Technology

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When people see the word ''technology'' or ''technique'', they automatically think of machines. If we look at the American Dictionary, it is defined as:
1. a technical language,
2. a) applied science
   b) a scientific method of achieving a practical purpose,
3. the totality of the means employed to provide objects necessary for human sustenance and comfort.

A related term, technique, is further clarified as:
1. the manner in which technical details are treated or basic physical movements are used; also the ability to treat such details or use such movements,
2. a) a body of technical methods and
   b) a method of accomplishing a desired aim.

These two definitions note that technology or technique refer not only to hardware but software and much more. In other words, technology is also not a collection of machines and devices, but a way of acting. In addition, technology refers to modernity. In other words, technology offers people more opportunities to upgrade their all kinds of life style.

Beyond the dictionary and other definitions, some scientists also define the term of technology. First, Teich defines that technology includes linguistic and intellectual tools and contemporary and mathematical techniques. In other words he defines technology as the organization of knowledge for practical purposes. This definition helps people to see the extent and variety of the effects of technology on both our institutions and values.

The other being, Ihde (1993) explained that there is a broad definition of technology which consists of three concepts. First, technology must have some concrete component as well as some material elements. Secondly, technology must enter into some set of praxes-uses which humans may make of these components. Last, people shall take part of the definition, a relationship between the technologies and the humans who use, design, make, or modify the technologies in question (Ihde, p.47, 1993). Therefore, this definition is used in some areas by people. For example, in contemporary sports a technological component is applied in achieving higher performance.

Third, Ellul (1964) describes that technique is a group of movements of actions generally and mostly manual, organized, and traditional, all of which unite to reach a known end, for example, physical, chemical or organic. Sociologists who are interested in the primitive prefer to use this definition because it provides them with numerous advantages. For example, it eliminates from the realm of techniques questions of religion or art.

Fourth, Feenberg (1991) tries to describe the term of technology in a different way. He says that technology is deemed ''neutral,'' without valuative content of its own. The concept consists of four points. First, technology, as pure instrumentality, is indifferent to the variety of ends it can be employed to achieve. Thus, the neutrality of technology is merely a special case of the neutrality of instrumental means, which are only contingently related to the substantive values they serve. Second, he says that technology also appears to be indifferent with respect to politics at least in the modern world, and especially with respect to capitalist and socialist societies. Third, the socio-political neutrality of technology is usually attributed to its rational character and the universality of the truth it embodies. Technology, in other words, is based on verifiable causal propositions. Last, he states that the universality of technology also means that the same standards of measurement can be applied in different settings. Thus, technology is routinely said to increase the productivity of labor in different countries, different eras, and different civilizations. Technologies are neutral because they stand essentially under the very same norm of efficiency in any and every context.

If we look at the all definitions given above, it can be seen that the main idea of new technological movements or developments is to help community to increase the quality of their social life and etc. Technology also affects more and more of educational life and have great impacts on education where the idea of information technologies can be developed fast. Today, educators can develop a global and better education system and curriculum, make learning easier, help students to get real learning experience and etc. because of the benefits of technology. With technology, students and educators have a better educational life. For this reason, educators should know where technology comes from.

Generally, there are some different ideas about the history of technology. There exists a long history of technology from Aristotle to the present. Technology draws on the framework of Western philosophic ideas. İhde (1993) remarks that the Classical Greeks were not strong in technological advances. They did, however, produce numerous inventions, often in the field of warfare or the other. Some examples are: reputed solar mirror condenses for starting fires on ships and machines for elevating or lowering gods on the stage (Ihde, 1993). It can be said that most of their technologies were, in effect, captive to their aesthetics. Second, technique is essentially oriental: it was principally in the Near East that technique first developed, and it had very little in the way of scientific foundation (Ellul, 1964). He believes that Greeks were the first to have coherent scientific activity and to liberate scientific thought. But then a phenomenon occurred which still astonishes historians: the almost total separation of science and technique. For Plato, knowledge of reality comes through the unaided, inner reason of rationalism, while for Aristotle, knowledge also comes through information about the outside World (Nichols, 1987). The technology researches indicate that Aristotle thought us how to think in terms of cause and effect, and all outside the mind begins to be manipulable.

Plato and Aristotle clearly were appreciative of what they called techne. To understand its meaning, we should ask ''Can techne include all means of technology?''. Yes, it can include the meaning of technology. Techne also indicates a virtual technology. It can be said that techne almost means technology. Some other research papers try to explain the meaning of technology in different ways.

According to Teich (1977), the normal attitude which is derived from technology is that its value lies only in profitable consequences, and research and development in itself is an unavoidable interim expense. This kind of attitude of minds explains the ''Pure Technologist''. Pure technology is related to the building of machines for their own sake and for the pride or pleasure of accomplishment. It is a creative art somewhere between art and science. According to Teich (1977), there are some examples about the pure technology. These are as follows: ''the record-breaking vehicle, built purely to see if it will behave as intended; the chess-playing computer program, devised for the sheer entertainment of seeing how well it plays; and that masterpiece in miniature, scientific American's Great International Paper Airplane Competition''.

According to Ihde (1993), the Renaissance people were interested in a much closer relation to technology, and certainly it accepted new technologies although the use remained somewhat implicit. The leading precursors of modern science were as equally fascinated by technology as by nature. Examples of technology during the renaissance include Leonardo da Vinci's incredible designs of machines for warfare, for flying, and for travel underwater, are illustrative of this fascination (Ihde, 1993).

Almost all of its definitions and its history indicate that technology or technique has some connections with other concepts such as machine, science, organization, technical operation and technical phenomenon, culture, and society.

Machines and Technique
There is a strong connection between machine and technique because technique originated with the machine. For example, Cotrell (1972) explains that whether or not people include knowledge about and control over fire as a part of technology, people must include knowledge and skills connected with the use of tools and machines. According to Ellul (1964), some relationships exist between technique and machine. First, it is quite true that all the rest developed out of mechanics; it is quite true also that without the machine the word technique would not exist. Second, he believes that technique has now become almost completely independent of the machine, which has lagged for behind its offspring. For this reason, it should be indicated that technique is implemented outside of industrial life. Today, it can be said that the techniques power has been developing separately from the growing use of machine. In addition, the machine depends upon technique and covers a small part of technique. He also believes that if we were to characterize the relationship between technique and the machine today, we could say not only that the machine is the result of a certain technique, but also that its social and economic applications are made possible by other technical advantages.

So, there has generally been an effort to identify technology with knowledge about and skills in using tools and machine (Cottrell, 1972). This process shows the connection between technology and machine. In addition, social and economic factors may affect the relationship between technique and machine. The machine is now not even the most important aspect of technique; technique has taken over all of man's activities, not just his productive activity (Ellul, 1964). According to Fellows (1995), technology comprises all that bewildering varied body of knowledge and devices by which man progressively masters his natural environment.

From another point of view, however, the machine is deeply symptomatic: it represents the ideal toward which technique strive. It may be said that the machine is almost 100 percent the result of technique because people usually create the machine from a technological process (Ellul, 1964). He also talk about another kind of relationship. This relationship is between technique and the machine. This relationship penetrates to the very core of the problem of our civilization. In other words, the machine is a cause of mechanical society because almost all things in our society such as transportation, entertainment, health, sport, education, and others can not exist without the machine. The machine, so characteristic of the nineteenth century, made an abrupt entrance into a society which, from the political, institutional, and human points of view, was not made to receive it; and man has had to put up with it as best he can. When people talk about the machine, an antisocial idea often arises because machines do not engage in social activities. For that matter, technique transfers the machine into society. Then, the society meets with the machine in terms of using it for the general or specific needs of people. Thus, when Ellul (1964) express of that technique guides mechanization, he does not mean the simple fact of human adaptation to the machine. He says that, of course, such a process of adaptation exists, but it is caused by the action of the machine. In addition, he believes that it is a radical error to think of technique and machine as interchangeable; from the very beginning we must be on guard against this misconception.

Science and Technique
Early modern science, in contrast with its Greek origins, was experimental. But to be experimental, in the historical context of early Modern Science, meant that (a) an experiment used technologies, i.e., instruments, and (b) was placed in a situation in which the natural phenomenon was controlled or put under certain constraints (Ihde, 1993). This indicates to people that there has been a relationship between technology and science since early Greek time.

Fellows (1995) believes that technology may be conceived as embodying the actions of science. People also learn that technique is an application of science. Another related example can be given. First, twentieth-century physics and chemistry are the best places to look for instances of technology that are primarily science-they driven. Second, the technological changes that have taken place in the way people live-in food, medicine, transportation, and communication, for example-have been made possible by advances in scientific research.

The atom bomb sprang fully armed from the head of science theory (Fellows, 1995). It may be said that technique determines the point of contact between material reality and the scientific formula. These formulas also can be applied to the practical life by scientists, technologists or other people. That is why it is the belief that modern technology has, as one of its major differences from all other technologies, been largely derived from Modern Science. It has been seen that in modern technology threats to high culture, liberal education, community, and humanity in some of its traditional, classical sense for many years (Ihde, 1993).

According to Ellul (1964), technology brings science and theories together. He mentions that when scientists developed science, technique began to develop and extend itself. In other words, technological and scientific developments are moving together because they are influencing each other during their process. Moreover, techniques are always put to immediate use. When scientists develop a new thing, the application of this thing takes a very short time because when people began to recognize and want this discovery, businesses are quick to capitalize on it. In other words, the new discovery will be widely used in people's life.

If there is a problem which has concerned most twentieth century philosophers of technology, and almost all philosophers of science interested in any way in technology, it is that of the relationship and difference between science and technology (Ihde, 1993). This situation creates a problem because it means the concept of both science and technology and obviously implicates the much larger problems about theory and practice, problems which exceed those of science and technology per se. This problem is not a big deal for scientist and technologist. It is important that people get their notions of science and technology right if they are to follow out the implications of either or both for the contemporary conditions of humanity (Ihde, 1993).

Therefore, all these ideas mentioned, imply that people may use the term technique in place of the more commonly used term science, and designate as technique work that is usually termed scientific.

Organization and Technique
There is a connection between organization and technique. There are several definitions for organization. First, organization is technique applied to social, economic, or administrative life (Ellul, 1964). In this definition, the author mentions that organization is used by almost all people in life to successfully accomplish their organizational or personnel goals in life. Second, the main goal of organization is to manage and accomplished objectives in an efficient and economic way. In other words, people implement organization in order to save

their time, money, and work. If people do not organize their activities, perhaps they will spent a lot of time for nothing instead of achieving their goals. The result of this process may be the cause of loosing their money and time. To be successful during the organization process, technique should be used by people in their life or work.

Organization establishes standardization and the rationalization of economic and administrative life. Standardization means resolving in advance all the problems that might possibly impede the functioning of an organization (Ellul, 1964). It aids people to develop specific rules which must be applied to efficiently and effectively solve their problems in their life by people. In addition, standardization is interested in more methods and instructions than individuals. It means that people can not create their personal standardization. It must be organizational to be used by all people. Organization is something other than technique, that man has in a way discovered a new field of action and new methods, and that people must study organization as a new phenomenon, when it is nothing of the sort (Ellul, 1964). On the other hand, he refuses to change his ideas about the continuity of the technical process. He believes that it is this process which is taking on a new aspect and is developing on a world-wide scale.

There are two kinds of consequences. First, mechanical technique produced the problems at the end of the application of technique. This organization which is succeeding technique is in some way a counterbalance to it, and a remedy (Ellul, 1964). It is mentioned that exactly the opposite is true. This development adds to the technical problems by offering a partial solution to old problems, itself based on the very methods that created the problems in the first place. Second, organization as a phenomenon whose effects can not yet be seen. However, the final results is that technique will assimilate everything to the machine; the ideal for which technique strives is the mechanization of everything it encounters (Ellul, 1964). It can be said that the technical age continues to help people successfully organize their lives. For this reason, people should think of technique and organization together in an appropriate way in order to solve their problems. Thus, people must receive the advantages of organization and technique to successfully accomplish their goals in their life.

Technical Operation and Technical Phenomenon

There is also a relationship between technique, technical operation and technical phenomenon. In this relationship, technique is seen as a method of operation that presents certain common characteristics and certain general tendencies, but people can not devote themselves exclusively to them (Ellul, 1964). Here, the technical phenomenon has many different parts, and it is difficult to understand the real meaning. Individual techniques are much more simple than technical phenomenon.

The technical operation consists of every operation carried out in accordance with a certain method in order to attain a particular end (Ellul, 1964). This is less complex because it covers a particular things but its nature is always the same. It guides people to consider that there is a continuity in technical operations and that only great refinement resulting from scientific progress differentiates the modern technical operation from the primitive one. It can be mentioned that each technical operation necessarily involves a certain technique, even the gathering of fruit among primitive people-climbing the trees, picking the fuit as quickly and with as little effort as possible, distinguishing between the ripe and the unripe fruit, and so on. Completely natural and spontaneous effort is replaced by the complex of acts designed to improve, say, the yield (Ellul, 1964). This process moves from simple forms of activity to complex forms of activity. It is believed that these technical forms are not necessarily more complicated than the spontaneous ones, but they are more efficient and better adapted.

All these processes and definitions indicate to people that there is a difference between technique and technical operation. The difference is that technique creates means, but the technical operation still occurs on the same level as that of the worker who does the work (Ellul, 1964). There are two important factors in the field of technical operations. The first, factor is consciousness which shows clearly, and to everybody, the advantages of technique and what it can accomplish. The intervention of consciousness causes a rapid and far-flung extension of technique (Ellul, 1964). The second factor is that judgment is playing an important role in the technical operation to make a right decision for people. The intervention of rational judgment in the technical operation has important consequences (Ihde, 1993). During the technical operation process, people may find or create new and different operational methods and new tools to successfully accomplish their goals.

The technical phenomenon is the main preoccupation of our time; in every field men seek to find the most efficient method (Ihde, 1993). On the other hand, there is a limitation to people's investigation. Ellul (1964) says that it is no longer the best relative means which counts, as compared to other means also in use. Hence, people try to find efficient, effective, and applicable methods for their problems during the technical phenomenon process.

Under the technical operation and technical phenomenon section, Ellul (1964) talks about three principal subdivision of modern technique. First, economic technique of organization is almost entirely subordinated to production, and ranges from the organization of labor to economic planning. There are some differences between this technique and others in terms of goals and objects. On the other hand, it has same problems like all other technical activities' problems. The second principle is the technique of organization. It concerns the great masses and applies not only to commercial or industrial affairs of magnitude but also to states and to administration and police power. To be successful in this principle application, people must pay attention to organizational technique. Finally, it is touched on human technique that takes various forms, ranging all the way from medicine and genetics to propaganda (pedagogical technique, vocational guidance, publicity, etc.).

So, it can be said that the three subdivisions present people the broad extent of the technical phenomenon. People are able to use these three applications to discover new suitable methods, rules, and application in terms of the problems occurring in their lives.

Technique and Culture
There also is an interaction between technique or technology and culture because technique always affects people's lives, behavior, communication style, and others. All technologies are embedded in culture. It can be said that these are human products that should be intuitively apparent. According to Ihde (1993), technologies entail ''ways of seeing''-whether or not technology equals the metaphysical way of seeing-that, too, implicates the particularities of culture.

Like science, technology-which is the application of knowledge or discovery to practical use-is also a feature or product of culture (Fellows, 1995). It develops in the cultural environment of a people and its career of future is also determined by the characteristics of the culture. Such very different patterns of cultural technological embedment, however, leads to another feature in the history of technology which must also be noted (Ihde, 1993). In the global world, cross-cultural exchanges have often stimulated to high technological innovation and development. For example, from the ancient history, the Hellenic-Roman people used strong engineering and technology had a powerful cultural and trade interchange within the African, Oriental, and Mediterranean worlds. In other words, the high technological movements affected the cultural developments and improved the international communication system. This international communication system developed the cultural exchanges among the countries. Today, culture is becoming global because telecommunications technologies assist people to learn and recognize other cultures around the world. The big reason is that today's people who live in other parts of the world can easily communicate and visit each other. Thus, they can create a multiculture around the world.

Technology is an enterprise common to all human cultures; it can certainly be regarded as among the earliest creations of any human society. This is because the material existence and survival of the human society depends on the ability of man to make at least simple tools and equipment and to develop techniques essential for the production of basic human needs such as food, clothing, shelter, and security (Fellows, 1995). Hence, almost all of the human cultures are built upon a foundation of technology because the knowledge and understanding of man comes from their observation and experience which consist of the use of technology. That is why people always have respected and appreciated technology or technique because of what it could offer them by way of its products. The need for, and the appreciation of, technology should have translated into real desire for innovation and improvement on existing technological products and techniques (Fellows, 1995).

Thus, we can say that if technology is to be appreciated and assimilated by the majority of a culture, it should reflect that particular culture. In other words, technology is affected by human cultures because technology emerges out of a culture. In addition, technology is driven or directed by human purposes, values, and goals.

Technique and Society
Technique or technology exists in society where people live with together. Technological change is always accomplished by social change in society. It indicates to us there is a relationship between technology and society. According to Teich (1977), the close relationship between technological and social change itself helps to explain why any given technological development is likely to have both positive and negative effects. These effects are as follow:
   1. technological advance creates a new opportunity to achieve some desired goal,
   2. this requires alterations in social organization if advantage is to be taken of the new opportunity,
   3. which means that the functions of existing social structures will be interfered with,
   4. with the result that other goals which were served by the older structures are now only inadequately achieved (Teich, 1977).

There are three ideas about the role of technology in society. First, technology is an unalloyed blessing for man and society. Technology is seen as the mother of all progress, as holding the solution to most our social problems, as helping to liberate the individual from the clutches of a complex and highly organized society, and as the source of permanent prosperity; in short, as the promise of utopia in our time (Teich, 1977). Second, technology is an unmitigated curse. Technology is said to rob people of their jobs, their privacy, their participation in democratic government, and even, in the end, their dignity as human beings. He also discuses that it is seen as autonomous and uncontrollable, as fostering materialistic values and as destructive of religion, as bringing about a technocratic society and bureaucratic state in which the individual is increasingly submerged, and as treating, ultimately, to position nature and blow up the world (Teich, 1977). The third one is different from the other two ideas. It argues that technology as such is not worthy of special notice, because it has been well organized as a factor in social change at least since the Industrial Revolution. It is unlikely that the social effects of computers will be nearly so traumatic as the introduction of the factory system in 18th-century England, because research has shown that there has been no significant change in recent decades in the time period between invention and widespread adoption of new technology, and because improved communications and higher levels of education make people much more adaptable to new ideas and to new social reforms required by technology (Teich, 1977).

A society should respond to the opportunities produced by technology to develop itself. The society sometimes does not let people develop or utilizing a particular technology. The matter of fact is that this technology may be developed in sufficient ways. For example, the cost of technological development is too high to make some profits. Second, the technology may be dangerous in itself, such as nuclear reactors which can kill billions of people in a short time.

Therefore, there is an interaction between technology or technique and society. We can see this effect anywhere in our society. For example, computer development aids society to organize work, association, company, and others to save time and money. It means that technology provides society with a new opportunities to design all things well.

Conclusion
All definitions and information presented in this paper reveal to us that there is a relationship among technology, society, culture, organization, machines, technical operation, and technical phenomenon.
Educators use widely technology in their education life to teach or deliver instruction to their students. So, educators must know the meaning of technology and interpret how it can be helpful for education.

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