Societal Change *and the Growing Divide* between knowing and understanding

by David Elkind

Social and economic changes affect children indirectly, through the modifications they engender in parental behavior. No-fault divorce laws, for example, made divorce easier and led to a substantial increase in the number of separated families. Separation necessarily challenges parental social/emotional equilibrium, which in turn affects their children. In the same way, an economic recession means that parents who are affected by it are anxious and depressed about their ability to provide adequately for their children. When parents are deeply troubled, this affects their parenting.

In contrast to social and economic change, technological change can impact children directly without mediation by parents. The introduction of television is a case in point. While parents may, at least initially, monitor children's television viewing, what children take away from television is not under their control. Television, computer games, the Internet, and cell phones, to illustrate, have changed children's understanding of space, time, and causality. In many ways, children growing up today have a very different reality than did children growing up before the electronic age.

Consider the concept of space. Before television and particularly before the Internet, space was understood primarily in terms of personal experience and distance measures. To really know about a foreign country, you had to travel to it. I recall my first trip to Europe, about which I knew only from books, and how surprised I was to see that Dutch children didn't wear wooden shoes and German children didn't wear lederhosen. Today, young people can literally see what is going on in another country, at the time it happens (e.g., the wedding of Prince William in London). Children today are virtual space travelers who can roam the world without leaving their chairs. Virtual space is a new reality unknown to previous generations of children. And virtual space is infinitely more expansive than terrestrial space.

Children's conception of time also reflects a new temporal reality. In the past our conceptions of time were based on clock and calendar measurements. Einstein added speed measurements, but those were for celestial times, not terrestrial ones. But now we measure time in nanoseconds. Much in our lives, and in our children's lives, moves much faster than before. We travel faster, which collapses both time and space. We can do things faster, from heating by microwave ovens (as opposed to conventional ovens), and by e-mail (as

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opposed to snail mail). And we can communicate faster and further using cell phones (as opposed to landline phones).

All of these changes, and more, contribute to the contemporary child's understanding of time. As in the case of space, children now live in a world of virtual time, which often intrudes into their conception of real and calendar time. If children today are more impatient than were children of the past, in part, this reflects their living in a world of virtual time. In this world they can instantly change channels and communicate in a moment not only by phone, but also by text messaging. Food can be instantly prepared by popping it into the microwave. Virtual time is infinitely more rapid than real time. If virtual space is expansive, virtual time is contractive.

It is in the domain of causality, however, where children's new conceptions can potentially have the most serious consequences. In the real world, most causal sequences were palpable and easily understood (e.g., on a farm the relation between planting seeds and their growth was easy to understand). Even in the urban world, causality was still concrete: in a store, the clerk read the price of an item and punched it into a cash register; at the bank you went to a clerk to withdraw cash from your account. The cause/effect relations were clearly understandable.

Today, however, the relations between cause and effect are far more invisible. In a store, the clerk now scans items, and their cost immediately appears on the register screen. In fact, in some stores you can bypass the clerk and scan the items yourself. Moreover, today you no longer need to go to a bank to withdraw money. You can go to an ATM and get cash any time of the day or night. At some ATMs, you can now also deposit checks without going inside the bank. While scanners and ATMs clearly speed things up, they also defy our ability to understand the relation between bar code and cash register and how the ATM is able to deliver the right amount of cash and record the amount of the checks we have deposited.

The issue here is that of knowing and understanding. Knowing is primarily being able to respond correctly, while understanding is the comprehension of why you are responding. A child may know that 2 + 2 = 4, but has little understanding of why that is so. Only when the child attains the concept of a unit quantity will he or she understand arithmetic. Children — and indeed all of us — know much more than we understand. What technology has done, particularly for young people, is to widen the gap between what they know and what they can understand.

Children's toys are a case in point. Less than a century ago, many toys for children were modeled after adult occupations and interests. (That they are what today we would call sexist is beside the point I wish to make.) Boys built model planes and created their own structures using erector sets or Lincoln logs. They not only knew, but also clearly understood, what they were doing. The same is true for those girls who engaged in knitting, weaving, and needlepoint.

Today, children fly radio-controlled planes, or sail radio-controlled boats, which they know how to operate but do not really understand how radio controls work. Children can now go online and care for and furnish a home for their Webkinz® pets. While children can do this, they have no idea how it is done. And this is true not only for children's toys, but for all facets of children's worlds, from television to computers, to cell phones, microwaves, and much more.

There are, I believe several possible negative consequences to this growing divide between what children know and what they understand. One of these consequences is that it can discourage, if not kill, curiosity. When it is really impossible to understand how something works, this discourages any sense of wonder at what is happening or any questioning of why it is happening. In support of this concern is a recent study by Kyung Hee Kim suggesting a decline in creativity in school children over the past few decades (Bronson & Merryman, 2010).

A second related concern is children's willingness to accept things on faith and without questioning them. Jean Piaget once wrote that the aim of education was to create children "who think for themselves and do not accept the first idea that is presented to them."

Yet children today have to accept that much of their world, which is in large measure technological, is beyond their understanding. They know how to watch television, use a computer, and play on a computer or talk and text on a cell phone. Yet they have little, if any, understanding of the technology that makes what they are

doing possible. This is bad enough for those of us who have not grown up with this technology, but it poses a threat of intellectual passivity in those who have.

Please understand, I am not a Luddite; it would be ridiculous to deny how much technology has changed our lives for the better. I am, after all, typing this piece on a computer, and not with the pencil and paper I used when I first began writing. At the same time, it would also be foolish to deny some of the negatives, along with the positives, that technology brings with it. Up until now most of the negatives that we have focused on are the possible aggression caused by watching television and computer games, and the sexual and violent license made possible by the Internet. These are legitimate and serious concerns.

But I believe we should be equally concerned with the contemporary child's conceptions of space, time, and in particular, causality. Knowing allows us to survive, but understanding makes us human. If children are not curious about how things work, then they may not be curious about how people work either. And it is just that curiosity that enables us to take the other person's point of view when it is different than our own — an essential requirement for a civil society.

There are things we can do to offset the growing divide between knowing and understanding. At home, and in early childhood settings, we can encourage those activities that have a direct relationship between action and effect; drawing, painting, block building, sand play are all of this variety. Growing plants and caring for animals are other activities that nourish the sense of understanding between action and consequence. A goldfish dies, for example, if it hasn't been fed or its bowl cleaned properly — a clear case of cause and effect.

Telling and reading stories in which there are clear cause/effect relations is another way of helping children understand what they may know about human relations. If the wicked witch gets punished for her bad behavior, this is a lesson in cause and effect. Taking children on nature walks and asking questions about what you observe can stimulate curiosity. A simple question of this sort is "Why does moss grow on the north side of trees?" The answer, that the north side gets little sun, is easy for children to grasp. A number of such questions can be used to stimulate and nourish curiosity and creativity.

Technology is here to stay and we should value and cherish many of its gifts, particularly in the areas of health and wellness. But we should not be blind to some of the harm technology can do. We cannot prevent children from acquiring different virtual conceptions of space, time, and causality than we do. But we can engage them in a number of activities that will ground them in the real world as well.

Reference

Bronson, P., & Merryman, A. (2010, July 10). The creativity crisis. *Newsweek*.
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