

Technology is No Substitute

Thomas Trimble

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---George Niepoth

George Niepoth is a 73-year-old retired automotive executive born and raised in Detroit, Michigan. He currently lives in semi-rural town outside Detroit with his wife Mary Anne on a ten-acre parcel of land complemented by a horse barn and woodshop. He is a parent of three grown children and a grandparent to three. Active in his community and his church, George is the bookkeeper of his Roman Catholic parish. In addition to his career as an engineer and technical manager for General Motors, George is an accomplished craftsman. He has a fully equipped woodshop behind his house where he crafts furniture, cabinetry and intricate toys and puzzles as gifts for his extended family. He has also helped his children design and build their homes. A few years ago, he helped his son Tom design and build a log home in rural Idaho. He is also actively involved in helping his son Peter refurbish a historic home in Denver, Colorado.

Family, community and education are extremely important to George. His German father and Scotch/Irish mother stressed family and education when he was growing up on Detroit's Northwest side. Along with his three older sisters, all of whom finished high school and two of whom went on to college and professional careers, George was taught at a very early age that education was an important part of family and community life. While George did not always enjoy school, its utility and importance were constantly impressed upon him. When his father died when George was 13, it was his sisters who convinced him that a college education would be required to fulfill his dream of becoming a pilot. George's dependence and commitment to his family ended up changing his professional plans from flying to mechanical engineering but that never changed his opinion of the value of education and its ability to transform lives. He received his bachelor's degree in Mechanical Engineering in 1951 and a Master's Degree in Automotive Engineering in 1953, both from Detroit's Wayne University (now Wayne State University). George continues to communicate his esteem for education to his children and extended family through both his words and actions.

Throughout his career and personal life, George has watched technology transform both the home and the workplace. As a child growing up, George can recall the use of manual coal burning furnaces and manual hot water heaters and contrasts them to the digital thermostats of his current home. In his professional life, George can trace how the tools of the engineering profession have changed over the years, from slide rules to hand-held calculators and from huge room-sized mainframe computers to laptop PCs. As the bookkeeper at his church, George has helped integrate technology into the business of the church, moving away from paper ledgers

towards a computer-based bookkeeping system using a piece of financial software customized to the needs of his parish.

At home, George uses a personal computer to track his family's finances, to draft letters and correspondence and to correspond occasionally via email. A dedicated reader of fiction, poetry, philosophy and theology, George also uses the word-processing program on his computer to journal and reflect on what he reads. He does not spend a lot of time surfing the World Wide Web other than to manage a small stock portfolio he has created on one of the many new daytrading sites that now inhabit the web. While George maintains that he's never been much of a writer, he believes the computer has made some writing tasks both easier and more fun. At the same time, George expresses a cautious skepticism about computers and the increasingly prevalent roles they are playing in our personal and professional lives.

Memory, Technology and Experience

Many of George's attitudes and feelings towards computers are informed by previous experiences with technology. In many ways, these attitudes reflect the impact of what Sarah Sloane calls "medial hauntings"; memories about previous experiences that can color writers' uses, prejudices and preferences for technology. For George, some of those attitudes go back to experiences growing up:

In our house in Detroit, we had a gravity hot water heating system with radiators. It was a manually coal fired furnace and so we had a coal bin that held five ton [sic] of coal and you would hand shovel the coal into the furnace. You burned a lot of coal. The houses were not very well insulated. The part of the technology there is that there were no thermostats and no controls and so the way that you'd control how hot the house was by how much fuel you had in the furnace. So often time we'd let it get too hot and then we'd shut the furnace down and then it would go out and then we'd have to start it again. This was a process that would go on pretty regularly. My father had a pretty good handle on it but he wasn't around all the time and my mother kind of had a handle on it but us kids never did. That was really a change; from that to the turn of a switch is big difference.

The other thing we had was a manual hot water heater and it was gas fired but you had to go down and turn the gas on and light it. And then you'd have to shut it off when you were done with it, which we forgot to do periodically. The first we would know that we'd forgotten it was when you turned on the cold water faucet and steam would come out. So we'd open up all the faucets and let the steam come out of all the faucets until they started running water and then you knew things were cooling down and then somebody got delegated to go down and turn the thing off. By the time the water was running through everything it was pretty safe but you never knew because everything had been stressed. Big changes in that regard even though they're just simple household items.

Now with computers, it seems as though there's a set of wonderful things that can happen. Sometimes they happen when you mean to and sometimes they happen when you don't. The cause and effect doesn't ring for me very easily. I basically have a fear of doing wrong. I've

gotten past that because I've found out you can retrace your steps for the most part, nothing's going to explode.

The connection George draws between the manual technologies in the home of his youth and his current attitudes towards computers highlights the potential for people's prior experiences to impact their approach and use of new technologies.

Use of Computers in the Workplace

Much of George's skepticism about computers can be traced back to the transformative impact of computers on the engineering profession. When asked about how computers changed engineering during his tenure at GM, he says:

They had several that I saw. Computers made calculating a lot easier, a lot simpler and a lot faster. What I also saw early on was a lack of ability to conceptualize. I saw engineers getting an answer out of a computer and then saying, "there it is." My question would be "Does that make sense to you? Is it logical to you that this could be occurring this way?" and they would say, "that's what the computer says." That was a shock to me to find that that was possible. The really bright guys never fell into that trap. They could conceptualize. That was a tough transition. Because I didn't get into the technology very strongly (as a manager), I would require anyone who was working for me to explain things to me in terms that I could understand. If they could do that, then I was convinced that they knew what they were talking about and that we were on the right track. I've had engineers explain to me that this was too complex to explain and my response was that if you can't put this into terms that I can understand then you don't really understand. Because there's something in there you should be able to take down to simple enough terms so that you can explain it to me. I found that those guys that really had their understanding of, not only new technologies, but also basic physics and mechanics could put that together. That was a beautiful thing to watch and it's a very difficult thing to watch when that's not the case.

George's regard for the computer's capacity to improve the efficiency of the technical workplace is balanced by his misgivings about the impact of computers on workers' critical thinking skills. His concerns echo those of many who believe that while computers can improve many aspects of work and social life, the limitations of their utility should also be acknowledged.

Computer as Tool

While George believes that computers can have a negative impact on people's ability to conceptualize and critically analyze problems, he also feels that people's misunderstanding of the computer's basic nature and function can lead to additional pitfalls:

All a computer is is a machine that can calculate. That's all it does. It merely takes pluses and minuses and dots and zeros, or whatever, and puts it together in some mathematical form and we've figured out how to make pictures and how to do all that. But the basic input is us. Because,

you know the old adage, "Garbage in, garbage out," and so if you put information into a program and the program has some peculiarities the answer that you get out may not be the correct answer because of the vagary of the program and the way you input the information. This is where my biggest concern was, in that you could be led astray depending on the program so that if you had a thorough understanding of the program, if you had made the limitations or the shortcuts then that was fine. But if someone else had set it up and you were the user and you tread into that gray area and you didn't understand it--I thought that was the biggest problem, conceptualizing the problem. If you understand it as a tool and you understand what it does, then it's good. But if you use it in some way that places it outside of its range then you're setting yourself up for a problem.

Impact on Community Life

George acknowledges that computers have had a dramatic impact on people's personal lives. He has strong memories of his family's use of technology in the home growing up and he often expresses concern at the impact of computers on family and community life. He remembers listening to the radio as a child with his family, eyes and ears fixed on the receiver. He recalls accompanying his father to sporting events in Detroit where he would help record game scores for his father's sporting newspaper. George is skeptical that computers can provide the same kinds of communal experiences:

I think we've maybe overblown the benefits. There was a time when we advertised that with atomic energy there wouldn't be any cost to electricity, that it would be so inexpensive that we could do everything with electricity. As we matured, and as it matured, we found out that it ain't necessarily so. That was part of the sales pitch that got us to spend all the money to do it. I feel a lot of that with respect to the computer age. It's a tool and we're finding new uses for it all the time. But I don't like it as a substitute for people, for minds, individual minds. That's my biggest concern. I think they [computers] push us further apart. When you get into the machine, when I get into it, I'm totally tied up. It's just me. There's no conversation possible; it's just me and the machine. I feel that way with television also, where we can be totally unresponsive to each other. They are wonderful things but they can be very domineering.

Discussion

George's belief that computers are best used when they are regarded as a means, rather than an end to achieving personal, social and technological goals echoes the concerns of many who feel that the benefits of computers are often overstated. At the same time, George readily admits that computers have had a positive impact on many of the tasks he takes on every day, the majority of which are oriented around record keeping and correspondence. He doesn't always find learning computer tasks particularly reflective of his own learning style, "I learn through face to face interaction and the older I get, the more so," but he has become more comfortable with computers and the error messages they often send him. As George says, "You think you're on a track and then it says, 'No thank you,' or 'You've done it again,' messages like that that I ignore consistently. What I'd like is just a better understanding of it, of what goes on with the things that I do."

George's attitudes towards computers are often related back to early experiences with technology and the impact of new technologies on his career as an automotive engineer. Memories of manual technologies in the home of his childhood where forgetting to turn off the hot water heater could mean disaster echo in his ambivalence towards similarly unpredictable hardware and software. Moreover, some of George's initial reluctance towards personal computing can be traced back to experiences with the large mainframe computers at GM, which often crashed due to the simplest programming errors, and his belief that computers often softened the critical thinking skills of the engineers who worked for him.

Popular opinion often assumes that people of George's generation are resistant to computers out of fear of change and of the unknown. George Niepoth's experiences and attitudes towards computers not only contradict this view, but also point to the value of people's experience with a range of technologies over the life course in interrogating the strengths and weaknesses of new technologies. While an engineer and manager at General Motors, George witnessed firsthand the transition from analog to digital computing and its impact on the technical workplace. His perspective and those of his generation provide invaluable entry points for the current debates over the role of new technologies in our homes, classrooms and workplaces.

Works Cited

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