**The responsibility of scientists to society**

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Misuse of science and technology is always a popular theme for novels and films. Frankenstein’s Monster, often incorrectly referred as Frankenstein, is probably the most famous fictitious scientific freak in the world. In the novel, the Monster eventually killed its creator. This story is often quoted in discussions about scientists’ ethics for whether a scientist should be responsible of his research or research outcomes.

Many people think that scientists should be responsible of their own research outcomes. It implies that scientists should not start the research if it will have negative impact to the society in the future.

However, I believe that this should not be the case. Scientific research usually aims to solve unknown problems to the human beings, instead of benefiting the society. Their research outcomes are foundations for any possible future applications. Whether the building on this “foundation” is good or bad to the society, it depends on who and how to use the research outcomes. Hence, the research is neutral, while the persons who are going to use the scientists’ research outcome should take the responsibilities.

People may argue that scientists themselves are also frequently involved in applying their knowledge to build something destructive to the society. One example they listed is the Manhattan Project. Many great minds of that time, from J. R. Oppenheimer to E. Fermi, joined the Project. The “Frankenstein’s Monster” they invented this time threatened the existence of the human beings.

Interestingly, the initial purpose to develop nuclear bombs was to end the War in a shorter time to minimize casualty. Harold Agnew was a physicist working on the Manhattan Project. He was interviewed for a BBC television documentary, in 1965. He said: **“**we actually saved lives: not only our own soldiers' lives, but the lives of the Japanese, because had we been forced to actually attempt to occupy the island I think the death toll would have been tremendous.” [1]

Thus, the purpose of developing nuclear bombs is justifiable. The reason it threatened the existence of the human beings is that, later, politicians use them as chip for certain nations’ interests. The nuclear arm race accumulates a huge amount of nuclear weapons that are more than enough to wipe out the whole human population for several times.

Thus, the problem turns to be whether the scientists should give up the research that involves potential risk in the future? I believe we should not stop researching in certain areas only because the research has possibilities risking the society in the future. The reason is simple: a lot of research work is far too pioneering than our understanding of the world. We cannot predict the future, again by basic physics principal, whether its applications will turn out to be something harmful or something beneficial. The important thing is that those people who are using the research results should have the responsibility to the society. For example, should we have stopped research in quantum mechanics, simply because we did not know whether it would be harmful or beneficial, both computers and nuclear fusion bombs would not appear in the world today. When we pulled ourselves away from danger, we also gave up the benefits. Again, it is the responsibility of the person who uses the research result to hold the sense of humanity.

Instead of holding responsibility of their own research outcomes, I believe it is more important for scientists to be responsible of their own behaviors. The way scientists treating things will greatly influence the society.

Dr Hwang Woo-suk, had being one of the most “famous” biologists in the world for the past 10 years, was the “National Hero” of South Korea. His “research” made other scientists around the world to believe that stem cell research was the ultimate way to solve a lot of human biological problems. The lathery story came to an end when he admitted that his research results involved fabrication. This de-grounded a large part of the fundamental theories in stem cell biology and might waste other’s several years’ effort in research. A large part of today’s stem cell biology needs to be re-developed from nothing. Considering the money and effort that other scientists have spent on the research based on Dr Hwang’s results, they are wasted. It is a typical case that one scientist’s irresponsible behavior will harm the society heavily.

At the same time, being the “National Hero” of South Korea, this tragedy brought some negative impact to the public, especially to the youth. Scientists, especially famous scientists, are role models to the youth. Students learn a lot of information about those famous scientists from textbooks and media. This includes both their knowledge and their pioneering spirit in research. By doing this, knowledge and the research spirit will be passed to the next generation, and the society will continue to prosper. Thus, social responsibility requires scientists to maintain integrity. Hence, the scientist should always keep the integrity in mind because they are leading the development of the whole human race.

Another responsibility that scientists should have is to reflect the truth from their research. In another words, whatever the research results are, they should not be affected by political or social influence. Science itself is neutral. It does not favor the Conservatives, the Publicans, the Communism, money, power, or social classes. Politically-inclined science “research” often leads to tragedies. During the Second World War, politically-inclined scientists’ research “results” backed Hitler’s racial policy. It was a factor leading to the massacre of Jews. Another example was the “Communist Scientists” in the late 1950’s China. Those scientists faked some results to cater Mao’s idealism, which started the “Great Leap Forward”. The results of the Movement were a 3-year-long national wide famine and millions of death. Thus, scientific research should not be affected by the social environment. It is scientists’ responsibility to keep their research neutral and stick to the evidence, instead of modifying the results to pursue certain social interests.

In conclusion, it is not the scientists’ responsibility to prevent their research outcomes harming the society, thought they should be aware of the possible risks. The scientists’ responsibility to the society is to be a good role model and keep their integrity in mind.

[1032 words]

Reference:

[1] http://www.spartacus.schoolnet.co.uk/USAmanhattan.htm