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Will People Improve Confidence in Invisible Computer Operations

As computer technology booms in recent years, the users of such technology have improved their awareness of computer ethics which direct the behaviors of users and programmers. Today, almost everyone living in modern society cannot reject the fact that he or she is getting benefits from computer technology. However, how much the knowledge of computer ethics would contribute to the users' confidence in safely using computer technology still remains in question. Users use such technology which brings them convenience but still have doubt about if those invisible computer operations are safe and trustable. In the article *What is Computer Ethics*, James brought up the issue - how much people should trust a computer's invisible calculations (275)? The argument is valid, but as the time goes by, the confidence in such trust will be improved due to generalization of computer ethics and improved awareness of computer ethics.

Generalization of computer ethics has two dimensions. One is that the computer ethics now is not standalone, it has been aligned human's common ethical value. Computer technology is driven by engineers who are also human beings sharing the same ethical values in the real world. Engineers are also users. No one can put himself or herself out of this virtual world. Even though computers are "logically malleable" (James 269), are there many engineers willing to contribute malleable logic to the software they are working on? If they intentionally put malicious code in those operations, such as virus or a piece of code that could copy private information, they are also probably the potential victims of other softwares. Engineers are educated to make good things and

respect the common value in the society where creditability is the basic moral character for a person to interact with others. Once this balance is broken in the chain, there will be systematically crash in the technology industry. No matter a company or a person disobeys these computer ethics, alleged as the good things engineers need to do, under any circumstance, it will lose the trust from the public. As the information flows quickly in this digital world, the consequence for the person or the company is tremendous, and thus few people would like to take such risk. Therefore, the driver of computer technology is more willing to make good things that make technological ethics aligned with their social ethics, and maybe this is also the reason why engineers have to be trained in school seriously.

The other dimension is from technological perspective that invisible operations are not only limited to those numerical or symbolic operations, but also include many other aspects, such as data storage and security of data communication on network. James wrote his article in 1985 when people mostly used computer as a calculator or a printer. However, as time goes by, the computer technology has been diversified. His concerns may seem outdated and many of them have been addressed, for example, by enacting laws to regulate storage of financial information and intellectual property protection. Nowadays, young people don't reject using mobile banking without concerning if their private data would be sniffed on the network by malicious attacker. The reason is they believe the bank has taken security measures to protect their data and in turns they trust the computer technology could be powerful enough to protect them. The computer ethics require encrypting data before transferring data on network. This process is all invisible to users, but people would like to trust it because these computer ethics has been aligned with laws and industry's best practice. Computer ethics has been put in practice in the form of law enforcement

and technological measures as implementations, which absolutely promotes the confidence of users in using computer technology.

As the computer technology becomes mature, people gain more awareness of computer ethics and the nature of computer technology itself. When a new thing is invented, people may have doubts about its safety and reliability because people lack relevant knowledge to analyze, and thus they are intimidated by rumors. For example, food that has been genetically engineered or whose seed has been experimented in a non-gravity space has cause large controversy. Even though these new agricultural technologies have contributed a lot to the growth of production; however, people have numerous debates on its safety for human beings. However, if there are enough statistics that could support its safety and more and more people are educated to understand the nature of genetic engineering, they may not be afraid of developing such technologies or not be biased on those rumors that genetic engineering is absolutely bad. In 1980s, computer technology was an emerging topic and faced the same situation. Now, people have seen the great success of computer technology, and well understand the computer ethics either as a user or a driver of that technology. People enjoy convenience brought by computer technology, and carefully follow the instructions enforced by implementations of computer ethics, such as using proper user name and password to protect their information and using proper language and phrase to talk on social media. By experiencing the computer technology deeply and consistently, people gain more confidence in the reliability of invisible computer operations.

The challenge for computer ethics, in my opinion, is no longer to formulate policies that enforce computer ethics because most of the policies have being polished in past few decades; however, the real challenge for now is to provide continuous good experience for technology users. With technology advancement by well-educated engineers and computer ethics enforcement by

policy makers and industrial participants, the concept of computer ethics would converge to our social ethics which people are easy to understand and accept. Meanwhile, if computer technology continuously provides good and reliable experience, people would love to see easy-to-use interface that hide too much invisible details.

References

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