A field that I am interested in is research psychology. Research psychology can heavily benefit from the advances of computers and technology. Even the concept of a computer system can be employed as an analog to explain the cognitive tasks of the human mind.

One would be naive to conceive psychology, or any other science, as existing in a vacuum purged of any influence. In actuality, advances in psychology are considerably influenced by culture (Kuhn). In the last half of the century technology especially computers have been advancing at an incredible rate. The advancement of computers has been even more apparent in the last two decades; especially the advancements such as the personal computer, Internet and even smart phones profoundly affected culture. Personal computers and the Internet have been compared to the printer press an invention that greatly impacted the 19th century. Even the American Dialect Society declared "Google" used as a verb to be the word of the decade (Smith).

Advances in computers and technology allows for psychological research to be accomplished with less time and cost compared to previous decades. Experiments that are coordinated among several locations across the country or even the world can have the results from all the locations be gathered for significantly less cost and in a lot less time as now this data can be transported over the Internet (Weiten & McCann). Psychological researchers previously had to rely on means such as regular mail or fax to transport data and when the data arrived at the desired location, people would have to collect and organize the data. This would be time-consuming and very costly. Now researchers can use statistical programs to do this task almost instantaneously and at very low cost. As a result, psychological researchers are more willing to embark on research with large samples. This greatly benefits psychology as experiments with larger samples are far less likely to have results occur from pure probability - the results will be

more likely to be statistically significant. As well, in the last two decades there have been a greater amount of cross culture studies that look to see if culture has any impact on the psychological phenomenon that they are examining, and if culture does have an impact, what exactly does culture effect in the phenomenon (Weiten & McCann).

The Internet can also reduce the efforts of the participants of the study which may result in more individuals volunteering for the experiment thus increasing the sample size. Instead of having the participants arrive at a certain location and time, participants can now do the experiment in the comfort of their own home at whatever time is most convenient to them (Weiten & McCann). However, there has been criticism of this approach as the conditions are far less controlled than if a person participating in an experiment did so in a controlled lab. For example, the person could be digesting something (drug and is alcohol for example) well doing the study that will alter their consciousness, or they could have other people around, such as friends or family, who could influence them to answer differently to questions compared to if they were alone in a lab (Weiten & McCann).

A good scientist goes to scrupulous lengths to collect their data in the most accurate and isolated way as possible. Computers can allow greater accuracy and even cost effectiveness in collecting data in experiments. An experimenter can have a program for their experiment such as Paradigm (Encyclopedia of Psychology) to display images, words and /or sounds to the participants at certain points in the experiment at exactly the desired time or a program can be specifically designed for the experiment. In addition, the program can be designed to track minute information such as how fast the participant presses by hundreds of second (Weiten & McCann).

A computer is not just a means for psychological research to be done; it can also be utilized as a model of the human mind. As previously stated, psychology is greatly influence by culture. In the late 1950s and early 1960s when the uses of computers were becoming more apparent, the computational theory of the mind was being developed in the fields of psychology, philosophy and cognitive science (Pinker). The computational theory of the mind is essentially that the mind functions as a computer as it processes incoming information from nature. From this information, the mind outputs an appropriate algorithm for the current situation. Variations of this theory also arise with evolutionary theories of development which is ingrained in human behaviors or instincts. Such that, members of a species that possesses adventitious algorithms are more likely to survive and produce offspring, as result, the adventitious algorithm will become prominent in the species (Pinker).

 In contemporary psychology -- psychology of the last two decades -- the computational theory of the mind is from central attributes of evolutionary psychology and is considerably dominant in cognitive psychology (Pinker). The modern computer is an auspicious analogy for many researchers for describing and understanding components of the human mind. Some psychologists such as Steven Pinker, a prominent name in cognitive and linguistic psychology, described the entire field of psychology as reverse engineering of a computer (the mind) designed by adaptations to survive in nature (Pinker).   For example, the working memory, the attribution of the mind that is responsible for how many pieces of information a person can hold in their head in a 10 to 15 second window, is often related to the RAM of a computer. Another example is the cognitive process of long-term memory. It is theorized that a high proportion of incidents of forgetting are due to improper tagging of information. Just as one is not able to find an improperly tagged file with the search function in Windows, the mind is unable to retrieve

past information which has not been tagged properly when they try to remember it (Weiten & McCann).

The notion of the computational mind and its utilization of algorithms have been taken further by the use of computer science and robotics. Since the beginning of this decade, researchers have been trying to replicate cognitive tasks of mammals with robots. An example of this would be watching a rat solve a maze to find food than designing an algorithm for a robot to produce the same behavior. The hope of the researchers is to shed clarification of cognitive tasks by being able to break down the algorithms of them (Clark & Grush).

However, this type of research is criticized by the concept that the human mind is an extraordinary complex entity (Clark & Grush). Neurologically, the brain is comprised of billions upon billions of neurons. Every day through a process of neurogenesis, thousands of new neurons are formed in the adult brain. As well, through the process of lessening, many neurons are strategically killed. Essentially, the natural computer is able to alter its hardware on a daily basis. As well, through classical and operative conditioning (learning) it is alleged that the mind also makes several new algorithms daily (Weiten & McCann). These changes in algorithms and hardware are due to the mind adapting to the environment. It would be unfathomable to attempt to isolate every single component of this computer and to figure out how all these components interact and all add up to produce its behavior. At best, many psychology experts would assert that one can only study general observations of this computer (Pinker). In addition, these researchers could just be creating in biology what is known as analogous structures: in this case entirely different algorithms that perform the same adaptive task. There is no way for them to know if this is occurring or not (Clark & Grush).

Research psychology greatly benefits from the advancement of computers and the very concept of the computer is often utilized as a model of cognitive tasks of the human mind. In psychology studies, the use of technology has made the process more time and cost effective allowing for greater amount of studies with larger samples and cross-cultural studies. Software can be used on computers in experiments to expose the participant to stimulants at the precise desired time, as well software can be specially designed to collect an array of many details. In addition, software can also collect and organize statistical data. At around the same time of the development of computers, the computational theory of the human mind was further developed and became more popular to the point where it became central to evolutionary psychology and highly dominant in cognitive psychology. The later components of the computational theory of the mind have recently been taken further in employment of computer science and robotics to shed further clarification of cognitive tasks of the mind. There is still much more to see from future progressions of computers and technology and the impact it will have on the field of research psychology.

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