Use of science and technology as a tool of social change

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Abstract
Sociological approaches such as William Ogburn's theory of social change, which asserts that technology is the basic cause of social change are fully explored and applied in this discourse. A great deal of effort is made in this paper to identify the many and varied existing forms of technology and the effects changed technology has on society and culture.
The major characteristic of traditional and modern societies are also brought to the lime light in a bid to show the major cultural changes that have occurred or are occurring in society.
The computer, for example is changing the way people practice medicine, learn, work and how they relate or even think. The information superhighway is likely to perpetuate social inequalities at both national and global levels. The article also avers that besides technology, capitalism and modernization, theories such as the conflict and evolutionary help sociologists to account for the phenomena of social change a shift in the characteristics of culture and Society. It is important to point out that this paper is embedded in a Western understanding of technologies and its impact on society.

Keywords: industrialization, social revolution, technological shifts

1. Introduction
Discussions of social change among sociologists often begin with complaints or accusations about the lack of uniformity concerning its definition. The point is well taken, for practically every book on social change has a section on definitions conditioned by the author's theoretical orientation, in an attempt to narrow the concept down.

There is a multiplicity of such ventures with few features in common. Perhaps Thurman Arnold was correct, four decades ago, in suggesting that a definition is ordinarily supposed to produce clarity in thinking. It is not generally recognized that the more people define their terms, the less descriptive they become and the more difficulty they have in using them. His admonition is well taken and will be illustrated by a brief overview of an assortment of social change definitions in the ensuing paragraphs.

The examination of the different conceptualization's undertaken in the light of Karl Popper's caution that "definitions are dogmas, only the conclusions drawn from them can afford us any new insight".

In its most concrete sense, social change means that large numbers of persons are engaging in group activities and relationships that are different from those in which they or their parents engaged in some time before.

Society is a complex network of patterns of relationships in which all the members participate in varying degrees. These relationships change, and behavior changes at the same time. Individuals are faced with new situations to which they must respond. These situations reflect such factors as the introduction of new techniques, new ways of making a living, changes in place of residence and new innovations, ideas and social values. Thus social change means modifications of the way people work, rear a family, educate their children, govern them, and seek ultimate meaning in life.

But the conceptualization of social change can be approached from a number of directions. It must be underscored that there are as many definitions on the subject as there are authors on it. Numerous sociologists view social change as a change in the structure of society or alteration of the social structure.

Viewed from a somewhat different perspective, social change is the significant alteration of social structures (that is, of patterns of social action and interaction), including consequences and manifestations of such structures embodied in norms (rules of conduct), values and cultural products and symbols. It is understandable why social structure (the web of organized relationships among individuals and groups that defines the mutual rights and responsibilities) is being emphasized in change.

Social structures are not stable, tightly integrated or harmonious but are unstable, loosely put together and not torn by dissension. To ignore this profound phenomenon and process is to miss a central fact about societies. Increasingly, people accept a heraclitean view of the world as flux rather than as composed of solid building blocks. Others stress that social change is not only a change in the structure, but also in the functioning of society.

The elements emphasized in the definitions, which include the social structure, the functioning of society, social relationships, forms of social processes and time can be isolated but there are difficulties in understanding what is changing. The term change is often used loosely, and as it has been illustrated, attempts at definitions are numerous and conflicting.

Identity of change refers to a specific social phenomenon

undergoing transformation such as a definite practice, behavior, attitude, interaction pattern, authority structure, and productivity rate, voting pattern, prestige and stratification system.

The concept level of change delineates the location in a social system where a particular change takes place. Several levels maybe designated such as individual, group, organization, institution and society. The term duration means the time span over which a change form remains in its initially institutionalized state. It may refer to long – term or short – term (transitory change phenomena. The idea of direction of change may indicate development, progress or decline.

The pattern can also be linear or evolutionary, occur in cycles or stages or correspond to some other pattern. It may also be a simple fluctuation or variation on a particular theme. The magnitude may be based on the three-part schema of incremental or marginal comprehensive and revolutionary changes as discussed in the preceding section. The rate of change may be based on arbitrary scale such as fast or slow, continuous or spasmodic, orderly or erratic.

2. How technology changes societies
In its simplest sense, technology can be equated with tools. In its broadest sense, technology also includes the skills or procedures necessary to make and use those tools.

For us these new technologies are computers, satellite and various forms of the electronic media. The sociological significance of technology is that its importance goes far beyond the tool itself. The type of technology a group has sets framework for its non-material culture. Technology even influences the way people think and how they relate to one another. An example is gender relations.

Through the century and throughout the world, it has been the custom (a group's non-material culture) for men to dominate women or enjoy patriarchal relations, but today, with instantaneous communications (the material culture), this custom has become much more difficult to maintain.

All human groups make and use technology, but the chief characteristic of post-industrial societies (also called post-modern societies) is technology that greatly extends our abilities to analyze information, to communicate and to travel. These new technologies, as they are called allow us to do what has never been done in history- to probe space and other planets, to communicate almost instantaneously anywhere on the globe, to travel greater distances faster, and to store, retrieve and analyze vast amounts of information. This level of accomplishment, although impressive is really very superficial.

Of much greater significance is a level beyond this, how technology changes people's way of life. Technology is much more than the apparatus. On a very obvious level, without automobiles, telephones, televisions, computers and the like, our entire way of life would be strikingly different. In analyzing how technology spreads it is important to stress this sociological aspect of technology-how it affects people's lives.

3. The impact of the computer
When we buy groceries, a computer scans our purchases and presents a printout of the name, price and quantity of each item. Our grades are computerized and probably our paychecks as well. Essentially the computer's novelty has given way to everyday routine. It is simply another tool. Many people rejoice over the computer's capacity to improve their quality of life. They are pleased with the quality control of manufactured goods and the reduction of drudgery.

Records are much easier to keep, and people can type just one letter and let the computer print and address it to ten individuals. With much ease, one can modify this sentence, this paragraph or any section of a manuscript using the computer. The most significant areas where the computer has had an enormous impact are in medicine, education, the workplace and in geographical and social mobility.

With computers, physicians can peer within the body's hidden recess to determine how its parts are functioning or see if surgery is necessary. Surgeons can operate on unborn babies and on previously inaccessible parts of the brain. In a coming "Lab-on-a-chip," one million tiny fragments of genetic DNA can be crammed onto a disposable microchip.

Read by a laser scanner, in just a few minutes the chip reveals such things as whether a patient carries the cystic fibrosis gene or has grown resistant to AIDS drugs.

As the future rushes in, the microchip is bringing even more technological wonders. In what is called telemedicine, patients can have their heart and lungs checked with a stethoscope by doctors who are hundreds of miles away. The data are transmitted by fibre optic cables.

Some analysts are now speculating that the computer might soon lead to "doctor less" medical offices. In the field of education the computer continues to do wonders. For instance, almost every grade school in the United States introduces its students to the computer. Children learn how to type on it, as well as how to use mathematical and science software. Successful educational programmes use game like format that makes students forget they are studying. Classrooms are being wired to the Internet.

Schools able to afford the latest in computer technology are able to better prepare their students for the future. That advantage, of course, goes to students of private and other affluent public schools, thus helping to perpetuate social inequalities that arise from the chance of birth.

The computer can transform the college of the future. Each office and dormitory room and off campus residence can be connected by fibre-optic cables, and a professor can be able to transmit a 200-page- book directly from his or her office to a student's bedroom, or back the other way, in less time than it took to read this sentence.

To help students and professors do research or prepare reports, computers will search millions of pages of text. Digital textbooks will replace printed versions. Students and lectures maybe able to key in terms such as, social interaction and gender, and select their preference of historical period and geographical areas and the computer

will, for example, spew out maps, moving images and sounds.

As discussed earlier, industrialization caused work to shift from home to factory and office. Science workers can now be networked; this fundamental change may be reversed. Already millions of workers remain at home, where they perform their work on computers. On the negative side are increased surveillance of workers and depersonalization.

Despite this factor, it is apparent that the value of the computer in the world of work is undoubtedly immeasurable. Technology is certainly the driving force in social change. There are of cause, other perspectives that help to account for the changes in society, as the ensuing discussion will show. These theories are evolutionary, cyclical and social movements.

4. Mass media, propaganda and social movements

Aware of how influential the mass media are, the leaders of social movements try to manipulate the media in order to influence public opinion, how people think about some issue.

The right kind of publicity enables them to arouse a sympathetic public and to lay the groundwork for recruiting more members. Pictures of bloodied, dead baby seals, for example, go a long way in getting a group's message across. A key to understanding social movements, then, is propaganda. Although this term often evokes negative images, it actually is neutral. Propaganda, by definition, is the presentation of information in the attempt to influence people.

Propaganda in the sense of organized attempts to manipulate public opinion is a regular part of modern life. Adverts, for example, are a form of propaganda, for they present a one-sided version of reality. They can see only one side of the social issue about which they are so upset.

The mass media's relationship with social movements manifests itself through the fact that mass media are gatekeepers of social movements. If those who control and work in the mass media- from owners to reporters are sympathetic to some particular cause, one can be sure that it receives sympathetic treatment. If the social movement goes against their own views, it will be ignored or given unfavorable treatment or coverage.

If you ever get the impression that the media are trying to manipulate your opinions and attitudes on some particular social movement or some social issue, you probably are right. Far from doing unbiased reporting, the media are under the control and influence of people who have an agenda to get across. Sociology can be a liberating discipline.

It can sensitize people on the existence of multiple realities, that is, for any single point of view on some topic, there likely are competing points of view, which some find equally as compelling. Each represents reality as the individual sees it, but different experiences lead to different perceptions. Consequently, although the committee members of a social movement can be sincere, and perhaps even sacrifice for the cause, theirs is but one view of the way the social world is. If other sides were presented, the issue would look quite different.

5. Conclusion

The discussion in this paper highlights the increasing inherent complexity of and in social movements due to technologies. It is evident from the discussion made in this paper that the dynamics of conflict, gender and development are now much more complex. It has also been noted that a change in technology inevitably leads to a change in culture, a people's way of life.

To some, such changes are threatening, for example, the industrial revolution and its technological impetus (automation) affected the livelihood of many manual workers and rendered them redundant. Consequently, while some welcome new technology, others resist it. It has also been observed that the phenomenon of social change is inevitable for society owing to such processes as culture contact and its resultant effects, cultural diffusion, cultural leveling, globalization and the information superhighway views.

For instance, except in rare instances, humans have some contact with other groups, during which culture contact occurs. In this process, cultural diffusion (the spread of invention or discovery from one area to another) occurs. This leads to cultural leveling, a state of affairs whereby many groups adopt western culture in place of their own customs. With today's technology, for example, in travel and communications, cultural diffusion is certainly occurring rapidly. Air travel has made it possible for people to journey around the globe in a matter of hours.

Communication used to be limited to face-to-face speech and visual signals such as smoke, light reflected from mirrors, and written messages passed from hand to hand. Today's electronic communications transmit messages across the globe in a matter of seconds, and we learn almost instantaneously what is happening on the other side of the world. In fact, travel and communication unite to such an extent that there almost is no other side of the world any more. The result is cultural leveling, a process in which cultures become almost similar as the globalization of capitalism brings not only technology but also western culture to the rest of the world.

On another note, social movements have been found to be another source of social change as the case with temperance movements, civil rights movements, women's movements; the animal rights crusades and environmental movements.

At the heart of social movements lie grievances and dissatisfactions as people find the current thesis of society unbearable and work towards promoting social change. A relationship exists in the concepts mass media, propaganda and social movements. The mass media are gatekeepers for social movements. Their favorable or unfavorable coverage greatly affects social movements. Social movements make use of propaganda to further their causes.

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