



REVIEW ARTICLE

Vol. 10. Issue.2. 2023 (April-June)

INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA
2395-2628(Print):2349-9451(online)

SCIENCE AND CULTURE: FACTORS TO THE PROGRESS OF HUMANITY

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Article information

Received:10/5/2023
Accepted:06/6/2023
Published online:13/6/2023
doi: [10.33329/ijelr.10.2.157](https://doi.org/10.33329/ijelr.10.2.157)

ABSTRACT

This essay focuses on the progress of humanity, inspired by Albert Einstein's remark on human progress. It aims to discuss the roles that science and culture play in humanity's progress. The paper begins by introducing Einstein's ideas. Next, the paper explores the disadvantages of money to humanity's progress, specifically analyzing Einstein's view on the role that money plays. The author agrees with Einstein that no wealth in the world can truly help humanity move forward. The paper then explains why money does not contribute to humanity's progress. Before discussing the factors to humanity progress, the author defines what is humanity and progress. Then it puts forward the two contributing aspects to humanity's progress: the role of science and culture. The essay provides detailed information supported by investigations and case studies. Finally, the paper discusses what individuals can do to further promote humanity's development. In conclusion, the essay argues that science and culture are the primary contributing factors to humanity's progress.

Keywords: Albert Einstein, humanity progress, money, science, culture

Introduction

Albert Einstein's remarks on human progress in Ideas and Opinions: "I am absolutely convinced that no wealth in the world can help humanity forward, even in the hands of the most devoted worker in this cause. The example of great and pure individuals is the only thing that can lead us to noble thoughts and deeds. Money only appeals to selfishness and irresistibly invites abuse." (26) Wealth and money, great and upright individuals, collective efforts, what Gu Hongming calls gentleness, Baconian knowledge empowering man to conquer nature, technology originally intended to emancipate human beings from heavy manual labor, leisure that, as Lin Yutang argues, provides breeding ground for culture, consumerism as examined by Thorstein Veblen? The list could go on. What are the factors that move humanity forward?

In this time and era, with the advent of the industrial age and the development of private ownership of means of production, wealth seems to play an increasingly significance role in the world. Some people regard money as almighty "God", believe money as a mysterious force that can dominate everything and pursue money as their highest purpose of life. While others are convinced that money is the root of all evil. Different people have varied attitudes on wealth. In Albert Einstein's view, wealth only appeals to the evil in human nature and does nothing for humanity progress in any circumstance.

Albert Einstein's remarks on human progress, as quoted in *Ideas and Opinions*, have been widely discussed and debated. He stated that, "no wealth in the world can help humanity forward, even in the hands of the most devoted worker in this cause. The example of great and pure individuals is the only thing that can lead us to noble thoughts and deeds. Money only appeals to selfishness and irresistibly invites abuse" (26). This statement raises important questions about the factors that contribute to human progress.

In today's world, with the rise of the industrial age and the development of private ownership of means of production, wealth seems to play an increasingly significant role. Some people regard money as an all-powerful "God," believing that it can dominate everything and pursuing it as the highest purpose of life. Others view money as the root of all evil. Different people have varied attitudes towards wealth.

In this context, Albert Einstein's view that wealth only appeals to the evil in human nature and does not contribute to humanity's progress is worth examining, however. There are also other factors that have been identified as important for human progress. Wealth and money, great and upright individuals, collective efforts, what Gu Hongming calls gentleness, Baconian knowledge empowering man to conquer nature, technology originally intended to emancipate human beings from heavy manual labor, leisure that, as Lin Yutang argues, provides breeding ground for culture, consumerism as examined by Thorstein Veblen? The list could go on. Therefore, this thesis aims to explore the roles that science and culture play in humanity's progress, in addition to examining the disadvantages of money to humanity's progress. By analyzing these factors, the thesis seeks to provide insights into what individuals can do to further promote humanity's development.

The Disadvantage of Wealth to Humanity Progress

To be sure, money is not the essential drive to human progress. Time dates back to the remote antiquity when human race lived such a plain life. Hunting wild animals and gathering fruits as food, grinding stones as tools, drilling wood for fire, the primitive people have basically no concept of money at that time. And wealth to our ancients is just like a nonsensical humor to us. However, it definitely can't be denied that human has still made unceasing progress in this situation. So, money, apparently, is not the essential factor that helps humanity forward. Without money, human race made its progress slowly but steadily at that time.

It seems that money is more like a result of human development. Because of human race's progress in every aspect, the productivity improved, and thus more and more materials can be produced. In this way, the remote ancients had to find an item as universal equivalent, whose values can be accepted by both sides in a swap. Items that were not easy to obtain, such as shells, gemstones and salt, had become the embryonic form of money. But it has not led to a transformation of people's values, whereas the value of items remains fixed in physical objects (Simmel 286-289).

However, since money has been around, modern economic life has made monumental changes to it. In *The Philosophy of Money* by Georg Simmel, a detailed analysis of the circulation and exchange of commodity, the relationship of money to the human personality is provided to us. With the growing development of the monetary economy, the function of money as a medium of commodity exchange becomes more and more pure, and gradually detached itself from its material, which means money has become the creator and symbol of value. Thus, it becomes more and more universal and penetrative in human society. Moreover, money gradually, quietly and perpetually

becomes prevailed in our society, and achieves its domination over the material and spiritual worlds. In the process of the money exchanging, money connects all kinds of things whatever their different nature and forms.

Therefore, money becomes a glue for all kinds of social molecules even if they are opposing and distant to each other; money is also like a central station, where all things are collected and distributed. They flow through money and became related to each other. All the differences between things are expressed through the difference in price. Money is something neutral among them, and therefore it assumes the role of the most severe and mighty mediator. Money hollows out the core of things. Their characteristics, peculiar values and features are all erased.

In this way, people have gradually forgotten the existence of other values and surrounded by a society that the dominant way to assess the value of everything consists in the amount of money. That is to say, the desire to money, as a fashion prevailing in our society swallowed the varied and colorful meaning of human life. Money has risen from a tool to an aim. In spite of that, money is, in fact, only a bridge to the ultimate value, and man cannot inhabit in the bridge (Simmel 1604-1622). If all of people's pursuits and emotions of life are pinned on money, there is no way to avoid the ultimate vacancy.

On the other hand, money has put an eternal wheel on modern life, and made modern people's life a perpetual motion machine. This phenomenon gave rise to the violence and hustle of modern life, but in the deepest part of one's soul, a sense of boredom with life itself is growing. It is disputable that money can greatly increase the number of objects and individuals that one can realistically sense. Workers work hard work for wages, athletes spare no effort to compete for awards, and writers write for manuscript fee. These are typical examples who get a realistic sense of life from money. However, does money the only meaning of hard work, competitions spared no effort and careful writing? A lot of people may agree on. That is why corruption, doping and plagiarism occur. Money allows an infinite increase in the number of temptations in life which easily occupy the center of one's senses. As a result of that, money appeals to selfishness and abuse. That is why money cannot help humanity forward. Although money plays a contributory role in social division of labor, it cannot promote humanity forward.

Definition of Humanity Progress

So, what are the most essential factors that drive human forward? Before answering this question, a brief analysis on the definition of "humanity progress" is necessary and rigorous. In Albert Einstein's essay *Ideas and Opinions*, he described it as "leading us to noble thoughts and deeds" (27). To be specific, in *The Importance of Living* written by Lin Yutang, to help humanity forward is to distinguish man from animals. In this book, Lin advanced four things that distinguish man from animals: a playful curiosity, an ability to dream, a sense of humor and a wayward and unfathomable quality in behavior (30).

In addition, what is "progress"? You might think that the question is so subjective and culturally relative as to be forever unanswerable. In fact, it's one of the easiest questions to answer. The Oxford English Dictionary defines progress as "the process of improving or developing, or of getting nearer to a higher stage or better state". However, what do "higher stage" and "better state" mean? Are those terms completely subjective or is there a universal and general agreement of the understanding of humanity progress that can be arrived at? Well, most people agree that life is better than death. Health is better than sickness. Sustenance is better than hunger. Peace is better than war. Safety is better than danger. Freedom is better than tyranny. Equal rights are better than bigotry and discrimination. Literacy is better than illiteracy. Knowledge is better than ignorance. Intelligence is better than dull-wittedness. Happiness is better than misery. Opportunities to enjoy family, friends, culture, and nature are better than drudgery and monotony. All these things can be measured to some degree. If they have increased over time, that is progress (Tupy).

The Role of Science in Humanity Progress

Now, based on the above definition and discussion, it can be indicated that science is the one of the factors to human progress. Here are some examples to illustrate how science helped humanity forward.

Science give birth to technology revolution and inventions, which directly contributed to humanity progress. In the 1900s century, John Snow found that people who lived in London had contracted cholera because their water supply was polluted by upstream water resources. Cities are often thick with feces, rivers and lakes in the city are dirty and soaking because of the household waste, and residents get their water from this rotten, yellow liquid. Thus, the revolution of pipe systems for drinking water in London have saved hundreds of millions of lives. Another example in point is that in 1955, Jonas Salk invented a safe and reliable polio vaccine. At that time, polio took thousands of lives every year, and more than thousands of people became paralyzed because of polio. Franklin D. Roosevelt, one of the most influential and distinguished presidents in the United States history, was paralyzed in both legs because of the disease. Jonas Salk' invention of vaccines has largely

safeguarded human health and thus contributed to human progress (Pinker 229-249). In fact, the list can go on: the invention of electric bulb, the improvement of steam engine, the launch of spacecraft and so on.

What's more, it can't be denied that we need a constant supply of energy while famine has always been with mankind since the beginning of time. As late as the 19th century, crop failures could still cause sudden catastrophes even in the wealthy parts of the world. However, despite the population boom and thus more food is needed, we human race have generally already got rid of hunger on average. Developing countries are becoming self-sufficient now. In China, the energy intake of each of the 1.3 billion Chinese people averages 3,100 calories per day which is the daily energy requirement of a highly active young male on average (Pinker 252-286).

This achievement is due to the introduction of hybrid rice on a large portion. In the face of severe famine at that time, Yuan Longping was determined to make good use of agricultural science and technology to defeat the threat of hunger. By successfully developing the first hybrid rice varieties, professor. Yuan made tremendous contributions to the Revolution in agriculture and relieved the problem of lacking food, and he is recognized as the father of hybrid rice in China (Chinese Academy of Engineering). The influence of progress in agricultural technology changes our history of enduring hunger, thus avoiding the violence and stagnation caused by it. A solid foundation to the human progress has lied on the great invention.

Besides, science not only gives birth to technology revolution and inventions which secure human race survival and enhance human life standard, but also provide us a better knowledge of our own body's functions and mental process. A better knowing of human gives human beings a truer and broader awareness of the beauty of life (life here indicates the state of being alive as a human; an individual person's existence), which is one of the features of humanity progress. In the first place, science, if anything, has

taught human beings an increased respect for our body, by deepening a sense of wonder and mystery of its works. What's more, having the knowledge of genetics, we begin to know that human beings are never formed from clay, but stand at the top of the animal kingdom; having the knowledge of biology, we are more impressed than ever that if the most delicate machine in the world is compared to a fish, then the secret about the function of human body is the Pacific Ocean. In the second place, science inspired human beings to observe the rhyme of life. From a scientific standpoint, human life almost reads like a poem, which has its special sense of time. So, a better understanding of humanity itself is the first step to better human progress.

The relationship between science and culture. Science gives birth to technologies and promotes human beings understanding of ourselves, which assures humanity progress in physical layer. But dose that enough? The relationship between science and culture has now become a topic of growing concern. The household saying that science is a double-edged sword has its point.

Scientific and technological progress is undoubtedly a catalyst for human development. However, the development of science may not necessarily achieve human progress at the same time. In fact, there is no necessarily and directly relationship between science development and humanity progress. To be specific, science and technology may sometimes bring negative impact on human survival and development. Since there is a problem of the direction and value of scientific development, it reminds human beings to pay attention to the role of culture, because culture is the steering wheel and brakes of scientific development. Along with the development of science and technology, culture must be vigorously developed. Only in this way can humanity fully grow and promote. That is to say, culture is an equally important factor that contributes to humanity development.

On the one hand, by the limitations of the level of human understanding and the role of a variety of social factors, there appears certain short-sighted behavior when human beings in the choice, applying science and technologies. Human beings may only concern with the immediate benefits and specific, local or individual interests to meet, while ignoring the long-term, the overall basic interests of mankind.

Bacon once said: " The true and legitimate purpose of science is to bestow new discoveries and new powers on human life" (53). If science and technologies are abused, their true meaning fade. Therefore, science

will lose its positive effect on humanity progress and its negative effect will be magnified as well. Some negative effects, such as ecological crisis, ethical crisis, and value crisis have followed one after another. For example, scientific and technological innovation has greatly changed the way of human product and the way of human life, but has also led to increasingly serious ecological and environmental problems; the current Internet and big data not only bring human beings convenience, but also lead to a variety of network security and privacy protection problems; gene editing and other new advances in life sciences are so powerful that the traditional sense of life and family ethics are challenged; artificial intelligence, once out control or improperly used, may pose a great threat to human security.

On the other hand, the uneven development of science and technology in different regions of the world is also likely to bring about international conflicts. Countries and regions with advanced science and technology often have the initiative and benefits of development, while countries and regions whose science and technology are lagged behind are more passive in their own development. The disparity in the level of science development leads to imbalance of interests and development in global competition, increases the gap between the rich and the poor, widens inequality in the process of globalization, intensifies global conflicts, and also provides a breeding ground for terrorism and religious extremism (Xiao) .

Therefore, in order to avoid humanity and the world falling back into barbarism, the future development of science requires human beings to maintain a heart of reverence for life at all times. What does it take to keep a proper heart in mankind? Culture is an issue that deserves attention in modern society. It can be said that the progress of science and the development of human culture have a complex relationship of promotion and balances. That is why culture is one of the important factors contributing to humanity progress.

In addition, it is a fact for all to see that science has brought progress to mankind at the material level, but it has also brought a deep loss of value to mankind. This loss is not easily perceptible. Man is a product of nature, but man is not a natural object in general. Human beings are both material and spiritual; we are a unity of flesh and spirit. This is something that nothing else in the nature possesses. Science and technology have brought material progress to mankind, but if culture does not come with it, the spiritual progress of mankind has the opposite tendency of regression. Science is concerned with the material enjoyment of human race and the deeper understanding of human himself, and at the same time brings human race's desire for conquest, aggression and disregard to spirit and moral. Therefore, the unbridled abuse of science and technology is like the opening of Pandora's Box, which will inevitably lead to undesirable results. It is indisputable that the development of science provides strong material security for human progress, but material security and spiritual security are not a simple linear relationship. As well as only when science and culture join hands can we promote human progress (Chen and Pan).

The Role of Culture in Humanity Progress

According to the previous account, the answer to the question mentioned before "s science enough for the humanity progress" is obviously no. Culture is an equally important contributing factor to humanity progress.

Humanity development requires more than health and enough food, but also culture, which provides human beings identity recognition. People's cultural identities must be recognized and accommodated by the society, and people must be free to express these identities without being discriminated against in other aspects of their lives (includes gender, religion, race and etc.). In short: cultural identity is an important aspect of humanity development—and thus worthy of people's action and attention. Spiritually, humanity development is the process of widening choices for people to do and be what they value in life.

In a lower-developed human society, choices are more limited. Once people failed to make the so-called "right choice", they cannot get their identity recognition from the society they live. Take sexual orientation for example. In the past, homosexual was considered a disease or sin. Sixty years ago, the British mathematician Alan Turing died in disgrace after being humiliated by his homosexuality. Homosexuality was considered as a "serious offence of blasphemy " in England at the time, and Turing paid the price for his "disgraceful" behavior. The judge offered two punishments, jail or estrogen injections, and he chose the latter. The "chemical

castration" failed to change his sexual orientation or suppress his sex desire to male, but left him with chest growth, a changing voice and impotence (Zhang).

However, sixty years later when humanity has been much advanced, Tim Cook, CEO of Apple, announced his "coming out" publicly. The difference is that attitudes to homosexuality are much more tolerant and milder these days. In 1962, Illinois became the first state in the U.S. to legalize homosexuality between adult men, and in 1966, the world's first transgender organization was founded in San Francisco. 1973, the American Psychiatric Association stopped considering homosexuality a mental disorder, and in 2000, Vermont became the first state to recognize same-sex marriage. What's more, another instance in the point is Google company's attitude towards same-sex marriage: If an employee dies, his or her partner receive ten years of the dead's salary, whether gay or straight (Wang).

The decision to remove homosexuality from the classification of mental illness can be understood for two main reasons. First, there is compelling evidence from scientific studies that homosexuality is not a pathological whole. Again, the development has gradually taught mankind to be tolerant and subject. People are more and more willing to accept that homosexuals who are open about their sexual orientation are present in all aspects of life and in all societies, and they are as integrated into those societies as heterosexuals are, leading constructive and meaningful lives. people come to believe that sexual orientation is an aspect of normal human diversity and it can be considered normal or at least acceptable.

What's more, a further dimension of human development, difficult to measure and even to define, is vitally important: cultural liberty is central to the capability of people to live as they would like. The advance of cultural liberty must be one of the central aspects of humanity development, and this requires going beyond economy or technology, since they do not guarantee cultural liberty. Cultural liberty is about allowing people the freedom to choose their identities—and to lead the lives they value—without being excluded from other choices important to them (such as those for education, health, job opportunities or even life).

In the 1540s, Copernicus gave a series of lectures in Rome in which he set out the main points of his Heliocentric theory, which is a fundamental revolution and milestone in astronomy. But he was afraid of opposition from the church. So, even after his book was finished, he hesitated to publish it. Although Copernicus knew he had the truth in his hands, he was afraid of making it public immediately. He did not dare to publish it until his death (Liu 5-6). But what if Copernicus lives within a more liberal and tolerant culture? Maybe the theory can be published more smoothly, and mankind can get rid of ignorance as soon as possible. It indicates that culture can help driving humanity forward by promote science development.

There are many examples works on the contrary, which revealed that cultural liberty brought prosperity to humanity development. The renaissance was a fervent period of European cultural "rebirth" following the Middle Ages. Generally described as taking place from the 14th century to the 17th century, the Renaissance promoted the rediscovery of classical philosophy, literature and art. Some of the greatest thinkers, authors, scientists and artists in human history thrived during this era. Culture and science were closely linked during the Renaissance. In fact, it was a unique time when these fields of study fused together seamlessly (www.history.com). Artists like da Vinci incorporated scientific principles, such as anatomy into their work, so they could recreate the human body with extraordinary precision. Architects such as Filippo Brunelleschi studied mathematics to accurately engineer and design immense buildings with expansive domes. Scientific discoveries led to major shifts in thinking and culture. Due to the science development in the Renaissance, art characterized by realism and naturalism. Artists strived to depict people and objects in a true-to-life way. They used techniques, such as perspective, shadows and light to add depth to their work. So, it can be revealed that the liberty in culture played a positive role in and thus drove humanity forward.

A similar situation happened in the Song dynasty, ancient China. In Song dynasty, the science and technology reached a high stage of development during the feudal society. And, to some degree, new achievements in medicine, agriculture, mathematics and other aspects surpassed the world level. There were corresponding research results

in various aspects such as astronomy, medicine, agriculture and mathematics. Besides, inventions such as movable type printing, papermaking and gunpowder were widely applied. Shipbuilding technology and navigation technology of the Song Dynasty also developed rapidly (Song).

In fact, there is a very close relationship between the brilliant scientific and technological achievements and the development of culture in the Song dynasty. It proves that science will grow by leaps and bounds under a beneficial cultural environment. And thus, humanity will make huge strides in its process. In return, absorbing the best and most developed scientific achievements of the Song dynasty, people living at that time tended to hold much more open minds. And they were more willingly to offer their own views on the development of science with great enthusiasm and intensity. They might also very interest in the pleasure of studying the natural world. That is how culture contributing to humanity progress.

There is also an example on hand. During the Qing dynasty, with closed doors and blocked minds, culture had no way of communicating and developing, thus the liberty of culture had no place to stand in society. China's science and technology remained stagnant for a long time and, finally, fell behind with the world, ruining thousands of years of Chinese development. The stagnation of culture development led to the stagnation of humanity progress. It proves in reverse that culture is one of the contributing factors to humanity progress.

A freedom cultural atmosphere allowed for the progress of science. In other word, culture is the soil in which science can take root, sprout and grow. Thus, it can be said that culture is one of the factors that driving humanity forward. Culture, which includes music, painting, literature and philosophy etc., promotes the development of the mind and spirit of mankind. Culture helps people to build a proper value towards money.

According to the previous account, the relationship between science and culture is very clearly now that they promote each other, and together to drive humanity forward.

What's more, culture also helps human beings build a proper view on money. Those who have money do not necessarily have the ability to appreciate the true meaning of human life; those who despise money can truly understand the joy of it. It must come from an inner richness of the soul in a man who loves the simple ways of life and who is somewhat impatient with the business of making money (Lin 330). Under the influence of culture, human beings begin to realize the essence and meaning of money. Thus, building an appropriate attitude will be possible. Only when human beings generally have a proper view on money, may the humanity progress come true.

Besides, culture consists in bringing about the expression of human beings' passions and desires in harmony. "While living, human beings necessarily have certain passions, desires and a flow of 'vital energy'. In and for themselves, there are neither good nor bad, but just something given and inseparable from the characteristically human life. All men and women have passions, natural desires and noble ambitions, and also a conscience; they have sex, hunger, fear, anger, and are subject to sickness, pain, suffering and death" (Lin 47). With culture's influence, human beings tend to be mild and gentle and are more willing to tolerant others' passions and desires. Thus, arguments and wars can be reduced and humanity can grow up in an orderly world

Last but not least, by dissolving social impatience, overcoming closed, confined and harsh ideologies, advocating the pursuit of truth and rational criticism, and forming an open, free and tolerant spirit of innovation in society, culture can play a leading role in science and technology innovation in terms of dominant value orientation, stimulating innovative vitality, improving thinking level and shaping social atmosphere.

Conclusion

All in all, we can see that culture and science are naturally closely related, and they should be integrated and developed. However, people's understanding of the relationship between culture and science and technology used to fall into a misunderstanding. Many people only see the differences between the two in the mode of action and value characteristics, that is, culture favors the role of the inner spiritual needs, reflecting the value of rationality; while science and technology favors the role of the external material needs, reflecting the instrumental rationality, so that the two are separated and opposed. This epistemology brings obvious

negative effects, not only weakening the power of cultural development, but also leading to the lack of a good cultural atmosphere and soil for scientific and technological innovation (Sui).

The role of science in supporting culture should also clarify the relationship between tools and values, and avoid the consequences of excessive "instrumental rationality". In the process of humanity progress, scientific means are mainly reflected in the strengthening of material guarantee to human race, while the depth of humanity progress needs to go beyond scientific means and emphasize the importance of culture, which plays the role of spiritual safeguard. The essence of culture should have the function of enhancing humanity development. Therefore, when driving humanity to further progress, people should pay attention to science and culture and truly realize the development goal of human society.

Acknowledgement: First and foremost, my deepest gratitude goes to my teachers. They influence me with their prudent academic attitude and great personality charm. Without their instructive comments and constant encouragement, this paper cannot reach its present level. Besides, I would like to take this opportunity to express my heartfelt appreciation to those scholars and writers. Thanks for their previous work that inspire and support me during the process of my essay. Last but not least, I would like to express my sincere gratitude to my parents. Their kindness and patience accompany me and support me and enable me to move forward.

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