Responsible Conduct of Research: Moral and Professional Obligations in Research

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Historical perspectives

The Second World War was a historical milestone for a number of things. In science the application of Albert Einstein's physics formulae were proven beyond reasonable doubt. Bang, Bang! The atomic bomb detonated on Hiroshima and Nagasaki, in August 1945, unveiling the unprecedented truth of nuclear-atomic energy. But even Hiroshima cannot completely question the outweighing benefits of Einstein's coined $E = mc^2$ mass-energy equivalence equation and his discovery of the law of the photoelectric effect that made him win the 1921 Nobel Prize[1]. The resultant benefits, from Einstein's discoveries, to human kind have been and remain to be outstanding. However, a visit to Hiroshima and Nagasaki following the atom bomb coupled with a chat with the *Hibakushas*[2], the Japanese atomic bomb survivors, always begs the difficult moral question, 'what was the morality of the scientific discovery of the atomic bomb? Indeed the human activity of delving into elucidating the unknown, commonly known as 'research', has not been without controversy across ages during humankind's existence on earth especially each time it has crossed the boundaries of justice and fair play. There is neither doubt nor any argument regarding the necessity of maintaining a clear equilibrium between human morality and the pursuit of science. The greatest scientist himself, Albert Einstein, unreservedly propounded this truth. He is quoted to have said; *The most important human endeavor is the striving for morality in our actions. Our inner balance and even our very existence depend on it. Only morality in our actions can give beauty and dignity to life*[3]. Now, the difficult lies on how to balance between research and obligations of humankind common good. Failure to do so leaves ugly trails of life with loss of human dignity.

Examples of researchers failing to balance between morality and pursuit of science leaving ugly trails of life with loss of humankind dignity are abounding. The most vivid example is probably the 1946-47 Doctors trial that was part of the *Nuremberg* Trials for Nazi war criminals[4]. In this trial, 23 German Nazi physicians were alleged to have conducted abhorrent and torturous "experiments" with concentration camp inmates. The purported experiments involved gathering scientific information about the limits of the human body by exposing victims to extreme temperatures and altitudes. The most gruesome of these experiments was the destructive experiments that tested how fast a human being could be euthanized in order to carry out the Nazi racial purification policies most efficiently. In order to prosecute the accused physicians for the atrocities they committed, ethical guidelines for the conduct of research, the *Nuremberg Code*[5], were developed. This was probably the most important milestone of the Second World War, the birth of modern research ethics with a focused intent to protect human participants involved in research projects. Following the *Nuremberg code* was the *Helsinki Declaration*[6] developed by the World Medical Association in 1964. The Helsinki Declaration has had several revisions since then and lays out basic ethical principles for conducting biomedical research and specifies guidelines for research conducted either by a physician, in conjunction with medical care, or within a clinical setting. In its current form, the declaration charts the responsible conduct of research. Scientists and or researchers, world-wide, have moral and professional obligations to conduct research responsibly.

Why moral and professional obligations in science?

Now, with the freedom inherent of every academician, the obvious question is, "why bother about morals in science?' The answer is not far away. Once again let's seek the wisdom of the great scientist. Albert Einstein is quoted to have said, *we should take care not to make the intellect our god; it has, of course, powerful muscles, but no personality*[3]. Yes, as intellectuals we have the inherent academic freedom but we must be wary of its limits. Intellectualism must not be worshiped as on its own without necessary moral and professional obligations it loses value. So why bother about morals and professional obligations in research? What is the essence of responsible conduct of research? In the present day there are obvious fears whenever science is left unchecked (science immorality). Imagine lethal laboratory pathogens falling in malicious hands of terrorists (issues of biosecurity. On the other hand, think of the unintended consequences from the environmental release of synthetic organisms or cloned beings (issues of biosafety). With these observations there is no question of not ensuring morality and professional obligations in science and research. Indeed, responsible conduct of research is inevitable.

Moral obligations of researchers/scientists arise from universal moral norms while the professional obligations arise from the profession's ideals. With regard to morality in science

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every researcher as a moral being is duty bound, for example, to sound the alarm when confronted with immediate hazards or risks during the course of research. Meanwhile, at a professional level, researchers must learn and understand the ideals of their respective professions-the rules and guidelines of their professions ensuring biosafety and biosecurity.

Overarching Roles of National and International research regulatory bodies.

Now to enforce these moral and professional obligations among scientists and researchers there are local and international research ethics regulatory bodies. These exist so that when an activity raises threats of harm to the environment or human health, precautionary measures are taken even before some cause and effect relationships are fully established scientifically. Now the questions is how many of our researchers (faculty and students) are aware of these research ethics bodies and how many are conversant of the current local national research ethics regulatory rules? In this issue of JABS[7], Munalula E., et al (Pages 86-89) have given a systematic review on ethical issues surrounding the exportation of samples from developing countries and ask the pertinent questions of when is this necessary and when is it not? These issues raised by Munalula et al are similarly being raised elsewhere. Emerson C.I., et al have similarly observed the ethical challenges involved in accessing and use of human tissues from developing world by the developed world[8]. They conclude that while promoting global health research, there should be deliberate simultaneous efforts of preventing exploitation and restoring trust among participants and communities where such research is being conducted. The excellent review by Munalula, et al is just the first part in a series of review papers that JABS wishes to run under the theme 'Responsible conduct of Research'. These are a-must-read articles for both faculty and students across the entire university of Zambia community and beyond.

This editor is aware of and does agree with several critics who claim that the possible negative outcome of current stringent research ethical regulations, worldwide, is the impediment of progress in science. Yes, there is risk of overregulation with increased ethical bureaucracy and possible infringement on scientific freedom including constraints on the dissemination of research results. Take for instance the time that was lost in coming up with a decision to authorize synthetic biology to provide new vaccines and develop synthetic artemisinin that could save hundreds of thousands on our continent, Africa, from malaria and other infectious ailments. However, expedience in science cannot and should not compromise responsible conduct of research. It is with this background that JABS is undertaking this effort of running these special reviews to raise awareness of responsible conduct of research among our university faculty and students.

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