, the other fields of thought that contradicted or agreed with positivist point of view, such as critical rationalism, historicism, etc. began to emerge. It may be said that positivism first showed signs of diminishing, beginning from the area of advanced science and then gradually to other places. Therefore, normative ethics found a chance for rebirth, as so stated earlier in this paper. This was also the opportunity that allowed for the mutual accommodation between science and religion, which used to take opposite stands like fire and ice. Beside, it was found that although human beings are capable of accepting a practical society that is totally based on the verification of evidence, they also hold the imagery of the ideal society described by metaphysics in proper admiration, as a part of their actual daily life. This is a development that is worth some attention.

6. Even at the gradual slackening of pursuit for the absolute truth, the scientific community, maintaining an optimistic attitude and a sense of professionalism, shall refrain from totally abandoning the idea of conducting explorations into nature. It is favorable for the scientific community to extend its effort to try to succeed in realms where other failed and put truth to practice, in order to meet the demands set by practical conditions. This way, it can seek for its goal, results and benefits in the spirit of professionalism and define the principles for its own behavior. This leads to broader interests, allowing the scientist to maintain a untiring spirit that has a rich power of imagination and enjoy very challenging and adventuresome delights. It does not have to resort to the manufacture of fantasy,

which may wittingly or unwittingly cause society to be afflicted with a scientific schizophrenia.

7. Under the development of modern science, each professional ethic is given great attention. The comprehensive contents of which refer to as applied ethics. If a social group that promotes science education has an intent to maintain justice and righteousness, then it should conduct a detailed explanation of the probable role of scientific development on ethics, as a sign of its assumption of responsibility. In which case, the misguidance of the general public is prevented. Therefore, applied ethics should be given more attention by the circle of science educators.

8. The satisfaction of the sense of value, righteousness, achievement and the delights of the mood is the foundation of the choice-making involved in ethical behavior. The same behavior may, under different sets of decision-making criteria, have varying ratings. This makes it difficult for a person to choose the kind of moral behavior to take. At the same time, if, under the circumstances, the double-effect theory is widely practised, and casuistics has been converted to the theory of distortion, then it will be likely that most of the moral standards shall be misled and used by those who has the ambition for power. Thus it will be better if during their facing of the scientific terms, the society members are able to heighten their sense of awareness, to prevent the loss of their flair, or to some extent, result in an unpleasant result.

9. In the past, there were various invasive behaviors that were planned to incite national arrogance, racial discrimination, industrial development, and economic expansion. All of which needed the support of science. Hence, should the maintenance of scientific development, such that it will result in the achievement of some benefits, be implemented side by side with an invasive behavior? Is the extension of war inevitable? Is this also true for the concept to use "the war to end war?" Is it possible to change an attitude of concern for other's hardships and thus achieve the objective of helping each other in crisis and difficulties? The public should ponder on this.

10. It should be noted that science is known to cope with the material thing, it should not hastily involve itself in problems concerning human nature. The intent of the scientism to intergrate the humanities and science into one field of study is not a good idea and should not be encouraged.

According to the examples and arguments presented in the above, insufficient knowledge in science, including its positive and negative

effects on affairs of the world, may have been the reason that had caused the collective destruction of human values during the ancient times; thus, human beings should also be clear about one thing, using the best technology or scientific methods to treat ethical problems may not be the final solution to the problems of human beings. We can see from this that human beings should obtain a balance between the emotive humanities and the rational science when confronting daily life, in order to be able to freely do as they wish in preserving the value of life. To the best of my knowledge, emotion may be defined as a state of human reflection to given in the compensatory form and rationality, as a state of reflection with an intention to govern nature through a canonical way of managing given. Generally speaking, in facing the given of nature, human beings should be able to obtain some psychological compensation and at the same time to achieve, to some degree, their ambition of manipulating environments order to maintain peace, happiness and contentment. Hence, we hereby suggest the consideration of the inclusion of the concept of unperturbedness in the pursuit of the truth, good and beauty. In other words, in these times of sudden and rapid changes, when people are in diverse opinions, the only way that a human being can remain free from outside influence and interruption is to keep unperturbed, i.e., the equilibrium between cool logic and emotions, and to decide his own behavior based on the principle of truth, good and beauty. This is the guarantee to a true state of things and a happy and peaceful life. I believe that this is also what Chin Yueh-lin meant by "Tai-chi is the state of truth, good, beauty and fulfillment", as he commented on the achievement of the absolute objective (Chin Yueh-lin, 1987). It is the author's opinion that human fulfillment can be only reached by means of unperturbedness which is characterized by the true state of things.

It is also a general knowledge that Socrates never left any written manuscripts which may serve as reference for future studies, however, his teaching and speeches about morality, has been passed on from one generation to another. The society of his time often raised ridicule on the Sophists who overly pursue learning for learning's sake, with blatant disregard for the positive and negative effects of such learning on human beings. Apparently, following Socrates line of thinking, the problem of showing what one's conscience feels is not something that can be shirked. Similarly, science educators have made a lot of progress after half-a-century of reform, but we see that they committed the same error as the Sophist did before. Does the science education circle have to express regrets? Therefore, beyond

the teaching of science, science educators should also ponder on the question whether the developments of science will leave or not positive or negative effects on the society. This also means that the science education circle should give weight to the above-stated conclusions and, besides scientist cultivation, they should give equal attention to the teaching of science as a general education course with emphases put on both science knowledge and its influences on our society. This is to achieve the goal of teaching "responsible knowledge." I shall be very willing to join and work together with the domestic science educators in this regard.

Finally, I would like to specially mention that is not only the science contribution to the society huge and far-reaching, but that its effects had been outstanding; this has become common knowledge. However, as it is not the theme of this article, hence I refrain from making any comments. I am very optimistic towards the development of science and believe that, from generation to generation, scientists will one day be able to fully understand the objects and events in the universe. Therefore, I express my respect to science educators who have driven every effort in the cultivation of talents for science and my admiration for the great achievements made by science in the past. This is a sentiment that I shall keep forever.

My limited ability has left a lot of points uncovered in this paper, this is inevitable. I shall welcome the comments, advise and corrections that will come from any expert or scholar, local or foreign, in the field.

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## In Search of a New Theory of Value in Economics: A Key to the Construction of an Ideal Society

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### 1. The Collapse of Socialism and the Dead-End of Capitalism

The ideal society envisaged by Karl Marx was a classless society of affluence and freedom. However, the reality of socialism was, in all aspects, quite the opposite. The socialist societies established by Marxists fell into dictatorships where the people were ruled by violence and where the economy was enormously stagnated.

The Soviet socialism called Stalinism was nothing but a "socialism with a devilish face." Stalinism was not characteristic of the Soviet Union alone but common to all the socialist countries. The people who were trampled under Stalinism eagerly longed for a "socialism with a human face." Then, Mikhail Gorbachev entered the stage and aimed at the realization of this latter type of socialism. He promoted the policies called Perestroika, but his attempted reformation did not accomplish what he wanted. As a result, the Soviet Union collapsed in December 1991.

On the other hand, in the capitalist societies, there occurred such problems as the inequality of wealth and the alienation of laborers. According to the classic economic theories since Adam Smith, enterprises were to be owned by capitalists, and laborers were not supposed to participate in the management of the enterprises. The employed laborers were regarded as part of the means of production, and the wages paid to them were regarded as part of the cost of