

The Use and Abuse of Science

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1 Introduction

In this article you will learn of the abuses in science that come from three sources: politics, media, and industry. Examples of both proper and improper uses of science are given within these three domains. We hope to increase the readers awareness to the abuses that are occurring hoping it will result in a more involved and active community. Science provides a more objective and truthful description of the world. Science is not an arbitrary set of beliefs, but a grounded, interconnected system of knowledge. In other words, science should not be made by isolated individuals nor should it be made for the benefit and convenience of a specific entity such as a nation, an ethnic group, or a corporation. Science, on the contrary, should be cultivated in consortium for the sake of knowledge itself, for the benefit of all humanity through a communitarian effort where scientists collaborate with each other in discerning the true state of affairs. This goal cannot be achieved unless scientists are free of external pressures to change their objective conclusions. As will be seen in this article, several entities such as politics, the media, and industry have distorted the ideals of science. The ethical conflict behind the misuse of science hinders its capacity of fulfilling its intent to uncover the facts of the matter regardless of consequence. From a scientific point of view, it is better to know the truth than to hide it for the convenience of an entity in the pursuit of personal or professional gain.

2 Politics

Science has been used as a tool in the political domain for the procurement of votes or the benefit of the few. Politicians, at times, use science to motivate constituent support by euphemistically presenting scientific information so as not to incite an egregious response. For example, in 2003, a climate change report written by the Environmental Protection Agency was changed. The removal of any reference to a review confirming that human activity contributed to global warming was ordered by the White House [2]. By doing so, politicians unethically altered scientific findings. If it is shown that this altered statement was originally correct, constituents may begin to question and hold the scientific community accountable for misinformation when in fact politicians are the responsible party.

Unfortunately, there appears to be greater public trust in politicians as opposed to scientists. This may be due to the lack of “real” scientist participation on advisory panels which primarily are comprised of political and industry

leaders with limited scientific background. The Union of Concerned Scientists expressed their concern over the current administrations lack of representation from the scientific domain on advisory panels. Advisory panels are responsible for the formulation of legislative decisions based on scientific findings which can be distorted for political gain.² The Union of Concerned Scientists is asking that Congress provide oversight hearings so that science can be saved from becoming federal government propaganda.

Ethical violations are occurring in the highest offices of U.S. politics and people must stand up to save the integrity of science. A most striking and impressive example of such a stance involves the oath of the U.S. Surgeon General, Richard H. Carmona, against the Bush administrations political interference in public health. Political manipulation of science is morally and ethically wrong. The public views the Surgeon General as “the nations doctor”. His is the voice that the public listens to when deciding what should be modified in our daily lives for the purpose of living more comfortable and healthier lives.

Carmona charged the Bush administration with unparalleled levels of political interference in his work to help the U.S. public improve their health. It is astonishing to hear that his speeches were censored. The Bush administration muted his attempts to inform the public because it may have incited an unfavorable response^[3]. This is similar to abstaining from disclosing to the public the oncoming of a tornado or hurricane because of the commotion that it might stir up. Carmona stated that the Bush administration was more focused on strengthening the presidents image than on public health by censoring his speeches and removing him from attending important health events in order to attend “political rall[ies]”. One example is the cancellation of a speaking engagement at the Special Olympics which was replaced with a meeting with the Kennedy family who are substantial donors to the organization. Carmona was asked “Why would you want to help those people?” to which he replied, “This is about sick kids. It has nothing to do with who’s moving the project.”³ It is not morally or ethically right to withhold information which is important to the improvement of the human race.

Politicians are here to benefit society because they are elected officials who are chosen to speak on our behalf. They are supposed to appoint committee members who will best fit the constituents position. However, they dont always do this. It is not ethically or morally right to give a position to someone based on their political views without taking into consideration their experience. Ideally, we want people who will best help the nation improve. Every decision that is made in government should be in favor of the people ^[4]. Why then was Dr. Claire Sterk subjected to numerous questions about her political views when applying for a position in the Council of the National Institute of Drug Abuse? Her political views had nothing to do with her ability to fulfill the positions tasks. The questioning of candidates political views for scientific positions in the administration is wrong. The administration has the moral obligation to provide an objective scientific committee and the best scientific research possible. It is their moral and ethical duty to keep the constituents healthy and up to date.

Politics and science have different agendas. However, without politicians and government, science would not be funded. Politicians and scientists must learn to work together in order to better serve the public. Politicians cannot and should not tell scientists what to do. Scientists are standing up for their rights and for the ability to bring to the constituents the truth about their findings. Scientists are not trying to scare the public, but warn them of the true dangers that are present. If politicians want the world to continue growing and if they want to prepare for the future, they must let scientists do their jobs without making them follow any hidden agenda. In order to alleviate this problem, both groups must let go of their indifferences and remember the united purpose of helping the populous of this nation.

3 Media

Due to the sensationalizing of science by the media, the public has developed a negative attitude towards scientists and a more stringent skepticism of scientific findings. With the media reporting findings before scientists have completed their studies, the media is deleteriously straining the relationship between scientists and the public. For example, a scientist, Arpad Pusztai, disclosed on national television that genetically modified potatoes, in preliminary studies, exhibited dangerous levels of toxicity in rats that ingested them. The media took this statement and ran with it even though it was only preliminary. They publicized that there was a danger of eating genetically modified produce and this scared the public. A year later, Pusztai published his final results demonstrating that the statements which the media made to the public were flawed [5]. The media must understand that preliminary does not mean final results. A problem also occurs because when the media inform the public of preliminary results, they fail to keep the public informed of the final results. By doing this, the media is only instilling fear in people even if this is not their intent. They are no longer doing their job of informing the public. The media is here to bring relevant and important information to the public. We use the media in our daily lives to know when a storm will occur, what streets not to take due to accidents, or to know late-breaking news. We come to depend on the media to tell us the truth. Is it right to sway the truth of a story to sensationalize the underlying theme? Ideally, it isn't. This, however, may occur because of misinterpretation by the media of scientific literature. Scientists may address this issue by writing reports in a manner which the public and media can understand. Journalists are not scientists and do not always know how to interpret a scientist's words. Sometimes the media is justified in trying to warn the public in order to protect them. At other times, journalists embellish stories or misrepresent information for the sake of personal gain and not for the betterment of the populous. Scientists use the media as a tool to inform the public, whether it be good or bad information. However, some scientists may use it for scare tactics. The Group B environmentalists are an example of this type of scientists. These scientists represent controversial views and use the media to publicize their views. These scientists

believe sensationalizing their views and results is the only way they will garner attention. 5 As a result, we have the media and scientists both sensationalizing science. The media is a very helpful tool in our daily lives. We cant pinpoint it as a negative tool in science because as mentioned previously, it does help scientists inform the public. If it wasnt for media, we wouldnt be able spread vital information. Scientists must the medias role in advancing science. At the same time, the media must become better versed with scientific literature and comments before releasing information to the public. It is understandable that neither science nor media will become fluent in each others profession. However, if more is done to learn of how these professions can work together to inform the public without distorting information, then a more harmonious relationship can exist than the one we have now.

4 Industry

Several ethical confounds arise within the union of science and industry. First, let us begin by defining science and industry in the context of this relationship. Science may be defined as the acquisition of knowledge of nature through rigorous methods. That acquisition of knowledge involves the reduction of complex phenomena to simple, elegant rules of action. Industry, in a broad sense, is the systematic use of knowledge and energy in the transformation of materials of low intrinsic value into materials of a higher degree of usefulness. Increased

knowledge holds the key to increased industrial efficiency. Thus, science is an essential contributor to this efficiency. The necessity of “creating” for the sustainability of not only the industrial institution but the individual as well leads way to ethical conflicts related to motivation and ownership. Unfortunately, the motivation driving scientific endeavors comes from monetary gain and recognition. It would be nave to believe that these factors are not necessary for the advancement of science, but they should be employed sparingly. Ideally, a scientists main motivation should be in the advancement of science as a result of his/her work, but this isnt always the case. The environment in which research is conducted leads to moral conflict. Science was originally employed in industry as a facilitator to invention. This is evident in Edisons development of the “Invention Factory”. Etzkowitz provides two excellent examples of prominent industrial scientists and their invaluable contributions to basic science and its cultivation [6]. Although several hindrances obstruct timely progression of basic science and research within industry, we cannot invalidate contributions from industrial researchers. Unfortunately, as headstrong as industry is in its intent to progress the development of invention, they are culpable of obstructing advancement due to the unwillingness to supplant antiquated technology for newly developed ones. One of the underlying issues is the loss of profitability due to the lag time in incorporating new technology. However, modern day industrial thinking directly parallels that of scientific thinking. The knowledge-based industry of today uses the same tools of deductive thinking and inference as those used by the scientist. Applied research, product development and manufacture, and quality control all

require the same kind of problem-solving that is required of practicing scientists. It is no accident that increasing numbers of knowledge-based industries are directed by managers that are also scientists. For this reason, we cannot negate the importance of the interplay between science and industry in the context of technological advancement.

5 Concluding Remarks

Science was cultivated as a way to prove or disprove the claims we have about nature through a methodical approach. This article has shown that although science has been misused, the benefits directly attributed to its proper use are numerous. Even though focus was directed to the interplay between science and politics, the media, and industry, the impact of science is multidimensional. It is important that ethical responsibility be placed not solely on the shoulders of scientists, but dispersed among all those directly and indirectly involved in its development and application. This includes the general public taking an active and informed approach to the prevention of any current and future misuses of science. This can be accomplished via science education and active participation in the making of public policy. A concerted effort must be employed to avoid science misuse.

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