The Difference Between Science and Technology

Good day today we are going to understand more deeply the difference between science and technology. We have on the jamboard a tabular presentation which is the same as what I have shown you on the PDF file I sent. As I told you earlier, man is innately curious; he would like to know more about himself and the world where he lives. He would like to make himself better and his condition in the world better. Man is a problem solver.

Let us take as an example typhoons. Man is aware that typhoons cause death and destruction so he would have to ask himself the question, how do I avoid damage to life and property caused by typhoons. To obtain the answer, he would have to undertake a scientific study of the nature of typhoons. Sometimes, these typhoons are known as hurricane or tropical cyclones.

We all know that a typhoon brings with it strong winds and heavy rains. These forces are destructive and since there is no way that man could prevent a typhoon from occurring, the best hat he could do is move away from its path and when he could not, the best he could do would be to learn how typhoons are formed and what causes these typhoons to dissipate by dissipate. The field of science that is concentrated on the study of the weather is meteorology.

Granted that man has already learned as much he could about typhoons based on the present state of weather forecasting, what comes is the application of this knowledge. The application of knowledge as we have seen in our slides is technology. So whatever we learn from typhoons through the study of science will enable us to invent instruments to determine wind speed, and all these combined with computer imaging technologies to determine the direction of the wind and the same time it will also help us draw up or project the wind map of an existing weather situation or weather disturbance. You might have seen these when watching weather forecasts on television. At the same time also these forecasters are able to tell us which areas will have the heaviest rainfall.

Our knowledge of typhoons will help us build structures that could resist strong winds, scientific knowledge about typhoons could also help in designing houses that offer the least resistance to the wind. Finally, through our knowledge of typhoons we could design cities that would minimize the impact of typhoon-related destruction. The government would now advise citizens not to build their houses along the coast line because during typhoons, their houses could be struck by a storm surge. If they live farther from the coast line then they would be relatively safe whenever a storm surge occurs.

This is the first difference between science and technology. Science seeks knowledge while technology is the application of this new-found knowledge. Man first needs to know much about typhoons before he could make decisions on how to avoid typhoon related destruction and before he could invent instruments to measure or determine the existence of typhoons and the natural forces that make them happen.

We can now relate the first difference between science and technology to the second: Science is a way of understanding ourselves and the physical world while technology is a way of adapting ourselves to the world.

By understanding how typhoons are formed, where they are headed, how strong the winds that they bring, which is the field of science, man can now adapt himself based on the knowledge of typhoons by building stronger houses, designing houses that are not likely to be affected by strong winds and by living far from the shoreline to avoid a storm surge which, according to scientific study of typhoons is likely to occur when the winds are so fast and strong. Stronger houses and designing houses are technological applications.

This brings us to the third difference. Science is the process of asking questions and finding answers then making broad generalizations while technology is a process of finding solutions to human problems to make lives easier and better.

Man's attempt to gain more knowledge about typhoons brought answers and the technology and discoveries that technology brought has made man's situation during typhoons a lot safer since technology offers solutions like building stronger houses and having weather forecasting technology that enables man to prepare long before a typhoon reaches the places where man lives.

Now, we move on to the next comparison. Science looks for order or pattern in the world while science looks for ways to control the physical world.

Virologists and immunologists are trying as much as they can to learn about how COVID-19. Through the studies that they have done, they learned that COVID-19 may be transmitted via airborne droplets caused by sneezing, coughing, or holding objects where the virus has attached itself. Science has already discovered how COVID-19 is transmitted. Now, armed with that knowledge, we now look for ways to take advantage of this pattern of transmission. That is now the field of technology. By knowing through science how the virus is transmitted, we are advised to use personal protection equipment such as facemasks, face shields, sanitizers and foot baths. These are all products of technology. Technology against COVID-19 was invented in order that it will have a lesser chance of being transmitted. Of course it all begins with knowing the pattern by which the virus is transmitted.

First, man needs to learn everything he has to know about COVID-19 and then after that he comes up with technology that protects him against the said virus.

There is another example that is quite interesting. Pigeons in earlier times were used as communication equipment of kings and queens especially when they fought battles. In the first place, how did they think of using pigeons for communication?
People found out that pigeons always fly back to the places they were raised. Realizing this behavior of pigeons, people thought of utilizing this tendency of pigeons for practical purposes. Whenever there is a battle they would bring pigeons from their headquarters to the battlefield and

when they needed to send a message to the headquarters, they would write a note on a piece of paper and attach it to the leg of the pigeon and release the pigeon. The pigeon will then fly back as it is always programmed to do or as its instinct dictates, to where it came from. So the message is successfully delivered to the headquarters.

The knowledge about pigeons is science, using knowledge of the instinct of pigeons for practical purposes is technology.