



Prompt Nr. 23: How important are material tools in the production or acquisition of knowledge?

Word Count: 950

Material tools play a vital role in today's society. They are found almost anywhere and help us acquire knowledge like when using a smartphone to call a relative. However, the same smartphone is used to read fake news on the Internet. Therefore, it is important to discuss the relevance of material tools in the production of knowledge.



Object 1

The image shows a picture of Saturn, I took through my telescope. I could not see Saturn's rings and color without my telescope because the planet is too far away to be seen precisely with the naked eye. This shows that there is knowledge that can only be acquired with the help of tools.

In today's astronomy, many findings are limited to the use of material tools and more specifically telescopes. Using Saturn as an example, one would have not been able to determine Saturn's rings without using a telescope. Optical telescopes allow us to see interstellar objects in great magnification. Nonetheless, we can see Saturn with our naked eye in the night sky, but the planet appears to us as any other star and we cannot determine its unique shape. Galilei was the first person to see a magnified image of Saturn with his primitive telescope but was not able to correctly recognize Saturn's rings. This is because his telescope did not meet the technical requirements to see Saturn's rings precisely. In 1659, Huygens built a more enhanced telescope and correctly determined the rings.¹ Therefore, the knowledge we got about Saturn's shape could only be acquired because a material tool was used.

¹ Micek:

<https://attic.gsfc.nasa.gov/huygensgcms/Shistory.htm#:~:text=Galileo%20Galilei%20was%20the%20first,the%20%22moons%22%20had%20disappeared.> (As of 20/05/24)



Object 2

The second picture shows my sister's stethoscope which she got as a gift when she started studying medicine. When she got it, I wanted to use it and listen to my sister's stomach but could not distinguish the different sounds. I chose this object to illustrate that the significance of material tools is limited to the user of the tool.

Doctors use stethoscopes to amplify the patient's internal body sounds, which one cannot hear without this tool. This appeals similar to the Knowledge Claim of the first object, however, the person who uses the stethoscope needs to have undergone a medical education or have knowledge in the field of medicine to diagnose a patient correctly. My sister who studies medicine, knows how to use a stethoscope and can draw conclusions just like regular doctors. I, on the other hand, did not undergo a medical education and thus I am not able to correctly conclude the sounds I hear through the stethoscope. Therefore, I cannot acquire the same knowledge as my sister even though we use the same tool. I could make guesses about what the sounds I hear mean but that would probably result in a misinterpretation of the results and thus I would acquire false knowledge.

Exploring the Prompt, this object shows that the relevance of a tool can be dependent on who is using the tool and therefore the production of knowledge is dependent on who is using the tool. Not having an expert use the tool could result in producing no or even false knowledge.



Object 3

The last object I chose is my smartphone which I use every day. The access to the Internet that I have because of my phone allows me to prepare myself for physics exams by watching YouTube videos about topics that I was struggling to understand in class.

The Internet provides a lot of knowledge about various topics like quantum physics. The more I watch videos about quantum physics, the more videos related to quantum physics are recommended to me. This characteristic of the algorithm benefits me because I gain more in-depth knowledge about quantum physics. Still, I do not gain knowledge about other topics like thermodynamics because it does not fit my previous searches and therefore, I am not exposed to videos about thermodynamics.

This is the consequence of the algorithm filtering the knowledge for us. The knowledge needs to be filtered because otherwise, I would be overwhelmed by stimuli. The filtering of the knowledge starts where I type key words into my search bar. If I wanted to find the videos without typing “thermodynamics” into the search bar, I would be exposed to irrelevant videos that might not even have to do with physics. It would be hard and almost impossible to find videos that explain thermodynamics. Therefore, I would not learn about thermodynamics. To avoid this loss of thermodynamical knowledge, I need to have a certain background knowledge to filter the knowledge on the Internet. In my case, the background knowledge is that I am aware that I need to know about thermodynamic to pass my physics exam. With this background knowledge, I can filter the relevance of the knowledge I am exposed to. So, when I see videos about quantum physics again, I can simply search for videos about thermodynamics until I find a video that provides the knowledge I was looking for.

Hence, this object shows that tools can help us produce more in-depth knowledge but can also hinder us from producing new knowledge. While using a tool, we might also need to filter the knowledge we acquire with it. Therefore, background knowledge is necessary to filter the relevance of the produced knowledge.

Considering all objects, material tools play a significant role in the acquisition of knowledge. Nonetheless, one needs to use the tool carefully and always question the correctness of the acquired knowledge so that we do not lose misinterpret results or acquire false knowledge. Possessing background knowledge might be necessary to filter the relevance of the knowledge produced with the tool. Tools can help us acquire knowledge but not replace our understanding.

Bibliography

- Micek, Catherine: Saturn.
<https://attic.gsfc.nasa.gov/huygensgcms/Shistory.htm#:~:text=Galileo%20Galilei%20was%20the%20first,the%20%22moons%22%20had%20disappeared.> (As of 21/05/2024)