Name:

Instructor:

Course:

Date:

How Has the Sociology of Science Changed across the Time

Introduction

Sociology may be considered to be a rapidly developing science which importance increases nowadays. Naturally, in the process of its development, this science focused on different fields of human knowledge but one of the most important directions of the development of sociology was sociology of science. In fact, sociology of science is a particular view of sociologists on the scientific knowledge, research and scientists at large as a part of social development. Nowadays it is particularly important to have possibly wider view on science because technology and science progress so rapidly that their influence on the society is very difficult to predict and forecast its possible effects. This is why it is very important to trace how the sociology of science has changed across the time that will help better understand the extent, to which the science has progressed. Also it is necessary to analyse the criticism of sociology of science, which is often considered to be a subjective science.

Emergency of early modern science

At the beginning it is necessary to point out that sociology of science developed in response to the scientific progress at large. It means that the rapid development of science, which has started in Europe practically after the end of the Dark Ages and the start of the Enlightenment. By the way, it is quite noteworthy that such a rapid progress of science was, to a significant extent, linked to the change in the society. To put it more precisely, it was the result of changes in

religious beliefs, cultural traditions and social structure of the society. Basically, the development of science is often associated with the most outstanding scientists, who practically revolutionised science and scientific perception of the world, if not to say the whole world and human society at large. For instance, among such scientists may be named Charles Darwin, who really revolutionized science and provoked numerous discussions in the society that are still continuing.

As a result of all these changes the science, as it is perceived nowadays, has started to develop and its development keeps progressing nowadays as rapidly as probably never before. In such a situation, it is obvious that the development of science could not fail to affect the society and social development that actually predetermined the development of sociology of science as a separate branch of sociology.

The earliest systematic studies

Naturally, on realising the fact that sociology of science is extremely important, it is necessary to dwell upon the earliest studies of this branch of sociology. First of all, it should be pointed out that initially there were two schools or, to put it more precisely, programs that constituted the basis of the first systematic studies of sociology of science.

On the one hand, there was a so-called weak programme. This programme was developed by sociologists, who strongly believed that sociological factors could influence all beliefs of the human society, including scientific knowledge. However, this program gives little explanations for erroneous beliefs that could be often encountered in any science. It should be pointed out that it is a normal thing, when a science is sometimes developed in an erroneous way until the proper way is found. Anyway, such lack of attention to the explanations of erroneous beliefs in science was a significant drawback of this school, or programme.

In an attempt to improve the situation, another programme was developed that could be defined as a strong programme. Basically it is associated with the work of two groups, notably the Edinburgh school, which was developed by David Bloor and his colleagues of the Science Studies Unit at the University of Edinburgh, and also there was Bath school, headed by Harry Collins and his colleagues from the Science Studies Unit of the University of Bath. The strong programme was based on *"the empirical programme of relativism and the principle of symmetry"* (Merton 277). Unlike, the weak programme, the representatives of the strong programme stand on the ground that it is necessary to look for explanations of erroneous beliefs in science and they basically arrived to the conclusion that it is human beliefs, for instance religious beliefs, or cultural stereotypes, that were responsible for some mistakes in science. According to this programme, science studies scholars should *"remain neutral with respect to the truth claims science makes: they should explain success of failure of a scientific theory in the same terms"* (Latour 172).

At the same time it should be pointed out that at the early stages sociology of science developed in the universities mainly and was rather theoretical science that often lacked empirical support. On the other hand, it was characterised by its high attention to the analysis of the structural contexts of scientist's behaviour. As a result, the behaviour of scientists their researches as well as the science at large was interpreted in the context of certain structural constraints each scientist was presumably constrained in. Furthermore, initially, the sociologist explanation of the institutional origin of modern led to attempts at *"detailed descriptions of the characteristic of science as an institution regulated by norms"* (Kuhn 224), which were rather subjective.

At this respect, it should be said that early sociology of science was really lacking certain degree of objectivity since, underlying the fact that scientists are influenced by the beliefs dominating in

the society or even within a science that could easily lead to erroneous scientific beliefs, sociologists, being scientists, also made their own position quite arguable, especially if to take into consideration that sociology of science was not really spread and was basically concentrated and developed in universities at that time.

The shift of sociologists' attention to practices through which scientific knowledge is constructed

Naturally, such a situation could not last for a long time because sociology of science was quite rapidly progressing branch of science and it could not fail to develop when the science at large progress rapidly. It means that the further developed of sociology of science was natural and historically predetermined by the development of science and scientific knowledge which importance for the society constantly grew.

In fact, soon it turned to be clear that the development of sociology of science on the basis of universities was insufficient that soon led to the formation of a system of pure research institutes parallel to the universities. As a result, sociologists developed their researches in their laboratories in different directions.

At this respect, it is noteworthy that the difference between government, university and industrial laboratories could be explained by their engagement in different kinds of work. It means that sociologists started to research different fields of scientific knowledge and they entered the fields which they were not interested before, such as politics, for instance, that explains such a wide spread of sociology of science in different laboratories.

At the same time, it is important to underline that it was another step in the development of sociology as a new branch of sociology. In fact such a spread of sociology of science revealed the fact that theoretical knowledge that was basically developed in universities was absolutely insufficient and it needed to be supported by more profound research in different fields of

scientific knowledge. This is why new laboratories, out of universities, had to be founded. However, what is probably more important is the fact that such structural changes contributed significantly to the further development of sociology of science, which since that time had been basically concerned about the practices through which scientific knowledge is constructed. On analysing numerous researches in different fields and the general trends of the development of science and scientific knowledge, sociologists eventually arrived to the conclusion that there were two principle ways the scientific knowledge could be constructed in.

On the one hand, there were scientific laboratories, where scientists could research and develop their studies, depending on the subject they researched. The laboratory research turned to be quite helpful and effective in better scientific understanding of a subject researched because it could provide the possibilities for certain empirical research and experiments. As a result, a scientist could more or less objectively conclude whether his/her research is held in the right way or probably his/her scientific views are erroneous. Moreover, laboratories could contribute to limitation of the influence of social beliefs dominating in the society, which as early sociologist found out significantly influenced scientific researches.

On the other hand, sociologists underlined that in order to increase the objectivity of scientific research and scientific knowledge received in the laboratory work, or in parallel to it, it was possible to use the rhetoric of professional papers. Obviously, this could contribute to the better and wider exchange of scientific knowledge that scientists developed and in their rhetoric papers they could present their position to the scientific world, which, in its turn, could react respectively, i.e. other scientists could present their views and their researches in the same fields. As a result, scientists had got a possibility to discuss their problems on the higher level. At the same time, it increased the number of scientists working on similar problems that made the

general conclusions made by scientists far more objective compared to conclusions made individually by each scientist.

The modern sociology of science

Naturally, sociology of science is constantly developing and it is progressing nowadays probably faster than in the past. Such a progress of sociology of science results in the continuing changes that take place in this field of sociology. At this respect, among the most important recent trends in sociology of science it is possible to single out the trend to widening the field of research. To put it more precisely, in the past sociology of science was basically focused on quite a narrow sphere of knowledge and often its researches were closely linked to a certain industry, for instance. In contrast nowadays, sociology of science tends to enlarge the sphere where its achievements can be applied.

As a result, nowadays sociologists view a scientist as a purveyor of cognitive authority, as a producer of knowledge (Latour) but what makes the contemporary sociology of science really unique compared to its past researches is that now a scientist is viewed as a part of the solid mechanism of human scientific knowledge and scientific achievements are traditionally analysed in complex, as a whole.

Also, nowadays science tends to be more objective and many scientific movements are oriented on political and social reform and for these movements *"science is a model for attaining progress, objectivity, and consensus in general"* (Shapin 296). Moreover, the sphere of application of scientific knowledge is constantly growing and now sociologists link the research of scientists to different spheres of life, such as power, politics, economy, which become more and more intensively explored from scientific point of view.

Conclusion

Thus, it is possible to conclude that sociology of science, being a relatively new branch of sociology, is one of the most rapidly progressing branches of this science. At the same time, the evolution of sociology of science, to a certain extent, reflects the evolution of human society and scientific knowledge and it reveals their mutual influence. Taking into account the increasing role of science in the contemporary society, it is logical to presuppose that so will increase the role of sociology of science.

Works Cited

Hess, David J. *Science and Technology in a Multicultural World: the Cultural Politics of Facts and Artifacts*. Columbia University Press, 1995.

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. The University of Chicago Press, 1996.

Latour, Bruno, et al. *Laboratory Life: the Construction of Scientific Facts*. Princeton University Press, 2006.

Latour, Bruno. *Science in Action: How to Follow Scientists and Engineers through Society*. Harvard Univ. Press, 1988.

Merton, Robert King. *The Sociology of Science: Theoretical and Empirical Investigations*. Universtity of Chicago Press, 1973.

Shapin, Steven. "Here and Everywhere: Sociology of Scientific Knowledge." *Annual Review of Sociology*, vol. 21, no. 1, Jan. 1995, pp. 289–321., doi:10.1146/annurev.soc.21.1.289.

Shapin, Steven. *A Social History of Truth: Civility and Science in Seventeenth-Century England*. The University of Chicago Press, 2007.