

'Scientific advancement comes at a price.' Discuss.

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Einstein once said, "I do not know what World War III will be fought with, but World War IV will be fought with sticks and stones." Einstein was making a point that scientific advancements, in terms of man-made war equipment, have progressed so rapidly that the following war would completely destroy mankind and we would return to our primitive states once again. It is indeed true that scientific advancements come at a hefty price, especially when they cost lives, a familiar example being the use of nuclear power. Yet, I feel that scientific advancements do not always have to come at such a hefty price and if mankind learns to manage them well, they can even be used to solve perennial global problems such as world hunger and disease which affect our quality of life.

Firstly, it is well-known that our world's energy reserves are finite, with fossil fuels such as oil wells in the Middle East being completely depleted by about 2088. To address this issue, man has come up with a scientific advancement in the form of nuclear power, which can produce vast amounts of energy for generations to come. However, there is a hefty price to pay when these scientific advancements are not managed well. This can be seen in instances such as the Chernobyl nuclear plant meltdown which released radioactive particles into the air, making the area uninhabitable to this day, and the Fukushima nuclear plant disaster when a tsunami destroyed the facility, releasing radioactive particles into the sea, and threatening to contaminate the Pacific Ocean. These instances cost thousands of lives as a result. In addition, the use of nuclear missiles as a war deterrent in countries such as North Korea and the United States has sparked many controversies. North Korea is said to possess nuclear weapons which could potentially destroy the United States, and in retaliation, South Korea has hinted at allowing US nuclear weapons that could reach North Korea to be deployed on her soil. Critics claim that underlying tensions and the use of such nuclear missiles between the USA and North Korea could eventually spark the next World War, once again threatening human lives. Therefore, I agree with the statement that scientific advancements can come at the enormous price of human lives, if mankind does not learn to control these advancements.

Next, scientific advancements, in the form of medical advancements come at a price without proper management. This is clearly seen in the competitive sport arena where athletes are trained to push their bodies to the limits in order to achieve sporting excellence. With Performance Enhancing Drugs (PED) at their disposal, it is no surprise that many athletes turn to its use in order to achieve the next record breaking timing. One infamous athlete is Lance Armstrong, who achieved sporting excellence in competitive cycling for a record-breaking 7 years, only to have all his titles stripped from him when he was found to have consumed drugs to boost his performance. As medical advancements progress, an increasing number of athletes are more well-informed and exposed to new drugs that could potentially enhance their performance, such as the drug meldonium. However, these drugs could potentially have side effects that could harm these athletes if they exceed the required dosage, making them dangerous to the athletes' health. Another groundbreaking advancement in sports is gene-doping, where DNA is inserted into the athletes' bodies in order to boost their performance. Even though it is still a relatively new technology and has not been used by athletes yet, the World Anti Doping Association (WADA) is taking a strong stance against this, banning its use in the sport. This use of gene doping or PED will blur the line between the justified and illicit use of drugs in sports, hence causing the sporting culture to pay a price due to the lack of fair play, which runs contrary to the spirit of sportsmanship. Hence, I do agree with the statement

that scientific advancement in sports endangers athletes' physical health and ruins the reputation of sporting culture where fair play is not observed.

However, I do not agree that scientific advancements always comes at an expense. Medical advances worldwide have brought about many benefits that can solve a multitude of health problems. One such example is the recent success in 3D-skin printing. 3D-skin printing can indeed benefit the world in many ways - it can replace animal testing as 3D-skin and prevent harm and cruelty towards animals. Topical creams such as skin-whitening creams or sunscreen could be tested on this 3D-skin, providing researchers with more accurate results. Most importantly, the printing of 3D-skin is a potential solution for burn victims who seek skin-grafting options. The benefits are indeed wide-ranging as seen in the recent multimillion dollar collaboration between Alibaba and NTU into the research on Artificial Intelligence (AI). This collaboration involves research on areas such as the diagnosis and prevention of diseases like arthritis, using AI technology to record and analyse people's daily activities to help detect problems in the early stages. How it can improve the service sector in terms of healthcare and city planning, is now also in the works. This suggests that scientific advancements such as those listed above could not only come without a price but also benefit mankind when managed properly. Therefore, I do not agree with the statement that scientific advancements come at a price in this aspect.

Lastly, the world population is set to hit 8.5 billion by the year 2030. This exponential increase in the number of mouths to feed will lead to serious problems such as world hunger. Scientific advancements in food production come into play in solving such crises. For example, the use of Genetically Modified (GM) crops could alleviate this issue. Genetic modification provides crops with resistance to pests and other insects, ensuring that these crops have a better chance of survival, without the use of harmful pesticides, and hence increasing food production. The use of Golden Rice which is enhanced with vitamins has also decreased the Vitamin A deficiency in many parts of Asia. Therefore, I disagree with the statement that scientific advancements come at a price since GM crops has indeed alleviated world problems.

To conclude, scientific advancements largely benefit our world as a whole, except in cases where these advancements are not properly managed. In such cases, advancements in science and technology could cause humans to pay a hefty price; however, I believe that the proper management of technology will pave the way for more benefits than consequences. As Christian Lous Lange, the famous political scientist once said, 'Technology is a useful servant but a dangerous master'. We just have to manage it well.

Comments:

Interesting and relevant ideas that are explained and analysed well, with varied perspectives. Explanations are generally done well, although evaluation needs to be more thorough especially for the issue of GM technologies with regard to the possible harmful impact on the environment and human health. The problem of drug abuse and doping can also be developed further beyond the sporting arena. You need to be more accurate with facts. In general a coherent essay with clear organisation.