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ENGL 516 Literature Review

An Overview of the Computer Innards

The purpose of this research is to provide an in-depth analysis regarding what happens from the moment your finger pushes the power button to when you load up a video game, check Facebook, or watch a video on YouTube. I am wanting to research this topic and inform the reader because, in today’s world, the average person does not know how a computer operates. He or she cannot list out parts of the computer besides a keyboard, mouse, monitor, etc. The most complicated of things, such as a graphics card pushing out 4K video at 60 frames per second, should be important to people because this is the way our technology is moving. From an average computer user’s standpoint, they do not need to understand binary or how an operating system works but they should understand the functions of the different pieces of hardware. This paper will show the exact process of what happens when the computer turns on and how it displays an image and processes certain requests.

When researching this topic, I looked for very thorough information from credible sources. I also tried to find information that made sense to the average person. While my research contains some large words and heavy “computer talk,” I shall compound all the information given to be an easy approach for the average person who is interested in learning how a computer works. I believe it is important for all people to have a general understanding of the every day functions of a computer because, in the wise words of Bill Gates, “I think it's fair to say that personal computers have become the most empowering tool we've ever created. They're tools of communication, they're tools of creativity, and they can be shaped by their user.” The world is becoming surrounded by computers and technology and the user can enhance the experience by knowing what is happening under the hood.

The information I have gathered is all relatively the same, it targets different audiences and goes into more depth depending on said audience. For example, Victor Fay-Wolfe’s pieces were targeting a graduate level Computer Science class and they were filled with very high-level knowledge, such as discussing the registers and cache of the processor and the speeds related to each.

The main components covered in all sources are almost identical. They all cover motherboards, central processing units (CPU’s), storage devices such as solid-state drives, hard drives, and floppy disks, random access memory (RAM), cooling solutions such as air cooling or water cooling, and graphics cards. Something I noticed was that none of the sources were relatively up to date. I understand the difficulty of keeping technological information up to date because everything in the world of computers is changing but, as a small example, some sources listed central processing units of 4 cores and 4 threads as being “high powered” and advanced for the time period when, in the present day, we have central processing units of up to 32 cores and 64 threads. The sources all covered the exact same topics of how a computer works besides Carol Finch’s piece of toxic materials in computers. I believe this is a relevant piece to add in the paper because computers do carry harmful parts and the average user should understand this. I have seen many people try to just throw away their old computers without knowing the harm they can do on the planet and to others. (Finch)

I believe that, regarding the sources, the audience determines everything. If the audience is a younger crowd or an unrelated individual, then the content was very brief and just an overview of what happens on the inside. As an example, Ron White’s book is targeted at individuals with a desire to learn about everything that happens during a computer’s life cycle and every day activity. In comparison, the Khan Academy series was targeted at the average person trying to understand the basics, nothing too major (Khan Academy). It still gives a great overview of the entire hardware process but not to the depth and specifics that would interest professionals or individuals seeking higher level knowledge. (White)

The source from GCFLearnFree is targeted at middle school students so it gives a very basic approach of a computer. I believe that all middle schoolers should go through a small reading or two of how a computer works because most children have no idea what happens after you press the power button (GCFLearnFree.org). The video series from CodeOrg is targeted at a young adult audience and they assume you have a small knowledge of the subject already but still go over all the basic details. (CodeOrg)

In conclusion, after reading all the sources and gathering as much knowledge as possible, I believe that I am prepared and knowledgeable enough to educate the reader. I have a passion for computers and learning about why they work, and why a certain piece of hardware can improve performance massively is fascinating to me. A computer is a brain with infinite knowledge but can be extremely stupid at times. In our world, computers are becoming part of every single aspect of life and the users are controlling them. If it is not well known of how a computer works, what can go wrong inside of a computer, how to keep them running at peak performance, and why they are incredible machines, then the future cannot advance.

The demand for computer performance is increasing every single day and, from an early age, we need to feed the knowledge of computers to hopefully spark interest and have new experts in the field. In the world of computers, we know how everything inside of the case works and why it works. Humans created the computer for a reason and that reason has not stopped expanding since the creation of the first computer. The goal moving forward is to find more up to date sources and show how technology has improved in recent years.