International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Commercialization of Science: A Current Threat to Autonomy of the Academic Institution and Individual Scientists

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Abstract: ***We discuss the significance of autonomy in science, both with regard to the academic institution and with regard to the individual researcher. Some critics say that the autonomy of science is threatened, both on institutional and individual level. The critics maintain that the most important reason for this is the ongoing commercialization of science, or the subordination of the politics of science to the politics of trade, industry and defense. Using literature we show how this is correct and provide recommendations to counteract the potential loss of autonomy***.

Keywords: Science; Autonomy; Commercialization; Ethics

1. Introduction

In this paper, we claim the premise that autonomy is of great significance in science yet in the recent years, it is threatened on both levels; institutional and individual. Commercialization, and or the politics of science are among aspects putting autonomy under pressure. First, we expound on the autonomy of science and briefly for clarity, other values and norm systems of science, showing how autonomy makes science legitimate. Next, we discuss commercialization of science, autonomy, with regard to the academic institutional level and on the individual or at researcher level. In line with those, we explore ways in which autonomy of science is currently under threat on both levels, conclude and give each possible recommendation to counteract any potential loss of autonomy.

2. Literature Survey

2.1 Value and norm systems of science

According to [12, page122], Scientific scholarly must be justified according to certain norms and values, either regulative or constitutive. For instance, the Platonic-Aristotelian *truth value* norm, Francis Bacon's (1561-1626) social welfare norm also called *emancipation* by Herbamas, the Weberian thesis of value-free research (about 100 years ago) are regulative norms needed, though not necessary for science. Constitutive values and norms necessary for scientific research, include first, the methodological norms and values, like "honesty, sincerity, exactitude and completeness" [pg127],as well as ideals expected as 'coherence', 'simplicity' relating to research performance [12 page127]. Secondly, freedom and autonomy norms and values are constitutive because they guide researchers on the rules and regulations required to produce legitimate research. Though these ideologies vary in content from one field to another and generation to generation, they have so far been equally stable for many generations [12]. It's necessary to pay more attention towards freedom and autonomy in science.

2.2 Freedom and Autonomy in science

Autonomy means to possess or have a right of *self-government* [2] or the freedom of action. An autonomous individual or institution has the freedom to follow the rules they set without being interfered or oppressed by external forces such as other institutions like Cultural (Kingdoms in this case), the church, and industry, Police or the State[12]. Origins of autonomy are about 1800 years back 'as old as the death of Socrates' [12 page 128]. Autonomy plays an important role in bringing about just societies because it promotes participation in collective decisions [2]. More so, it creates 'interpersonal respect' thus closing any gaps through which *manipulative dealings* may occur [2 page 135]. In this line of thought, science becomes legitimate when scientific inquiry respects autonomy. Therefore, in this regard we agree with [12] thatwithout autonomy, there is no science and if freedom is lost, then science is lost too. This is because legitimate research depends on the autonomy and freedom of the researcher and academic institutions to make their own decisions without any external interference. The liberalists provide a negative and positive meaning of autonomy. On one hand, the negative sense ensures freedom from external oppression and influence. This is in the negative sense because it says much about autonomy as the absence of oppression but little about what freedom is brought about by autonomy. However, this is significant because so far the biggest threat to science is the oppression of autonomy, as we shall see later. On the other hand, autonomy goes "beyond freedom from oppression" and this is what the liberalist tradition term as "free will". The freedom of will could have some challenges because its implication is that science and scientific activity becomes autonomous when scientists have the freedom of will. However, when scientists act according to their freedom of will, it does not guarantee scientific results from their actions. For example, some scientists plagiarize or forge results and come up with products of free will but that is not scientific because such are not products from scientific processes. Therefore, autonomous acts basing on scientific processes guarantee that scientists' theory is not simply based on personal beliefs, but in addition, they are acts according to set rules or laws through critical reasoning.

This is in the positive sense. We prefer autonomy in the positive sense because there are instances when individuals have autonomy in the first negative sense yet they do not have autonomy in the second positive sense. For example, within some scientific communities, young scientists may have reasons for their own opinions but choose to follow opinions from senior scientists, not through their sense of reason but because of fear of having an alternative view; therefore, they argue out of fear in favor of a continued status quo that involves their own subordination, hence not autonomous! According to Sigmund Freud these are compulsory ways of thinking and beyond one's control. Is it enough to have a psychiatrist for an individual with such to help in becoming autonomous in the positive sense? We don't think so. We are of the view that good up bringing or orientation is enough for one to acquire the positive sense of autonomy. For instance, Africans bring up children with that lack of a positive sense of autonomy so, children do tasks without understanding why, hence denying these individuals autonomy in the positive sense. Beyond other philosophers, Immanuel Kant (1724-1804) elucidates the positive meaning of autonomy as the ability to reason and scrutinize rules and judge whether those rules can be made *universal laws*[11]. Any reasonable human being has rules set by him or herself, so these should be assessed tried and scrutinized to fit community acceptance. According to Kant, this is the *moral law*, of which all individuals would be conscious. For example, if I set my law that when applying for project funds, I include research subjects even when I will not work with them. This cannot be made a universal law because it makes honesty lose meaning. So the question would be, is this law morally *permissible*? In principle, if one cannot demonstrate this to everyone and have no valid data to support it then it is not scientific [7]. Ethically, Penslar's *Rule utilitarianism* complements Kant [8]. However, we are sceptical about societal utility because today, it is taken for granted and has thus lost meaning due to greed among individuals; reason to emphasize virtue ethics.

We note that Kant's philosophy was not intended for scientific research, but it has a scientific implication. The implication is that, autonomy and freedom ideals are nothing but to follow the "*methodological rules"* and of course assessed and accepted universally, as opposed to *methodological individualism* [7]. Again, the dilemma is, if some rules and regulations must guide autonomy, it implies there is no total autonomy in science! However, for societal order we need the moral law as guided by Kant that, acting freely as a way of exercising autonomy is achieved by, acting "on formal principles or categorical imperatives, which is also to act morally" http://plato.stanford.edu/entries/kant/ cited on 23/10/2016. Some universally accepted rules of research are on plagiarism, ethics as well as scientific methods that govern scientific processes.

In summary, autonomy in both the negative and positive sense sets a firm ground for science. However, this is not enough without methodological rules acknowledged as universally valid with reason. This implies that, when other external forces influence methodological rules, then autonomy of science gets lost. Among other reasons, we totally agree that autonomy of science is currently under pressure and thus getting lost due to the commercialization of science, or the subordination of the politics of science to the politics of trade, industry, and defense.

2.3 Commercialization of science

From the late 1970's to early 1980's American research Universities started emphasizing patenting of intellectual property, less teaching, and more research as well as increased income "whatever their source" [6page:22]. For example, most of the research is known to have been funded by the National American Space Agency and some military institutions were built adjacent to and in collaboration with Universities. By the 1990's, *entrepreneurialism* became common within academic institutions [3]. This went hand in hand with scientific innovation and establishment of incubation centers. According to [3], scientists, and academic institutions collaborated with government laboratories and industries to engage in business ventures. These ventures assessed scientific results according to their profit base [ibid]. An example [3] gives is about the 'Association of University Technology managers in the USA' where institutions were ranked according to patent income (page 18). This positioned scientists and academic institutions as businesspersons leading to "Academic capitalism" [ibid].This is similar to today's scientific shift from the production of knowledge that is certain and serves society to the production of uncertain knowledge aimed at profit maximization. For example, some large industrial companies lobby scientists to produce data in their favor because they have to stay in business. This is more so when evaluating scientific products for their toxicity, efficacy or carbon factor. As a result, such incorrect knowledge claims are suffocating the current climate change and rampant cancer problems, made worse by political regimes that use funds or information from scientific companies in order to position themselves in power.We need to understand how the current commercialization of science has put both academic institutions and individual scientists on pressure thereby affecting their autonomy.

2.4 Autonomy with regard to the academic institution

According to [4], the historical evolution of academics begun by World War II in the American higher education, until now there has been a continuous increase in academicians. The ability of these academicians to practice what they learnedis, however, a question because of the demands placed on them from their sponsors [4].Thus making them less autonomous. This is very true for institutions in Africa, which depend on donated funds to implement research agendas of donor organizations and governments.

Academic institutions are centers of excellence where academicians are expected to produce and supply true knowledge. In this process, academic work results from the free thoughts of researchers and the institution within which these researchers are based; the University in this context protects them from any outside social, political, religious and economic pressure that may conflict the knowledge produced. According to [4], *professional autonomy* and *academic freedom* are historical aspects that define an

academic because of the career satisfaction they provide. However, today there is less importance given to these issues because, many universities economically depend on society yet they are also engaged in reproducing society[5], through for example, outreach programs within which the institutions have to fulfill objectives of those who fund their scientific research programmes. This leaves the academe with no choice rather than giving in to societal, economic and political demands. In addition, Universities have been political centers where state support from the university is paramount. This is, for example, the case in Uganda from where the authors originate where political chaos originating from the university can easily circulate. University involvement in state politics can easily divert academicians towards state demands especially when the respective academicians are lobbying for big state jobs and funding. In the process, theautonomy of the academic institution is compromised because universities are then governed by political powers and cannot, therefore, criticize political mess. Those who come out to criticize the state risk their academic future. There are cases where science is indirectly suppressed "through a misguided science policy" [9page: 146]. For example, Roll-Hansen's work about the 20th-century politics of science shows how imposing political ideals on science led to "Lysenkoism" [ibid: page 143], when genuine genetic research was suppressed in the Soviet Union through the scientist Lysenko. Currently, similar cases are evident when politics of science dominates; those who will push government agendas acquire strategic jobs in public research institutions; these heads are politically appointed and do not go through competitive public service methods. In many cases, politics of science uses autonomy and truth as instruments to hide real interests. The example is Darwin's evolution theory in which, political interest in the development of a "better" society resulted in survival of the fittest individual.

Furthermore, economically, Universities have not been able to survive on only students' tuition; at least in Uganda because very few students can afford a university education. The external and internal support to both students and the Universities often has strings attached. However, an academic institution does not have autonomy if it is dominated by the industrial support[10]. In this sense, industries dictate the academic curriculum as well as which research to pursue because by nature they have their industrial interests. This is dangerous because most commercial interests do not match the interests of the common good (society). For example, some large agricultural production companies fund research in their favor for short-term profits but most of which leaves a lasting damage to the environment, going far into the future to distort human welfare. Such cases include deforestation to give way for the oil palm plantations. Too much dependence on industrial funds leaves universities unable to control their academic quality because researchers spend more time on their projects than on teaching students [3].Besides, private companies manipulate Universities to engage in research whose proceeds only benefit their companies [6].The true sense of autonomy of an academic institution is where such an institution is *Democratic*, has *free flow of information and criticism*[10] rather than being manipulated by *special interest groups* (ibid: pg31).

Therefore, due to the apparent inevitable institutional economic dependence on external society, it seems that scientific research cannot completely avoid economic and political influences on the research process, its results and how the results are interpreted. Nevertheless, to overcome this dilemma and strengthen autonomous research, we suggest that first; being conscious on both of this situation and of values and norms necessary for autonomous research. Secondly, to embrace multi stakeholder and systems thinking approaches in scientific research planning such that even with denial of total autonomy, the science caters for all the community. It would be valuable for academic institutions, political, and economic institutions to engage in discussions concerning their functions since this is a precondition for reaching political and moral consciousness about the functions they want to have. Thirdly, and most important, since science and academic institutions have ethical guidelines/rules and regulations, which they must follow to legitimize science, these ought to be respected. This also conforms to the Weberian tradition on the scientist's community "pursuing the truth" [7], Immanuel Kant's moral law as well as Penslar's virtue ethics.

2.5 Individual autonomy

Individual autonomy, according to Tranoy is when; an individual has freedom of choice for a research subject or engages in what is of personal interest. In addition, the individual researcher has freedom of speech, in the sense that has the right to defend something if he perceives it as right and criticize something he perceives as wrong or that which threatens autonomy and freedom ideals. In the negative sense, an individual has freedom from the external oppression of his/her thoughts or beliefs. Taking this back to the "political-liberalists tradition, a society is free when individuals have the freedom of forming their own thoughts and lives. The liberalists' emphasis of free will makes autonomy a positive aspect in this sense.

Whether in the positive or negative sense, individual autonomy has quite a number of threats, ranging from the individual him/herself to one's upbringing, social, political, religious and economic pressures. A fundamental point of concern here is the current research collaboration and networks through which individuals have to work. Certainly, freedom and autonomy become limited when there is donor dependence, that individuals have to give in to donor demands as seen on the institutional level. Besides, as a researcher, is striving for a career from where to publish scientific papers required for promotion, earn a living and this pressure easily corrupts one's thinking to give in to donor demands. More still, the pressure to do research without autonomy leaves no time for researchers to implement their personal scientific ideas and attending to family welfare. This has had negative consequences on society in that the volume of publications increases but with low-quality content beneficial to society. Nevertheless, if hypotheses from such scientific theories are not falsified after having been subjected to thorough and rigorous tests, this adds value to science [1].

In some cases, researchers have no control over their results' publication because some funders impose restrictions on

scientists from publishing certain results [6]. [6]gives an example of a solution to this, guidelines from the international committee of medical journal editors that "authors must sign an affidavit that they and not the sponsors are in control of the publication" [6 page:23]. At the developing country level, commercialization of science has made it difficult for scientists with legitimate scientific results but with a poor financial status. This is because of the limited and expensive avenues through which such scientists can publish; moreover, their peers expect them to publish in a peer-reviewed journal. This is where Aristotle's view of internal welfare is suppressed because individuals cannot make personal decisions.

One simple way to overcome pressure on individual autonomy is to acknowledge that autonomy starts from an individual; who should be able to realize his/her inner abilities so as to defend what is right. Autonomy is not pre-given but it starts with us. If we are able to realize this then we can easily transfer it to our institutions because wegovern those institutions. In this case, if an individual is not able to defend his/her rights then he/she cannot do the same for his/her institution. Thus, the academic institution's autonomy depends on individual autonomy. Basing on the current globalization, survival dictates human wellbeing. Therefore, everyone works hard for every opportunity that positions him or her in a better financial status and thus it is upon the individual to place oneself where one fits.More so, without transcending oppression of autonomy beyond regulations, norms and methodological rules, one cannot innovate. That is why much more was invented in the early days of science than today when science is over regulated and there is limited autonomy.

3. Conclusion

Throughout this article, we have tried to show the meaning of autonomy, how significant it is for both individual and institutions and we totally agree that the commercialization of science is currently threatening autonomy on both institutional and individual levels. Having given possible prescriptions on each level, we conclude that autonomy in the positive sense is more meaningful because it promotes self-realization and the ability to fight for our rights no matter what. However, this must move hand in hand with the ethics of a scientist because when ethics is lost, all the rest will be a myth especially in this era when there is much need for innovations to address current challenges such as climate change and new diseases like Cancer, Ebola, Brain degeneration and HIV-AIDS.We base this argument onImmanuel Kant's moral law and Penslar's virtue ethics as important aspects for researchers especially while carrying out experiments on humans and animals [8]. Though virtuous character varies from individual to individual, it is the researchers' obligation to be conscious of ethical principles.

References

[1] Chalmers, A. (2013), "What is this thing called Science?" 4th Edition, Open University Press, McGraw Hill.
[2] Christman, J. (2009) The Politics of Persons: Individual Autonomy and Socio-historical selves, Cambridge University Press, UK
[3] Elzinga, A. (1997), The Science-Society contract in historical transformation: with special reference to "Epistemic drift". *Social Science information, 36 (3)411-445*
[4] Finkelstein, M.J (1984), The American Academic Profession: Synthesis of Social Scientific Inquiry Since World War II, Ohio State University Press: Columbus
[5] Gibbons, M. (1999) "Science's New Social Contract with Society". *Nature* 402/C81, 11-17
[6] Krimsky, S. (2006), "Autonomy, Disinterest and Entrepreneurial Science", *Society* 43(4) 2-29
[7] Miller, R.W. (1991) "Value Freedom" excerpted from "Fact and Method in the Social Sciences.' In:Boyd, R. et al (Eds), The Philosophy of science, 1991 MIT Press, Cambridge, Mass., 744-749
[8] Penslar, R.L. (1995)*Research Ethics. Cases &Materials*, Indiana University Press, Bloomington/Indianapolis, part 1.2
[9] Roll-Hansen, N.(2005) "The Lynseko effect: Undermining the autonomy of Science." *Endeavour* 29/4, 2005, 143-147
[10] Shrader-Frechette, K. *Ethics of scientific Research*, Rowman and Littlefield , Lanham, 1994, chapters 1-2, 1-44
[11] Stanford Encyclopedia of Philosophy (SEP): several articles on Immanuel Kanthttp://plato.stanford.edu/entries/kant/ Accessed on 23/10/2016
[12] Tranoy, K.E. "The foundations of Cognitive Activity: An Historical and Systematic Sketch." Chapter 8, In:Jones, A.J.I. (Ed)*Knut Erik Tranoy. The moral Import of Science. Essays on Normative Theory, scientific activityand Wittgenstein*, Sigma, London, 1988, 121-136