THE 21ST CENTURY AS TECHNE, EPISTEME AND PRAXIS

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Abstract: *Technology is part of the activities we do in our daily lives. It is both the method by which we have come to be able to organize our lives and society and an experience in itself through the worlds and opportunities it opens up for us. Because technology has come to develop so much and be so complex, we can no longer see technology as a tool. It can mimic the human process of learning, thinking and even creation, which requires the technology to be redefined. To bring a new definition of technology, we start from the idea that man has built technology according to his resemblance so that it can do human work. For technology to cross the tool threshold, it needed to mimic human intelligence - which it did, and because of this we define technology by looking at its capacity of being episteme, techne and praxis.*

Key words: technology; episteme; techne; praxis; artificial intelligence.

Technology - from depending on human
to something without which human cannot live.

1.Introduction

Technology has been seen throughout history as a tool. This stems from the fact that technology is our creation and we made it to be useful in the activities we do. The development of technology went hand in hand with scientific development. Each discovery was used for the construction or improvement of technology or even more, the discoveries were made starting from the existing technologies and searched how to improve them.

Thousands of years of progress have helped us bring technology to a completely different form, so that today it is difficult for us to distinguish whether a work was done by a robot or a human. However, we still see technology as a simple tool, define it so broadly (Brey, 2010) and talk about it as a way to achieve our goals even though there are multiple reasons to define technology as something more.

With this in mind, we intend to define technology in a different way, in a way that considers the fact that it is no longer useless without man and that man has come to feel useless without technology. Because technology has penetrated deep into our daily lives, and because it has taken over many of our activities and our daily work has become just about using modern technology, technology can no longer be defined as a tool, it has become something capable of sustaining itself and functioning without human involvement. That being said, we still have authors trying to argue that technology is not even techne. Despite these attempts, in this paper we argue that technology is techne, episteme and praxis.

We all recognize that technology is a part of our daily lives (McCarthy and Wright, 2004; Griswold, 1989) and has taken over many of our tasks, which is why the classical technological philosophy has greatly criticized the impact of technology on the human being and the whole society (Brey, 2010; Auzias, 1965). Despite this, the humanity has always embraced technology because it made our lives much easier, and because it has contributed enormously to human well-being and increased the human life expectancy (Carrel, 1935).

One of the admirers of technology was Marx, who valued technology and all its capabilities because he saw in technology the ability to do what was beyond human power. In a way, technology was an extension of man and was seen as a true force of production (McKenzie, 1984). Without technology, society could not have developed, because it is not only a means of doing something but also the most important means of social organization, division of labour, etc.

Considering the technological development and its contribution to the prosperity of our society, we focus on defining technology through the prism of three key concepts used in philosophy to define three of the most inteligent human activities: episteme, techne and praxis.

2. Defining episteme

Episteme has a special place in the Aristotle's writings where he made a clear distinction between techne and episteme. Despite the difference, he still often identified techne with episteme. For this reason, to understand what episteme is about, we analyze several definitions of it and its particularities.

In its first hypostases, episteme was defined by Aristotle as scientific and theoretical knowledge that can be demonstrated. In his attempts to explain this concept, Aristotle also introduced the concept of *nous* (intellect, intelligence) with the help of which he tried to explain what episteme is. In one of his writings, he mentioned that intelligence (nous) is vital in the first phase of episteme development. This makes us understand that for Aristotle episteme involves thinking and intelligence to produce knowledge that can be demonstrated. This intelligence is absolutely necessary for the episteme's formation.

Another important feature of episteme is the demonstration of conclusions achieved through scientific research. Without demonstration, the theoretical knowledge is considered to be unprovable. Because of this, Aristotle divided episteme into two categories: demonstrable and unprovable. This means that episteme is about intelligence that helps to form knowledge, no matter if it is provable at the moment of discovery or not.

Aristotle's view was generalized in Focault's writings where he says that episteme is the knowledge of human sciences (Balibar, 2015). Although a little different, these approaches are still similar because the human sciences are about research-formed knowledge, which involves intelligence with both applied and unproven knowledge.

Like Aristotle and Foucault, Plato used episteme in the same sense. However, in his writings, episteme is often used instead of techne and all that because Plato was much more interested in distinguishing the difference between episteme and true opinion than between episteme and techne. Because of his research interests, Plato did not pay much attention to differentiating episteme from techne, and used it in a broad sense (Anton and Preus, 1989). The way Plato applied the concept of episteme was observed also by Griswold (1989) which said that the term was mostly interpreted as both science and method.

Unlike Plato, most authors prefer to give episteme a clear definition. For example, Brockmeier and Olson say that episteme is "the cultural order of ideas and concepts that define at a given moment in history, what knowledge is and how we gain and transmit it" (Brockmeier and Olson, 2009: 6). From this definition we can perceive episteme as human sciences together with techne. We say this by considering that in order for some knowledge to be formed we need to know methods of thinking, analyzing and interpreting information as well as methods of disseminating knowledge. In this context, episteme becomes indeed closely related to techne. Despite this close connection, we preffer to look at episteme as something separate from techne, as theoretical knowledge gained through intelligence.

Episteme emphasizes a state of knowledge or identifies theoretical scientific knowledge demonstrated using specific methods. It generally represents the totality of human knowledge, the totality of our sciences that use distinctive methods to make knowledge fruitful, to disseminate it and to discover new things. In all this process, the intelligence is what makes

the difference between direct knowledge gathered from reality, and the knowledge that passed through a filter of analysis, understanding, comparison and search of meaning and utility. In this sense, episteme represents the knowledge gained from a process of thought.
Given that people have always sought to make episteme useful in everyday life, we will further define the concept of techne, which is about how to use this theoretical knowledge.

3. Defining techne

Techne is a very old word used by Aristotle, Xenophon, Plato, and others. From the very beginning, techne was vaguely defined, which allowed the use of the concept in various discussions to explain different things, not necessarily of a similar nature. As an example, we can take the techne definition given by Aristotle that has been interpreted differently by the contemporary authors. Richard (2020) says that Aristotle referred to techne itself as episteme because a practical action requires the presence and understanding of theoretical knowledge. Although techne is perceived by Aristotle as practical knowledge, which is often found next to episteme as theoretical knowledge, *phronesis* as intelligence, *sophia* as wisdom and *nous* as intellect, he tends to identify techne with episteme because techne is perceived as something made to produce things which automatically involves theoretical knowledge and practical use of it. We agree that if we define techne as productive knowledge it cannot be separated from episteme because of two reasons: something with a practical utility cannot be built without theoretical knowledge and without a projection and thinking of its structure, including its utility and because often a theoretical knowledge is accumulated through the analysis of a real object, or in parallel with the construction of that object which allows its perfection, modification and building of other stuff. Practical objects can never be developed and be good enough if no episteme is involved in their analysis and study for improvement. Because of this close connection between techne and episteme, Aristotle tended to identify techne with episteme, as he saw productive knowledge as a direct projection of theoretical knowledge.

Like Richard, Sterne (2006) said that for Aristotle, techne was practical knowledge oriented towards producing things and reproducing them. But at the same time Sterne said that for Aristotle, techne was different from episteme; while episteme is something abstract, formal and scientific, techne is practical and it either makes or not a theoretical knowledge real.

Considering the similarities and differences, we would like to complement this perspective by saying that episteme cannot be defined as techne because not every theoretical knowledge can be used or demonstrated through practice, and not every practical knowledge involves a theoretical analysis. Nevertheless, we cannot say that techne is not episteme. If we see "episteme as theoretical knowledge; techne as productive knowledge; and praxis as practical knowledge" (Pender, 1974: 21), then techne is episteme, it represents the method and principles of producing something, which is theoretical knowledge.

The gaps in understanding techne were later filled by authors like Xenophon or Plato who identified techne with the method by which theoretical ideas were demonstrated. Xenophon said that techne is about the knowledge that describes how to do things, and Plato said that techne describes a way to demonstrate philosophical ideas (Richard, 2020). In this way, we understand that techne is the knowledge through which praxis is made or episteme is built. Even more, Plato argued that “techne and episteme must be joined, and they do join when we speak about moral necessity” (Tulley, 2008: 95-96). Even though we are able to understand techne and episteme as two separate concepts in the real world, when we talk about knowledge these two must be united. In this way we arrive at a definition of techne which tries to clarify the Aristotelian as well as the Platonic approach: techne is about doing something by understanding the need of that process of production, as well as about having knowledge and being able to make connections and to understand the process of building.

Therefore, techne is a collection of knowledge that describes methods about how to do something theoretically or practically. Meaning we cannot think or build theoretical knowledge

without knowing how it can be done (through writing, thinking, observing, etc.), just as practical actions cannot be done without theoretical knowledge and information about the method that helps to perform that action.

Because techne is about knowledge for a process of production, it has often been seen as a major factor that has intervened in social life and brought new social possibilities. Although theoretical knowledge has been vital to the discovery of new ways of doing things and has been inseparable from techne, the last one has always been considered an important element in society because it had a major impact on its development and on the main areas for social welfare. All this time episteme remained behind techne.

In this discussion we must recognize that techne, episteme and praxis (known as practice) are often together and that one cannot exist without the other. To understand better the link between episteme, techne and praxis we will focus further on analyzing the definitions of praxis and clarify what it means.

4.Defining praxis

Trying to understand the meaning of the word praxis we call in the first place the Cambridge and Merriam-Webster dictionaries. The first says that praxis is a process in which a theory or theoretical knowledge is applied in practice, and the second says that praxis is something related to practice (Cambridge Dictionary, 2021), an action that describes "the practice of an art, science or skill, or the practical application of a theory" (Merriam-Webster Dictionary, 2021).

We notice that both explanations refer to some extent to the application of some theory, knowledge in practice. Contrary to these definitions, praxis in Marxism was believed to have nothing to do with theory. Namely, theory is believed to be dependent on practice to prove itself, but practice can start from old ideas that come from the past to be tested in the present. Moreover, if we talk about episteme as theoretical and scientific knowledge, then it certainly has an influence on praxis, because it can bring ideas and explanations about the real world. To the same extent, praxis can serve as a source of theoretical research topics. However, praxis is not necessarily conditioned by theory and can take place without its existence. Because of that Smith (2004) said that for Clausewitz praxis and theory can be taken as entirely separate things. Contrary to this, Sanchez Vazquez (1997) believed that for Marx, theory was an intrinsic aspect of praxis (Marx, 1959, apud Sanchez Vazquez, 1997). In response to this, we will say that Marxism is the one that detached praxis entirely from theory and turned it into the synonym of work. Although work is a praxis it does not define praxis, it is just an example of praxis. So, in Marxism praxis is nothing more than work or any activity perceived as work.

In a way, this approach is sustained by Aristotle's definition of praxis as an activity itself with no necessary purpose, and which does not equal to leisure (Balaban, 1990), because leisure is the telos (end) of praxis.

As we can see, because praxis has been used in the context of various research, it has been defined quite differently by each author, which is why we do not have a unique definition of this concept. To better understand what praxis is about, we have built a table with some of its definitions (see table 1).

Table 1: Definitions of praxis

Year	Author	Definition
1832	Clausewitz	"strives to link the means and the ends in real world"
1838	Cieszkowski	"that something that influences with its truth not only the present but also the future"
1933	Marcuse	"the complete realization of human existence as an end in itself"
1959	Marx	"productive praxis or work is conceived as conscious material activity" "has a material, objective aspect"

1966	Hegel	"a categorical phase of the Idea in the movement towards truth" "the thing that sets goals and achieve them by action"
1967	Petrovic	"man is praxis, and he ensures the praxis"
1969	Young Lukacs	"constitutes the revolutionary act which realizes the unity of subject and object"
Books translated in 1961, 1975 and 1999	Aristotle	means action but not necessarily moral and ethical action "an end in itself" the activity itself not the result, it has no end, no limits and no purpose; it is action
1990	Balaban	praxis had more meaning for the Greeks while for our culture poesis as techne is the one that prevails and has more of our attention
2006	Wulf	"a means to mediate the consciousness and the social being, or structure and act" "putting something into practice"

Source: Author's table after Sanchez Vazquez (1997), Balaban (1990), Smith (2004) and Wulf (2006)

Starting from the definitions outlined in table 1 we will say first of all that praxis is action but not any kind of action; it is different from theory and does not always involve the application or testing a theory but certainly it involves the application of some knowledge.

From the above we observe that some authors have said that praxis can be about the exercise of a skill or ability and may describe simple human behavior. This approach is highly criticized by authors like Zuber-Skerritt that saw praxis as an "interdependence between theory and practice, research and development, thought and action" (2001, p.6); or Kemmis and Smith that charachterised praxis as "a morally - commited action" (2008, p.6), namely, an activity which involves thinking about the action itself and its implication for the future, including its results. Of a similar oppinion were Hoffman-Kipp, Artiles and Lopez-Torres that described praxis as "a dialectical union of reflection and action" (2003, p. 249) and Pullen et all. which identified praxis with "self-reflexive practice" (2017, p. 453). Even if these definitions are quite diferent, the common aspect of these definitions helped us to understand that praxis must be about action that involves the use of some knowledge.

Other authors like Aristotle defined praxis as an action, like the simple human existence. He also defined it by using concepts as poesis and telos. Telos was identified with end, which he believed was of two types: one that describes the end as a goal of action; and the second which sees the end as an actualization (Balaban, 1990). The last one is used the most to describe what praxis is, while the first explains the poesis (a means to reach the end of an action).

In his work Aristotle gave much attention to praxis because it has an immediate realization. In this way praxis becomes a complete action in the sense that at any moment of the performance of the action that moment is complete[1]. This action does not represent necessarily a moral or ethical action, it is just an action complete by its real existence and does not have a specific end, it represents the end itself by performing the activity.

Based on the definitions we have seen, for the interest of this research we will use the next definition: praxis is using the existing knowledge to perform an action.

So far, we have revealed in a clear way the meaning of the concepts episteme, techne and praxis. The first is about theoretical and scientific knowledge. The second is about the knowledge of means and methods of applying a theoretical or practical knowledge, and the last one is about practical action, about movement and performing an activity.

[1] Defining praxis as an action with no purpose, as something complete because its purpose is to perform the action itself, confused many authors which is why some of them saw praxis as poesis. To avoid this confusion, we underline the main differences between poesis and praxis. Poesis is the method that leads to the complete performance of a moment. Praxis is a complete action, it is an end in itself, while poesis is only a means of reaching the end, that is, techne.

In the context of technological revolution, we believe that all concepts have intersected over a single example - technology. Because of that, in the following part of the paper we will focus on proving that in the 21st century technology is techne, praxis and episteme.

We start by giving technology a short definition before giving it another meaning.

5.Defining technology

Looking through the definitions of technology we come across a definition which says it is something "that produces technologies, that is, the thinkers of practice" (Auzias, 1965: 6). This definition has put technology between episteme and praxis and transformed it into a tool which serves both episteme and praxis. Even though this is not false, there are and were a lot of situations in which technology served only as a method of performing an action, long before episteme existed as theoretical and scientific knowledge.

From the beginning of the humanity, technology was something very simple - a man-made tool, something meant to facilitate human activity. Of the same opinion was Plato who used the word techne to describe the manual work (Kelly, 2010).

An incipient development of the technology is also described in Rosenberg's (1976) book in which he talks about the beginnings of technology in America of the 19th century. The author told us that the technology of that time must be understood as nothing more than tools made of wood, used by humans to extract natural resources. The evolution of technology was encouraged by the discovery of gunpowder, which occurred much later. So, technology in its infancy was not the technology in the sense it is today and for this reason in the vocabularies of some nations we notice that a clear difference has been made between the simple technology and the modern technology identified with complex constructions. Examples of these nations are the French, Germans, and Slavs, which called the early technology as hand-made technology tools (Solomon, 1984). In their vocabularies, the word technology has been used to illustrate much more complex and complicated tools and constructions than those made by man (hammer, saw, etc.). Despite this difference of perception, in English, the word technology is used both to characterize the early tools and to describe the complex human tools and constructions of today.

From another perspective, Kelly ignored the complexity of technology and defined it as something that we make, something that cease to exist without humans. In his opinion, technology is something that depends on people, being inanimate and built to ease the tasks and the daily life of humans. The author believed that technology is something entirely dependent on man to exist, expand, improve, and adapt to human needs (Kelly, 2010). This idea can be highly argued in the context in which the modern technology is capable of self-sustaining. However, we cannot deny the importance of the human being in creating, building, and improving technology in order to reach the technology we have today.

Starting from the idea that the existence of technology is totally dependent on the human being, Rios Martins and Marcon Del Sano (2008) said that technology is a social construct. This way of seeing technology described it as an invention that has no meaning, purpose or name outside the human brain. If humans will cease to exist technology would remain only as a form of matter and nothing more; all the meanings we give to technology disappear outside the human mind.

While some define technology as something incapable of existing beyond the meanings and significances given by humans, others preferred to define it by considering the technology's usefulness to man. Rios Martins and Marcon Del Sano followed this logic and, after observing the types of technology, they highlighted several meanings of technology: 1) a meaning that describes technology as physical objects such as machines and tools; 2) a meaning that sees technology as a form of knowledge built by the human mind to be able to use, repair, protect and rebuild technology; and 3) a meaning that refers to technology as a set of activities of the human being. The most conveyed significance of technology is that of instrument. This probably comes from the fact that the first technology the humans built were tools to facilitate their work

in matter of survival (for hunting and security). Later, with the formation of societies and the discovery of natural minerals, humans tried to find the easiest ways to extract them. This effort has made an immense contribution to the development of technology as it was now about the development of new extraction tools and the creation of new theories on the practice utility, importance of extraction, other possible extraction methods and so on.

All the before mentioned activities which were for the human survival were called work. Because man's general goal was survival, and his entire work was about that, technology was geared toward making survival easier. Because of that, technology was ultimately transformed into a synonym of work. Probably for this reason Marx embraced so easily the technology because it served the purpose of his ideology.

Returning to the physical significance of technology we believe that no matter if technology is old or new, it still is man-made to make its life and work easier; it is a bunch of tools and machines used in everyday life. This way of explaining what technology means will further help us in our analysis and perception of technology through the prism of philosophical concepts such as techne, praxis and episteme.

6.Technology as techne

Techne never had a very clear definition. By looking into the scientific research, we find out that it was used in different contexts and that each author has chosen to adopt a certain meaning of the word rather than find a single one. In many works we identify the word techne along with technology. An example is Tabachnick (2004) who unlike others, perceived techne as something different from technology and tried to show the difference between them. To do that, the author emphasizes that although techne is sometimes translated as craft, art or knowledge, the meaning of craft must be avoided because it places great emphasis on the final product and not on the knowledge that has been used to produce that something. At the same time, the author urges us to see techne as "technical knowledge as something instrumental oriented towards the intentional production of something." The difference between techne and technology lies in these senses, namely in techne being technical knowledge and technology being the object / technique itself. Broadly speaking, in order to see techne as different from technology, we must see techne as a thought process (Heidegger, 1993, apud Tabachnick, 2004) and technology as mere tools incapable of thinking. However, the author acknowledges that old technology was about this difference, but contemporary technology is much more as it has less limits (Tabachnik, 2004).

A similar approach was proposed by Kosma and Bouchanan (2017), according to which techne was associated with technology because it was identified in ancient texts with craft. However, they argue that techne is knowledge rather than experience, it is about thinking and having some knowledge that serves as a method of producing new things or improving the existing ones.

Probably the association of techne with craft comes from the fact that often the objects or the instruments were the source of knowledge used to produce new ones. However, many times when it came to techne, the nuance of creation was lost. This was also observed by Tulley (2008) who said that in the association of techne with technology only the notion of craft was preserved but not the idea of “craft guided by knowledge” (Tulley, 2008: 94). Even more, as long as we identify technology with objects resulting from episteme, techne and praxis, then it has no way of being identified with an art. Although this has been the case for a long time, starting with the 20th century, technology began to make great strides towards change. Today, in the 21st century, the technology is much more than an object or product of industries. We will describe the technology of today to understand why we define technology as techne.

Since 1909, technology has been defined as an industrial science. That is, it was made up of knowledge of industrial arts such as metallurgy and others. Technology was not seen at that time as an independent science because it was a science that depended entirely on

knowledge in the physical sciences such as mechanics, chemistry and others (Webster' Second new international dictionary, 1090, apud Tulley, 2008). But in this context, we can ask ourselves if medicine or physics of today can be considered independent sciences while they also depend on other sciences such as chemistry, mechanics, etc.

Therefore, we see that the subtleties of Webster's definition that should have made the difference between technology and the so-called 'true' sciences is rather a subjective point of view. Because all existing sciences have used knowledge from each other to evolve, we cannot consider dependence on one science or another as a criterion for differentiating between the sciences called art and the other sciences made up of different sciences knowledge.

Probably the attempt to see technology as something other than science comes from the old perception of technology as a physical result of the application of knowledge. This can be corrected if we look at technology as something much more complex. Today's technology is no longer about objects that people must handle in order to function, but about technology's ability to function without people and the inability of people to live their daily lives without technology.

The technology we have today was built on the knowledge we have about the human being and about discoveries in other fields. For example, we have the computer that has been built following the model of human brain (networks between neurons and circulation of electrical impulses for information storage or reaction, called neural networks in IT) which functions as the main mechanism for directing technological activity. In order to give computer the opportunity to learn things, different accessories have been attached to it. These had the purpose to allow the computer to collect and store data about the surrounding world. For example, the video cameras (whose construction was inspired by the human eye) and the microphones (to record the sounds and gather information), sensors of different nature (heat, humidity, pressure, etc.). A lot of people are involved in this whole process, just like in the process of learning of any child. Many people contribute to teaching the computer to differentiate and learn new things so that in the end it will be able to recognize and react to the things it was taught about. Even more, due to the huge storage space of information and the ability to respond much faster to impulses, computers have come to do the work of many people, and we assume in the future that it will replace all the work related to memory, fast calculations, and anything not related to creation. For example, many economists have shared their work with computers, the computers do the calculations based on certain algorithms, and the economists are the ones who only enter the data to be calculated.

The processes that take place in the computer are similar to those that take place in the human brain when calculations are made, that is, some existing knowledge in a field (equations) is used to do the math. In this way we see technology using the techne. But in another sense, because of the technology's complexity, meaning a big technology made out of smaller technologies, that group of small technologies that use the techne has become the techne - knowledge about how to do something. The knowledge is stored in this technology, and technology is also the one that uses this knowledge.

For this reason, Rios Martins and Marcon Dal Sasso said that it would be a mistake to say that technology is just a tool and techniques. "We tend to think of technology as shiny tools or gadgets", but technology is more than that, it incorporates all "the machines, methods and engineering processes, theoretical knowledge and knowledge of methods and practices to produce or repair objects or even itself.

In other words, the 21st century technology has become an art in the sense that, like other arts and sciences, it has a purpose, namely, to develop more technology to help the human being to understand himself and the world around him and to help men to achieve social well-being. We find technology in medicine, in education, in every field of daily life, and behind this technology there is a lot of knowledge that has been used to build different systems to help us

in everyday life[2]. At the same time, technology is a science about technology. Even if its foundations are laid by mechanics and physics, with the development of technology it has become a science about technology, about technological mechanisms, about the programming of robots, the artificial intelligence, etc.

Considering these things, we say that the 21st century technology is techne, it is an art, a science focused on studying technology together with social problems in order to build new technology as methods to solve the human problems. Because techne is primarily concerned with building something good[3] to help the human being (Aristotle, 250 B.C., apud Kosma, Bouchanan, 2017), we will also talk about the 21st century technology as praxis.

7.Technology as praxis

Over time, technology has been defined only as an object, an instrument, an entity, a thing, a good. Therefore, it has most often been associated with poesis, meaning a method that helps to complete an action, or with techne as a body of knowledge about technology structure and usefulness that could later be used to reproduce or improve it.

However, we believe that the technology of the 21st century has become much more, like something capable of imitating the human thought and therefore to make praxis but also to be praxis. How is that?

First, we will take as example a computer. It is primarily technology as an object. To understand how technology can be a praxis we will look at how this computer works. Let's start with the question: if the computer doesn't work, is it still technology? The answer lies in the definition we give to technology, and as long as we define technology as something workable, as something built with a purpose, as a tool that we can use to achieve our goals, if a computer does not work it is no longer technology but just an object, as a rock. So, for the computer to be technology it must work.

Then, for modern technology to be useful, some mechanical processes must take place inside the object. That is, for our computer to be technology, a mechanical process must take place behind it to help it perform its functions and be useful. This process of fulfilling functions is usually seen as technology. The mechanical process is a group of technologies that allow the computer to be useful as a whole and do many functions.

Because praxis is about a process of accessing knowledge, some may say that it is found in the way technology has been built - a construction which allows the interpretation of an input and stimulates the production of an output - the Boolean Logic. But since this logic is about the existence of technology and its basic functionality, we cannot say that it is praxis. In the case of Boolean Logic, the technology does not access the information it has because it chooses to do so, but because it was built to do so, it knows to do only that. The logics of its construction can be compared to human hearing or sight. In the structure of the eye or ear there is information about how these organs work, but man does not access it, he just uses the result of that knowledge and does what genetics prescribed. In the case of the computer, Boolean Logic is that genetic information. In this case, the basic functioning processes of technology don't mean praxis.

[2] Here we can give examples of online study platforms, sites where purchases can be made, etc. Today's technology is study-based and represents an amalgam of knowledge that unfolds behind them to function.

[3] Aristotle's words about techne as something intended to bring something good were debated in classical technological philosophy in which technology was usually attacked for producing tools of mass destruction. Because technology was used in wars it was associated with destruction.

Some critics such as Heidegger saw technology as a bad thing because it invaded everyday life and came to help man in his daily routines. Because of that he believed that technology brought much comfort to humans and turned them into a reserve with useful value (for more see Brey, 2010).

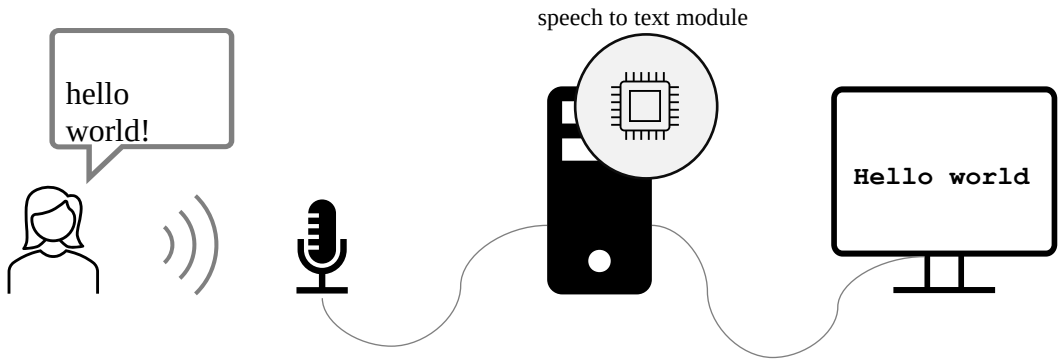
Although the classics considered technology to be bad, we say that technology cannot be bad it is just an art, a collection of knowledge and it is made to produce something to help the humans. Technology is a form of matter, it is not good or bad, these assumptions are just our subjectivity.

Technology becomes praxis when we talk about accessing and using the information stored in time, the information collected and preserved by the computer itself. That is, the process in which all the technological parts in the composition of technology help the computer to accumulate information that it can later use to respond to certain requests (impulses).
A simple example is the one related to the process of voice recording by the computer, transformation of information into text, the information storage, and later the voice playback of the text. This process involves accessing the stored information to respond to the user's request.

Or if we talk about a robot that has the function of counting trees. It must first have some knowledge in order to be able to identify the trees, it must have in its memory information about what a tree looks like, to be able to compare the image it just captured with the ones it had in order to identify the object with a tree or not. And then the counting process involves accessing information from its memory that allows it to count. In the tree counting action, the computer had to access information about how the trees look and how they are counted, so that they can do their job. This process of using the knowledge it has in order to perform an activity is praxis.

Moreover, this process of accessing information and using it to act is also technology (Boolean Logic implemented in hardware), because modern technology is built from other technology, it is a system made of independent pieces that performs some actions. Thus, we say that in the 21st century technology is praxis. To better illustrate how technology can do praxis and be praxis we draw the figure 1.

Figure 1: Technology as praxis



Source: Author's figure

In the above figure we have 2 processes:

1. The process of recording which is an action that the microphone does due to the structure and the way it was built (like hearing). The recorder and the recording process are technology.

2. The process of converting speech to text. This process is praxis because the computer performs an action by accessing both preexisting knowledge (a language database) and the data recorded previously. This process is also technology because it is a multitude of calculations at the hardware level. Hence, in this context of modern technology, technology is praxis.

All the actions made by modern technology are praxis because it involves accessing information introduced previously by man so that technology can do exactly what man would have done. But because the technology we have is made of other small technology all the actions that involve the operation of a computer are technology. In this way we came to see technology as both an object and as praxis due to its complex structure.

Although we mentioned above that technology is praxis, we must understand that praxis in technology differs from human praxis; reason why we differentiate between two types

of praxis: 1) human praxis, as a biological process related to the application of knowledge through thinking (seen as the interaction of chemical substances); and 2) technological praxis, as a mechanical process of using the knowledge.

This difference underlines that even though the human being tried to build technology after his looks; technology mimics the thought process but does not mimic the structure of the brain.

Because all this time we've been talking about technology as being able to store data and knowledge, in the next part of the paper we will analyze the relationship between technology and episteme as knowledge which involves intelligence.

8.Technology as episteme

The technology of the past can be described more as objects that were made to ease the human work, but these objects and tools had to be used and handled by man to do the work, they had to be put in the places where they had to dig, they had to be oriented in the direction in which the person would see, and even hold and pushed by humans to be useful.

Today's technology, because it has been taught to perform human tasks and to mimic the human thought process it cannot be compared anymore to objects useless without a man; it has caught up with man and sometimes surpassed him. This happened because over time the sciences we have come to incorporate a large amount of information the humans can never remember by heart. For this reason, man has chosen to develop technology so it could be able to store information and use it even for creation. Here we are talking about artificial intelligence that at first goes through an extensive learning process in order to be capable of doing the complicated tasks of people. These tasks are about using the existing knowledge, gathering new one and using all that to improve the existing things or to create new ones, meaning to replace man in the thought process. The technology we are talking about is able to self-sustain, to access the necessary networks for learning and to create new knowledge based on what it learned.

Because we have built technology to replace the human brain, it has become the episteme itself. That is, the structure of computers responsible for storing information and making connections to create new knowledge is technology - a bunch of technology pieces.

Just as a book is identified with knowledge, so is the technology that currently replaces many book libraries. And because technology is constantly seeking to improve knowledge (e.g. search engines, or translation platforms), they will be episteme in themselves, both a collection of knowledge and that process of improving existing knowledge.

9. Conclusions

Now we believe that theoretical, productive, and practical knowledge are interconnected. Nevertheless, at the very beginnings of the human being this knowledge existed independently, i.e. there was theoretical knowledge of no significance for everyday life, methods without practical use and practical knowledge with no link to any theory or method.

These concepts were used when we spoke of people, but even so it was not the case for every man. Aristotle highlighted a big difference between a simple man who builds something without having an idea of the usefulness and how to use the thing he was put to build and a man who builds something because he accumulated some knowledge based on which he decided to build that something.

Man has sought to help himself in this process of creating, thinking, and building new knowledge through thinking, and for this reason he has built the modern technology which has come to compete with humans.

The way modern technology was built and the way it works has come to transform itself into episteme, techne and praxis. Through its structure, it represents a set of knowledge used in a mechanical process of thinking; a process that is both praxis and technology, because mechanical thinking is technology; and in the end, technology is techne, it is the knowledge

about different ways of doing something and through its storage capacity it is the way of accessing knowledge and it is the knowledge itself.

10. Future research recommendations

In this research we brought a different perspective on technology, a philosophical view based on a comparison of technology with the human being.

This research can be developed in the direction of analyzing the psychological impact of the new technology on the human being, as well as the way technology is seen in contemporary society - not as a competitor to man but as an extension of man meant to help him in creation and evolution.

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