Tapscott

FOR BETTER OR WORSE

© Universal Press Syndicate

Do N-Gen children think differently? Do their experiences with the interactive media affect their minds—their personality, their self-esteem, concept of self, intelligence, and the way they process information—for the better? Many pundits say no. Robert Bly, author of *The Sibling Society,* asserts that "we are lying to ourselves about the renaissance the computer will bring. It will bring nothing. What it means is that the neocortex is finally eating itself."

Bly's views do not coincide with our experiences. The N-Geners with whom we had ongoing contact while researching this book gave us no indication that their thinking was impaired. To the contrary.

Overall, these kids seem to be different from the TV generation in a number of ways. And the trends emerging are good news for children and for society. They are alert, aware, focused, and certainly in control. What most working parents would-

n't give to embody these contemporary virtues seldom seen in the daily whirlwind of unpaid overtime, sleep deprivation, and never-ending household chores. The irony of the situation is that the kids of stressed-out parents sit in front of a PC and become the perfect portrait of these four virtues and it suits them as much as *The Thinker's* pose suits the Rodin sculpture.

Of course, it is impossible to know to what extent the psychological characteristics of this generation are affected by their experience in the interactive world. There are many other variables beyond the depth of their exposure to the new technology. For example, a large proportion of the baby boom has devoted considerable attention to effective child rearing and their children's education. For many other children there has been little parental involvement. As with any generation there is also wide variation within it because of the differences which distinguish us all, such as ethnicity, attitudes, personality, intelligence, knowledge, socioeconomic strata, and age.

However, by examining the behavior and views of a cross section of children who are advanced users of the Internet, some directions begin to emerge. We met a wide variety of kids from many different backgrounds who together covered all these variables. We communicated with kids from community computing centers in the inner city through to private schools in affluent neighborhoods. From these children, the contours of how the new media may be affecting the N-Gen mind are emerging with clarity.

Three Impressions of N-Gen Personality

From working with these children, several initial impressions emerge.

1. Acceptance of diversity.

N-Geners appear extraordinarily tolerant in many areas. Yes, as the now famous *New Yorker* cartoon noted: "On the Internet, nobody knows you're a dog." It may also be that nobody knows if you're black or white, tall or short, rich or poor, able or disabled, attractive or a geek—and, in some cases, whether you're real or a bot (a computer program with humanoid characteristics). Children regularly take on the personas of others or avatars. You may be someone else or something else like a cartoon character or an inanimate object. The fact that you're communicating with a toaster is not important—it's what the toaster has to say. Antiappliance prejudices are about as prevalent in kids' online forums as are antiblack prejudices—that is, virtually nonexistent.

2. A curious generation.

Every generation shows curiosity. Childhood is all about exploration, discovery, and investigation. Many TV generation kids have turned over a rock looking for bugs, run

through a rain shower to see what it would feel like; or climbed over the fence into a forbidden backyard to see if the evil grinch really lived there. But there is something about the shift in control from the broadcast world to the interactive world that elicits intensely heightened curiosity. Basically, children have a new world to explore. This virtual world contains much of the world's knowledge, millions of their peers, countless virtual places to discover, and thrilling, enchanting, and bizarre new experiences unimaginable when the TV generation was growing up. As virtual reality and artificial intelligence mature, this new world will continue to beckon with more allure.

3. Assertiveness and self-reliance.

Access to the media enables children to assert themselves more than any previous generation. FreeZone moderator Allison Ellis describes it as "a generation that is always sticking up for themselves—taking what is theirs." Even though the FreeZone site is monitored, the children view it as their site and they are adamant that it should not "be taken over by adults." In one instance, a girl was opposed to cyber dating—and she thought the FreeZone moderator was encouraging it. The girl was worried that this would destroy the FreeZone world. To organize against the moderator and to gain support for her point of view, she created a home page and advertised it to others. This was the digital equivalent of the 1960s petition (other kids were asked to sign it), protest leaflet (explaining the issue and the evidence citing the moderator as the promoter of cyber dating), demonstration (a show of popular support), and a 1960s "be-in" (where others discussed the issue and expressed their militancy in the chat room itself). The moderator was forced to come forward and explain her position—that she wasn't promoting cyber dating, trying to wreck the FreeZone world, or take over the kids' world.

According to *Growing Up Digital* researcher Kate Baggott, "They begin to develop self-reliance at an early age: they can find what they want and what they need quickly, easily, and honestly. Many express that they don't feel they need protection on the Net from anyone or anything." There is evidence from chat rooms that they prefer to discuss problems among themselves rather than with their parents, but will find support—not advice—among their peers on the Net. There may be cause for concern here. Developmental psychologist Joan Grusec believes that "society already has enough problems caused by reduced parental influence, lack of reasonable respect for authority, competing values from peers, the community, and TV." For her, the independence encouraged by the Net has a dark side.

It is not clear the extent to which independence means rejection of parental influence. Because of a high degree of confidence and a new openness encouraged by some parents, educators, youth workers, and even religious leaders, N-Geners are more likely to raise controversial subjects with their parents and other adults. Kids bring home condoms given to them at junior high school. My family has frequent dis-

cussions about issues that would have been unthinkable when I was growing up. This phenomenon can be better understood by looking at other aspects of the N-Gen mind.

A Contrarian Generation

Other aspects of the N-Gen mind are clearer to understand and explain. To begin, this is a contrarian generation.

Because they have the tools to question, challenge, and disagree, these kids are becoming a generation of critical thinkers. I can think of nothing more singularly important to the future of humanity.

They accept little at face value, probably because there is a medium to challenge things. Unlike the TV generation which had no viable means to interact with media content, the N-Generation has the tools to challenge ideas, people, statements—anything. These youth love to argue and debate. They can instantly comment on any information they find with the click of a mouse (blast off a message to the Webmaster on any site). And they are constantly required to make a case for something. They must then rely on their point of view, test it, and alter it if appropriate.

As the schools transform themselves for relevance, they are also learning to think critically there as well. (More on this in Chap. 7, "N-Gen Learning.")

How different from my memories of the 1950s and early 1960s. If kids' hero Captain Kangaroo said it, it must be true—and there was certainly no way to ask Mr. Green Jeans a question. If you didn't like Topo Gigio on *Ed Sullivan,* that was tough luck. Challenge something at school and we got the strap or stood in a corner. Even in the height of the youth radicalization of the 1960s, options for critique were limited. You could march in the autumn antiwar demonstration. You could write a letter to the editor or occupy the president's office at the university. But one overriding fact persisted: the main communications media of the time were unidirectional—the print and broadcast media. Communications came from the top down. Communicating through the media was something, in large part, done *to* you not *by* you.

This new media provides a platform for millions of youth to argue, worldwide and in real-time, on chat lines or at different times through online forums or bulletin boards.

"They never asked what we thought about censorship, but we're going to tell them anyway." That's the rallying cry of Peacefire, an Internet-based anticensorship organization founded by and for youth. To gain full membership in Peacefire you must be under 21 years old, although really old people—those 22 and over—can be associate members. Peacefire was founded in August 1996 to "represent students' interests in the debate over freedom of speech on the Internet." Translation: "There were very few people in mid-1996 speaking out against installing Cybersitter-type software on every school terminal in America." Setting aside for a moment the legiti-

mate concerns of parents and educators about children accessing inappropriate information on the Net, Peacefire is evidence of the contrary character of the N-Gen. The organization operates the *Cyber Rights and Digital Libraries Encyclopedia* (CRADLE); designs Web pages in exchange for a $10 per hour donation to the legal fund for the lawsuit against New York State and the Communications Decency Act; provides information about blocking software; and runs newsgroups for the discussion of issues related to under-18s and their cyber rights. (Incidentally, children whose computers have the Internet-blocking software Cybersitter installed cannot access Peacefire's Web site.)

Solid Oak software, makers of Cybersitter, found out just how contrarian this generation can be. Bennett Haselton, an 18-year-old Vanderbilt University student and cofounder of Peacefire, installed Cybersitter on his home computer and kept track of which sites it blocked. Many blocking software producers do not list the sites their systems block access to, and Haselton was surprised that sites for the National Organization for Women and the Jewish Bulletin of Southern California were among those which Cybersitter censored. Acting out of the conviction that free speech "is not harmful to those under 18," Haselton contacted the company and asked why the sites were blocked. The company did not respond until Haselton took his questions to the media. Soon afterward, the student found himself threatened with a lawsuit by Solid Oak.

"Their main concern was that they thought I had broken their codes to find out what sites were blocked, which I didn't, and [Solid Oak] thought that was illegal," Haselton says. "They were also worried that I would take their site list and post it on the Internet because I had broken the code on their whole file."

The resulting media attention has affected Solid Oak and it has proven that companies run by mature adults can be as contrary as N-Geners. "Get a life! Go hang out at the mall with the other kids or something," it e-mailed Peacefire. The company recently posted an employee-of-the-month spoof on its Web site featuring a photograph of a monkey called Bennie Weasleton. "Bennie is a young intern in our PR department," the site reads. "His tireless efforts over the past few months have resulted in a significant increase in sales revenue."

How much of an effect can 400 contrarian teenagers have on the sales revenues of a software company? At least one of Cybersitter's competitors is very interested in this answer and is watching the controversy closely. Recently, Haselton was surprised to find the name of the president of NetNanny added to Peacefire's associate membership list.

The Cybersitter controversy is not the issue foremost in Haselton's mind. "Certainly it's true that if they hadn't done this, there would be a lot fewer visitors to our site. But as an organization that's trying to gain credibility for action," Haselton says, "we can't exist forever as the people who became famous because some big com-

pany tried to push them around."

Haselton and Peacefire's 400 teen members have a lot of work yet to do. There are Web pages to design and legal bills to pay. Peacefire is named among the 15 plaintiffs in the suit brought against the state of New York and its implementation of the Communications Decency Act.

The new media also provides an environment where millions can check facts, recall previous statements, and investigate implications. At their fingertips, children have access to the historical repository of human knowledge and increasingly the tools (agents, bots) to find what they need.

This contrariness has huge implications for everyone. For example, business will need to rethink how to conduct public relations to an interactive world of N-Geners. Public relations experts James Barr and Theodore Barr describe the new realities of cyberspace marketing in which information is shared and sifted by thousands of knowledgeable people. They note that time is collapsed, facts are quickly checked, loss of credibility can be instantaneous, second chances are rare and harder to obtain, grandstand plays better be perfect, and the playing of one audience against another is far easier to detect.[1] The old approaches of broadcasting messages and publishing press releases will be inadequate. More on this in Chap. 9, "N-Gen As Consumers."

Self-Esteem

A 7-year-old girl is in a public hospital room because she has a rare skin disorder that causes her to have scabs all over her body. The first time she logs on to Ability On-Line on her computer, she posts a message that expresses some of her interests and an admission that she has only one real friend because other kids are scared of her. Within seconds a response tells her that she has just made a lot more friends.

Since September 1991, Arlette LeFevre—"Dr. Froggy" as her patients call the French-accented head of psychiatry at Toronto's Hospital for Sick Children—has been connecting children to Ability On-Line. Members telnet to Ability On-Line from across Canada and around the world. There are now over 7500 young people with disabilities or chronic illnesses communicating with one another and adult mentors through over 300 online conferences held on the BBS (bulletin board service). Adults who have "been there and done that" encourage children who, because of the physical and social barriers they face, often feel isolated from their peers at school that their futures are limited and that their lives are less meaningful because of their disabilities.

Fourteen-year-old Sarah Evans doesn't feel that way. For the past four years she has been using Ability On-Line. As host of the service's cerebral palsy conference, she has come to know just what digital media means to kids who have disabilities. While in the hospital four years ago, Sarah, who has cerebral palsy, was given a

Commodore 64, which even then was considered a fossil from the early age of home computing. If anything, Sarah's story proves that technology doesn't have to be cutting edge in order to serve a purpose. Sarah says her first computer didn't give her confidence, but it gave her the opportunity to express her confidence.

The Commodore 64 opened the door to both increased communication and independence. First, it connected her to Ability On-Line and a virtual community of people who understood exactly what social and physical barriers she encountered at school and elsewhere because of her CP. "It helps kids get to know people," Sarah says. "Sometimes people don't want to take the time to get to know you. I still have that problem, but not online. I have many friends on the BBS who I've never met in person. I don't know what they look like and I don't need to know. It just doesn't matter."

Sarah says it is physically easier for her to communicate through keyboarding and easier for others to understand than her speech because "people just don't usually want to take the time to try to understand."

"It's even more important for kids with disabilities to have computers to help them get their work done," Sarah says. "Even if there's someone to write it down for them, it's still not really their work. A computer helps me make sure my work is mine." Sarah used the old Commodore 64 to write her first book at the age of 10!

In the 1930s, sociologist G. H. Mead described "the self" as a blend of how we think different important people in our lives view us—what they think of us.[2] He called this the "generalized other." The self develops when children can imagine what others are thinking about them and realize the meaning of actions taken by others toward them. If a child imagines that others view him or her in disregard, low self-esteem can result. When a disabled girl sees others acting as if she were a freak, or worse, calling her a freak, her self-esteem is lowered. Conversely, when she is online and she imagines that others think she is interesting, her self-esteem is strengthened.

Psychologists refer to different types of self-esteem in child development. *Social self-esteem* refers to the child's relationship with parents, siblings, and peers. *Academic self-esteem* becomes a factor on entering school and the child receives feedback about him- or herself in relation to other classmates. *Physical self-esteem* refers to physical appearance and abilities. In cases of physical disabilities, social self-esteem and physical self-esteem can become so low as to paralyze the child and even inhibit the development of academic self-esteem. By reducing the effect of the disability on the construction of the self, programs such as Ability On-Line can have an enormous effect.
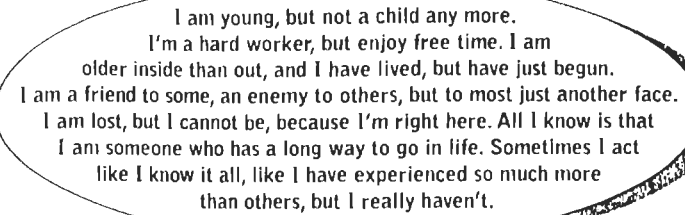
There is evidence that the self-esteem-enhancing function of the interactive media is not limited to children with visible disabilities. "The first time I went into KidsCom everyone was so nice," said 11-year-old Victoria. "They're much nicer than in class. People don't judge you based on what you look like."

Chat moderators, teachers, parents, and community workers who spend time with N-Geners invariably told us that they think this is a confident generation who think highly of themselves. It is not completely clear why this is the case, but here are a few thoughts.

One factor has to do with the interactive nature of the media itself. The influential developmental psychologist Jean Piaget explained that the construction of the self occurs as the child acts on its environment—as the child takes actions to understand what he or she can do.[3] This may explain why television is such an unproductive medium for self-esteem development—the child does not take actions but rather is acted upon. Even educational programs cannot change this nature of TV. Barney, the purple dinosaur, and his chorus invite children to sing along with their program, but the characters' actions are unaffected if a child wants to change the lyrics or speed up the tempo or simply feels that today is not a day to sing along. It may also explain why the interactive media appears to contribute to self-esteem. There is always someone on the Net who will listen to the reason why you do not feel like singing.

Children take actions continuously upon their world. But this is different from taking actions on Lego pieces (also a wonderful experience for child development, not to mention being fun). There is an important distinction between acting on the physical and acting on the social world. TV allows neither. Lego allows one. The Net allows both. The actions taken on the Net involve reading, assessing, imagining, composing sentences, searching for information, discovering new places, and interacting with others. Even with video games, which are becoming very sophisticated and multiuser, the child takes actions—leaping, stick handling, hitting (everything from cyborgs to baseballs), steering, and shifting into warp drive. The child begins to understand new things she can do.

Self-esteem also seems to be enhanced in chat groups because kids can always have another chance—they can adopt another self. In the real world, children can be labeled or isolated early in life and take years to shake it off. You may remember someone in your class who was characterized as a nerd, nose-picker, fatty, or creep—or you may have been that person. A nasty nickname can take years to shake. In cyberspace, if the child doesn't like how he has been characterized, he can adopt a new identity. The other children forget about the old creep and you've got a new self. Allison Ellis of FreeZone has 30,000 registered users but she knows the actual number of children is smaller because some of them have more than one identity. "If you came into the chat room as one kind of kid and made some other kids angry by being rude," she says, "you can change your identity and come back as a different or better person." On the Net, you get a second chance. There may be more opportunities to get things right. Kids get an opportunity to test the waters on the Net before experimenting with elements of their persona in real life.

I am young, but not a child any more. I'm a hard worker, but enjoy free time. I am older inside than out, and I have lived, but have just begun. I am a friend to some, an enemy to others, but to most just another face. I am lost, but I cannot be, because I'm right here. All I know is that I am someone who has a long way to go in life. Sometimes I act like I know it all, like I have experienced so much more than others, but I really haven't.

KELLY RICHARDS, 15
Alberta

Is it possible that through the Net, children, in particular adolescents, have a new tool and a new environment for the construction of their identities?

In response to the question on the *Growing Up Digital* forum, "In fifty words or less please describe Who Are You?" 14-year old Neasa Coll replied, "I am a disconcerted soul, unsure of what lies ahead. I am not insecure, in fact I am quite confident in myself, with goals and dreams that I strive to reach, but at this turning point in my life, I can't help but wonder what the future holds for me. While trying to revel in the joys of adolescence, I find myself surrounded by messages describing adulthood as the magical time when a person can really enjoy life. I hope that when I do reach this age I will not lose my sense of child, it will merely be displayed in a taller, stronger body." Fourteen-year-old Matt Kessler replied: "I'd have to say I'm very shy unless I know a person very well. This doesn't happen though in cyberspace. On the Net, I am one of the most outgoing people I know. Probably why I spend so much time there. If I'm with friends, I am very comical and have a good sense of humor. But when I'm alone, or with strangers, I am very serious and keep to myself. Other aspects: I enjoy sports, both watching and playing them. I have a strong sense for writing, and also read every day. I'm thinking all the time."

These statements are examples of the quest for identity first explained by psychoanalyst Erik Erikson as the most important personality achievement of adolescence and a critical step in becoming a productive, fulfilled, and happy adult.[4] Young adults' identities define who they are, what they value, their views, what they hope to pursue in life. Erikson described how it is not till adolescence that children become absorbed by the task of forming an identity. In complex societies, teenagers experience a period of confusion as they experiment with the alternatives before settling on a set of values, goals, and directions. Adolescents during this period question important assumptions that defined them in childhood. They question, rethink, analyze, explore, and eventually create a foundation that provides a sense of sameness as they shift through different roles in life.[5]

I consider myself to be somewhat cynical,
and extremely principled, and yes, a little angry. I usually
resent being told to do things which I feel are a waste of time. My basic
philosophy toward life is: do whatever makes you happy. As Denis Leary
said, "Happiness comes in small doses," so you should go after
those short moments whenever you can.

DAN ATKINS, 17
Malibu, California

What are the implications of children having vast new avenues of exploration at their fingertips? Compare the passive adolescent watching television to the active N-Gener involved in various Net-based discussions, interacting with various services, taking action in games, e-mailing friends for advice, searching for sources of information. One would think that this process of adolescent exploration would be richer for the N-Gener. Surely, you would think that the child as active rather than passive recipient would have a greater sense of empowerment to make informed choices.

There is much work to be done to understand the new media and the self. For example, the presentation of the self in everyday life has been a topic of much interest to psychologists and sociologists since the publication of an important book in 1959 by Erving Goffman entitled *The Presentation of Self in Everyday Life*. In the book, Goffman views interaction as a "performance" shaped by environment and audience to give others "impressions" that are desired by the actor. To establish an identity, individuals create a "front" which allows others to understand who they are. The front creates an appearance, personality traits, context, and attitudes which unite with the individual's behavior.

In cyberspace, the elements of the front need to be constructed almost completely by the child. In text-based chat rooms (the norm today), the child's age, size, clothing, hair length, facial features, physical demeanor, overall appearance, geographical location, social context—all the elements of the front—are unknown. The front must be constructed online. Such cyber fronts may be names or more complicated avatars and eventually become whole personalities. This provides infinitely greater possibilities for the child to create a self, or selves, which works for him or her. If it's true, as the previously noted cartoon says, "On the Internet, no one knows you're a dog," it is also true that on the Internet, everybody is a cat—with at least nine lives.

The research also showed that higher self-esteem and confidence seem a somewhat fragile phenomenon for some children. A kid's confidence can be crushed quickly online in a flaming or if the child is ignored or criticized. Allison Ellis says there are a few kids in particular that she worries about when she goes home at night. They may say online, "I hate myself," or "I'm ugly, nobody likes me, why would I

want to be your C-Girl?" (cyber girl). When this happens in FreeZone, a moderator intervenes saying something like, "Stop being so hard on yourself—you're great and we all love you." Usually a child will receive support from others in FreeZone as well. In other online environments, depending on who happens to be involved, the reaction can range from support to indifference to hostility. Feelings can also be hurt if nobody chats with you. Sometimes there can be 50 children in the room—and they all have their own conversations going on. A lonely soul may say, "Talk to me, talk to me." The monitors may respond with something like, "Why don't you be assertive and ask someone a question rather than waiting for someone to talk to you."

I guess most
people would see me as
a caring, helping, smart
person who knows her limits.
I have learned to be patient
with people who are rude or
do not understand me or
my busy family. And I
have learned to help
people who I don't
exactly like.

COSSANNA PRESTON, 12
Saskatchewan

In several extreme cases, there have been suicide threats. As with such threats in the real world, they need to be taken seriously although they may be a call for help or just attention. The FreeZone staff has taken suicide training to help them intervene in such situations.

Multiple Selves

As previously mentioned, the Net permits children to experiment with morphing their own identities. This can be both positive and negative. At any time, a 13-year-old may have, say, five windows open. In one she is herself sending an electronic mail message to her grandmother. In another, she is Kramer from *Seinfeld* behaving like him in the T2 chat room and having conversations with a stop sign, a happy face, and a Pamela Anderson from *Baywatch*. In another, she can be TROJANFAN identifying herself with her favorite football team on ESPN's Sportszone and attracting discussion about college football. In another, she can be someone she knows flirting with someone who has her own name. In a final window, she is the proverbial fly on the virtual wall watching the goings on in a MUD.

This is very different from the child who is a student during the day, an athlete after school, a daughter over dinner, and a musician at her evening piano lesson. Here she is playing different roles at different moments in time and in different locations. As MIT psychologist and professor Sherry Turkle points out, "Windows have become a powerful metaphor for thinking of the self as a multiple distributed system."[6]

Turkle explains how in traditional settings of the physical world, one steps in and out of character. In virtual spaces one has parallel identities which, if extended,

can become parallel selves and lives. For one of Turkle's subjects, real life (called RL) "is just one more window."

This can be positive, as explained earlier, in that children can enhance and create images of themselves and their worlds that are more satisfying than the real life images. They can also develop the confidence and knowledge to prepare for better realities. "I'm not afraid of anybody or anything [online]," says FreeZoner BUFFMAN, 15. "In real life I'm a little hundred-pound shrimp. But online I can be anybody."

Sometimes kids adopt a new identity for practical reasons, but they really want to reassert their old identity. A kid who is banned for inappropriate behaviors from a supervised chat session such as FreeZone may adopt a new identity to get back in. But if CYBERDUDE gets banned for swearing, he may come back as CYBERDUDE2. He could have changed his name to NETGUY, but he wants to keep CYBERDUDE because that's his dominant identity—as a bad boy who hacks (disrupts) chats.

What are the implications of a child being able to construct multiple fronts and thereby create multiple selves? Allison Ellis describes a striking situation: "I know there are some kids that have five different names that they use on a regular basis. One of them may come in as SAILOR MOON and CYBERSWEETIE, and they'll have two different browsers open and they'll be chatting with each other, like their imaginary friend, which is really weird. It could be a popularity thing—like 'Hey, someone's talking to me!!!' But we don't know if it's an actual conversation, or just the same person talking to themselves."

Is there a dark side to multiple selves which is not fully understood? If children generalize this behavior to real life, will they be more reckless because they have learned on the Net that it matters less what you do? On the Net the child may have nine lives, but not in her physical world—fail that test and you've failed the test. Insult a friend and you may have lost a friend. This may be true, but there are consequences of abandoning a Net-based self as well. A child can lose a friend on the Net. When he comes back as someone else, he has lost his old relationships. As Turkle says,

> Right now I am talking to 3 of you in emo, one in a kind of chat site, and I am looking up something on abortion for a friend . . . but I have a window open in T2 and one in Petes . . . another chat site . . . *smile* if I had powwow working I would be there too . . . *smile* so what are you doing at the moment? Besides writing to me? *smile*

LOZ, 16, online with Kate Baggott, *Growing Up Digital* Researcher

> I change my "character" every time that I am chatting, the thing that I cannot do with my friends.

SPICEGRLS, 11, f
Hertlliya, Israel

"Continuity is important for relationships." Children, therefore, are forced to think about the consequences of their actions online, that is, to manage the self.

Worse, is there a danger that children might lose control over the process of self selection and become schizoid, perhaps with multiple personalities in real life?

Turkle says that this is a false concern. She explains that multiple personality disorder results from a severe trauma where a child creates different personalities as an extreme defense mechanism to wall off the traumatic experience. "When you have trauma that's repeated, [that] you have to live with, like perhaps a father who abuses you at night, but then pours the Cheerios for you in the morning and takes you to school—you have to be able to put the abuse in a box and continue to have the Cheerios poured for you because you still need the father." A child creates a piece of him- or herself— a persona or an alternate person which is split off. "The rest of your self doesn't even know that person who holds the dangerous secret."

For Turkle, multiple personality is about self-disintegration—the opposite of what's happening when children create multiple selves on the Net. In cyberspace, children are having fun and are fully conscious of what they are doing. They are not creating walls but breaking down walls. "They develop better relationships and more communication with different aspects of their self." To her, "the Net is not about splitting off, it's about acceptance and greater harmony."

This is leading to some important new thinking regarding the self away from a view that stresses oneness, or as Turkle critiques, "a personality for all seasons." Rather, through the Net, the N-Gen may be the first generation to accept and effectively manage the many selves that flourish within us.

> The Web is the only place where you can insult someone and not have to worry about them pulling a gun on you.

JEDI5, 10, m

Intelligence

The publication of Richard J. Herrnstein and Charles Murray's 1994 book, *The Bell Curve*, sparked a new round of debate about the meaning of intelligence test scores and the nature of intelligence. The authors concluded that, among other things, racial differences in intelligence tests were due to underlying differences between races rather than environmental factors. The American Psychological Association convened an authoritative task force to explain this issue and shed light on the debate.

The report noted that individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, and to overcome obstacles by thinking. Although these individual differences can be substantial, they are never

entirely consistent because someone's intellectual performance will vary on different occasions, in different environments, as judged by different criteria. Concepts of *intelligence* are attempts to clarify and organize this complex set of phenomena. "Although considerable clarity has been achieved in some areas, no such conceptualization has yet answered all the important questions and none commands universal assent."[7] In fact, the report noted that when two dozen prominent theorists were recently asked to define intelligence, they gave two dozen somewhat different definitions.[8]

> I don't believe one should be measured by smartness. Everyone has the mind and skills to accomplish anything. It's just a matter of taking the time to do it and having initiative. Having access to the Internet does not make anyone smarter. It just increases their learning skills if they take the time to utilize the information that is available.
>
> **DEANNA PERRY, 15**
> Florida

At the center of the controversy is the measurement of individual differences in intelligence testing. This is a complex issue. (Although it should be noted that the task force rejected Herrnstein and Murray's theory.)

There is a growing appreciation that there are various forms of intelligence and that a single IQ score may be misleading at best. The "theory of multiple intelligences" developed by Howard Gardner includes musical, bodily kinesthetic, and various forms of personal intelligence as well as more familiar spatial, linguistic, and logical mathematical abilities. He argues that psychometric tests, such as IQ tests, address only linguistic and logical skills plus some aspects of spatial intelligence; other forms have been entirely ignored.[9]

For example, the 13-year-old student who gets average grades in most subjects but who scores 40 points a game in basketball or who performs with a national ballet troupe shows very high kinesthetic intelligence. Other students may be gifted musically. We can now speak of emotional and social intelligence which, incidentally, may be critical attributes in the emerging economy and organizations which emphasize teamwork and cooperation.

The key issue for us here is not individual differences, but the development of intelligence. The best-known approach is that of Swiss psychologist Jean Piaget.[10] He argues that intelligence develops in all children through the continually shifting balance between the assimilation of new information into existing cognitive structures and the changing accommodation of those structures themselves to incorporate the new information.

Notwithstanding problems with the schools, drop-out rates, and many alienated sectors of the youth population, the evidence is strong that children who are

growing up digital are more savvy, and even smarter than boomers were at similar stages of growth. They also have a significant advantage over members of their cohort who are growing up unplugged. Overall, 47 percent of the U.S. population demonstrates low or no levels of literacy. The N-Geners are soaring over these people, as well as their youthful counterparts who are not wired. In one study, after following two groups of students for three years—one in a high-income area with low access to technology, and one in a lower-income area with high access to technology—researchers found that access to computers alone could displace other factors, such as household income, in improving children's writing skills.

> I think the Internet has made me smarter, because it has given me a broader knowledge of things. . . . I asked my mother whether it has made any difference in the way I communicate and she thinks I talk more now.
>
> **JOELDINE HAYTER, 15**
> New Zealand

"We purposely chose a comparison school that people have higher expectations of because of parent income and established neighborhood," says York University education professor Ron Owston, one of the researchers on the project. The high-technology-access school was in a working-class neighborhood near the Ford Motor factory. "At first these kids were behind in their writing competency compared to the comparison school and then by second year, they matched them. By the third year, they surpassed them largely."

According to research conducted by psychologist Patricia Marks Greenfield at the University of California at Los Angeles, children are registering average raw intelligence scores that are 15 points higher than those reported on tests 50 years ago. (Average IQ, of course, is still 100 as it is a measure of intelligence normed to be 100.) Greenfield suggests this improvement in intellectual performance is largely due to the fact that current IQ testing formats have not developed at the same rate as the visual skills kids have developed to play video games and use computers.[11] Further, because the Net is a text-based communications medium, kids are constantly being challenged to compose ideas into text, increasing their visual/verbal skills.

There has been ample evidence regarding the impact of television on intelligence. The broadcast medium itself, and more important, the content which is broadcast (how shall I put this kindly) has an intellectually numbing effect. In a review of this material, psychologist Laura E. Berk explains how, overall, television inhibits social learning. At early ages, children cannot judge the reality of TV material. For example, it is not until age seven that they understand that TV fiction is not real—that there are actors and scripts. Because of this, children tend to imitate what they see on the screen. Television viewing is linked strongly to aggressive behaviors, ethnic and gender stereotypes, and consumerism. It is true that educational programs

such as *Sesame Street* can work well as a teacher. Children who watch *Sesame Street* have been found to score better on tests designed to measure the program's learning goals; and *Sesame Street* viewing is positively related to vocabulary development. However, the rapid-paced format of the program has been criticized as discouraging the development of imagination. A bigger problem is that most television is not like *Sesame Street*. TV does not support intellectual and cognitive development because it is not designed to take into account children's developmental needs. Other researchers have argued that passive viewing of such complete sensory information leads to reduced mental effort and shallow information processing.[12]

The many hours spent watching television might otherwise be spent on activities which require verbalization, sustained thinking, imagination, creative thinking, and interactivity with other children and adults. As put by psychologists Valkenburg and van der Voort: "There is evidence that TV may adversely affect a number of conditions that are important for creative imagination, that is, the ability to dis-associate oneself from existing information, a reflexive style of thinking, sustained effort, and the peace and quiet necessary to give a matter careful thought. . . . It is also possible that TV suppresses creative imagination via its role as a time-consuming activity. TV viewing occurs at the expense of time spent with verbal media, such as radio and books, which could stimulate imaginations more than TV viewing does."[13]

Compare TV watching to the digital media where children are active. They must seek out. They are always reading. They must compose their thoughts. And they must evaluate. For example, on the Net they must evaluate what is real. "One of the problems of the Net," says 14-year-old Caleb Murphy of rural New York State, "is that you never know what's real, and who's telling the truth." Children must constantly analyze, weigh, probe, and take stock of everything they find. Coco Conn describes this well. She points out that when we grew up, we never felt that we could look at a picture and feel that it was a fake. We grew up very innocently—adults would tell us reality and we accepted that. A fact was a fact. "Children today have the luxury of understanding that everything they see or hear is not necessarily true," she says. "They see a photograph and know it could be totally fabricated. Kids today are developing a higher level of self-confidence—an ability to look critically at what their parents would simply accept as a given."

It doesn't take much imagination to see how such an active, self-directed cognitive activity would help in the construction of complex brain structures and intellectual capabilities. Especially when compared to watching a cartoon on television.

Computers in the school can have a positive impact on learning and thereby intellectual development. Computers are more effective teaching devices because processing computer operations mirrors the operations of the human cognitive system as information travels from sensory memory to short-term memory to long-term memory. They also enable self-paced and student-oriented learning as opposed to

"one-size-fits-all learning." New technologies are increasing not only intellect but the amount we can teach our children, and also how much they retain. This issue is investigated further in the chapter on N-Gen learning.

Having said this, the first three years of life are the most important in terms of the development of intelligence, and the digital media is currently used very little by this age group. As the technology matures, we can expect that even very young children may begin to benefit.

Spatial Orientation

Children develop a number of *spatial operations* at different stages of development. These deal with distance, directions, and the relationships between objects in their world. How is this process affected when the children participate in a virtual world?

When psychologists discuss *spatial orientation*, they are referring to operations on the immediate environment. There is no evidence that this is different for N-Geners. While N-Geners understand the basic operation of spatial distances, as did previous generations, they appear to lack appreciation of global distances. They may be the first generation with a truly global perspective. The world to them is (to use a term of Nicholas Negroponte) "the size of the head of a pin."[14] My daughter happily chats with people from anywhere on the planet as if they were next door, oblivious to the question of where they are.

Someone who has been very close to these kids over many years is Coco Conn, director of the project Cityspace. Coco has been working with N-Geners to help them create virtual cities. Cityspace confronts children with the task of cooperatively building environments—creating virtual streets, buildings, rooms, even furniture. To do this, they must negotiate with other children from multiple locations. They must collaborate regarding the ownership and use of material that they can't hold or touch. In the non-cyberworld, whoever is holding the doll or baseball largely controls how that object is used. But the virtual objects of the cyberworld require kids to develop more sophisticated negotiation skills and a clearer understanding of the concept of ownership. As children begin to work in such environments, their concept of space and distance change, to name a few.

"The United States is insular, and children know very little about the cultures of other countries. The Net will change this," says Coco. "It will allow the kids to navigate to other countries and spend time with non-American kids. It will create a different matrix in their minds of the world." She describes how adults picture the world as a big ball with other countries being far away, and to get to another country you have to get on a plane and fly there. Adults write-off large parts of the world because we can't imagine ourselves actually ever going there. In this generation's mind, the grid will be much different, with them understanding that decisions they

make at home will have implications for people living beyond their immediate neighborhood and country. "Today's kids are far more aware of the global context. They know they are a small piece of the whole. They are much smarter in understanding that the world is a tiny place and they are much more globally conscious."

A good example of this global orientation occurred when the FreeZone staff staged a mock election during the 1996 U.S. presidential campaign (most of FreeZone's 30,000 accounts are American children). MOOSELIPS decided to run for president. His candidacy was greeted with some consternation from others making comments like: "Is this a U.S. election? There are other countries in the world you know." Children from other countries made statements like, "What about us in Malaysia?" The kids agreed that it was inappropriate to have a U.S. election campaign only. As a compromise, they continued with MOOSELIPS' campaign but launched a separate election for the position of president of FreeZone. So, through this exercise, thousands of American children were confronted with the global and international character of the world.

N-Gen Thinking

Is this a generation of children who are beginning to process information and reason differently than the rest of us?

Psychologists have found the computer analogy to human information processing very helpful. The best-known approach views information as being stored in a very short-term "sensory registry," then active working memory, and then, as deeper cognitive structures are developed, long-term memory. As information flows through these different levels of hardware, it can be operated on by software—called *control processes* and *mental strategies*.[15] As Laura E. Burk explains, using computer-like diagrams and flowcharts, researchers can "map the exact series of steps children . . . execute when faced with a task or a problem." Computer simulations of mental operations can be developed and used to understand and predict outputs of information processing.[16]

It will be a long time, if ever, before computers can simulate human brain functioning, but the information-processing model is useful in helping us study how the new media may affect thinking. This research is in its infancy, but let me give an example of the change.

The typical boomer wrote an essay in school by conducting research, developing an outline, and composing the essay from beginning to end. The tool for construction of the written word was the pen and paper or, perhaps, the typewriter. The input of information and the output was typically done in a serial fashion. Similarly, boomer children watched the *Ed Sullivan Show* beginning to end and then tuned in to the next program.

The N-Gen child takes in and outputs information in a somewhat different manner when working with the digital media. Information is input from multiple sources and occurs in a less sequential manner. Using software, the child can organize information into complex structures containing links to other information. It is quite likely that this is beginning to change what occurs between input and output, that is, processing—cognition and reasoning.

The idea that computers could free humans from linear thinking was first practically explained and demonstrated by visionary Douglas Englebart. In an important 1962 paper, he explained how the computer could augment human intellect. "One of the tools which shows the greatest immediate promise is the computer, when it can be harnessed for direct, online assistance, integrated with new concepts and methods . . . every person who does thinking with symbolized concepts (whether in the form of English language, pictographs, formal logic, or mathematics) should be able to benefit significantly."[17]

By 1967, he had implemented an "augmented knowledge research workshop" at Stanford Research Institute in which people used something called *hypertext* to compose ideas in a systematic, nonsequential way. The workstations used by knowledge workers were computer terminals which contained a few innovations themselves. Foregoing the urge to invent a better mousetrap, he just invented the mouse—a radical new device to control the cursor on the screen. Unlike the mouse (which roared), a four-key, pianolike key set never caught on.

I have vivid memories of the day in 1978 when I first met Englebart. This unassuming man spent several hours showing me around the workshop and I took a test drive on a workstation. I had been using a word processor for several years, but this was something totally different. For example, ideas could be composed conceptually, rather than from beginning to end—that is, you build a high-level structure of the document, then a second-level structure and so on. Text contained within it *links* to other text in the document or to other documents which could be stored on other computers. This idea was really the precursor to the World Wide Web, in which documents contain *hot links* to other documents. Today, when I receive an e-mail message from a teenager full of hot links to the youth's Web site and other locations, we are both beneficiaries of Englebart's genius. In many ways, Englebart is the father of the digital media, although few recognize this.

Englebart remembers a young software developer named Jeff Rulifson who, in 1967, had recently graduated with a computer science degree. Initially, Rulifson resisted using the hypertext document creation tools, complaining to Engelbart, "I don't think that way." Today, Rulifson is not only an active user of the new media but a leading designer working for Sun Microsystems.

Another of the active users of the workshop in the 1960s was 16-year-old Dean Meyer. It was Dean who convinced me to meet Engelbart. Dean, along with

Doug's daughter, Christine, were the youngest-ever users of hypertext as a thinking tool. Doug referred to them at the time as "the first of a new generation."

Meyer believes using the technology changed the way he thinks. Whenever he composes text he is forced to think conceptually—that is, he must create a high-level structure for, say, an article and use the hypertext tools to build successively more detailed structures. "I just think in terms of structures and I see conceptual structures very quickly." He believes this has had a tremendous impact on his personal thinking style. "It has allowed me to be able to put my thoughts in an appropriate sequence as I write, as I speak, or negotiate."

Meyer is convinced that hypertext tools can help develop clear thinking. An underlying software structure for text forces the author to define the salient points. His description is illustrative. "You must know how thoughts fit together: the flow of them and the structure. Pointing out what is important and what's not. Being able to put your outpost in order. Knowing the relative importance that is given not only in the flow but in knowing what is subsidiary to what. What is the down level vs. what are the main level points. It means that if you go on a tangent, how to pop the stack and pick up where you left off. At a level of prose, it's getting your grammar right, to balance the weightings and make the flow clear, the words attractive and demonstrative of the concept."

On the other hand, while Meyer says he would score high on a scale of systematic thinking, he would probably be low on the scale of intuitive thinking. He wonders if he is so focused on what he knows that he may be less open to considering new directions. "Perhaps my creativity to consider radical departures from my current cognitive structures is lower." He also wonders about the implications of such tools on long-term memory. Because the links and structures are contained in software within the text, he doesn't need to remember them. "Perhaps I don't practice my memory as much," he notes.

It is important to note that Meyer is not talking about the current Web, but rather the use of sophisticated hypertext tools for composing documents. While more investigation is needed, it appears that new tools may change our thinking process.

Overall, while there is much more to be learned, it appears that the doomsayer's view regarding how the Net is affecting child psychology is wrong. Rather than the "neocortex eating itself," children appear to be developing their cognition, intellects, and abilities better. From our research, the children of the digital age appear to be smart, accepting of diversity, curious, assertive, self-reliant, high in self-esteem, and global in orientation. Evidence suggests they process information differently than their predecessors; they have new tools for self-development and making their way through adolescence. All of these will serve them well later in life.

But what about the development of their social skills? This is the topic of the next chapter.

The N-Gen Mind
Part II

SALLY FORTH

© North America Syndicate*

If growing up digital appears to be helpful in developing thinking and intellect, what about the impact on social skills and behavior? Through our research, we heard tales and theories regarding how children were becoming glued to the screen; losing their attention span; becoming "Net-addicted" and becoming stressed out, vain, and even cruel through Net interaction. Again, while there is much to be learned and important problems to be managed, overall it would seem that conventional wisdom is wrong.

Glued to the Screen: Are Kids Losing Social Skills?

"Kids today have no friends, and they have the social skills of a tack." "I think kids are becoming withdrawn and isolated because of the Internet." "Don't you think there

is something about programming a computer that turns you into a geek?" (Comments to me in recent interviews or discussions.)

I recently received a short handwritten letter forwarded to me by my publisher in New York. It was from a woman whose full name I'll keep confidential.

Dear Mr. Tapscott,

Read your book *The Digital Economy*. . . . I suspect the only promise "it" holds is an increase in social isolation and lunacy. An increase in hypertension and personality disorders are already being reported. Spending one's life in front of a CRT Video Screen doesn't seem like a life to me. By the time the world goes fully computerized, I probably won't be here . . . but I feel sorry for my children and my grandchildren.

Mrs. R. K.

I wish I had a dollar for every time I've heard that computers are isolating our children. What's the truth? The kids we worked with don't think the computer isolates them but rather the opposite. "Yes, I spend less time doing other activities than I used to (not that there's anything to do in Delaware!), but not too much less. I've made more friends actually because I can talk to other Web people at school," says Daniel Castillo, 14.

The reason they feel this way is that the Net is a communications medium. Unbeknownst to the critics, the computer has changed from a tool for information management to a communications tool. Today, it is primarily text-oriented. Tomorrow, text will be enhanced by audio and video. But even in its somewhat restricted text format, children love to communicate. This begins around the age of eight when children begin to take their newly acquired reading and writing skills for a spin. "I think that the ages of 8 to 14 is a very social group—they love to talk," says Allison Ellis of FreeZone. "It's great if they get a discussion or a heated debate going. Once they get into name calling, we draw in the reins. And there's no swearing. But, aside from that, pretty much anything goes." Having participated in a *Growing Up Digital* chat session on FreeZone, I can say that "love to talk" is an apt descriptor.

In fact, the whole discussion of social skills is quite ironic. As explained earlier, the

> I do think my favorite thing about the Internet is making friends. You can see the world through other views if the people you know can only tell you how they feel and not show you or explain out loud.
>
> **MICHELLE BALDWIN, 13**
> Oregon

main victim of time spent on the Net, computer, and playing video games is television. Children have begun to replace passive, nonsocial, isolated viewing of TV with active use of the digital media.

Further, such use is increasingly a social activity. The new games from Nintendo, Sony, and Sega as well as computer-based games are often designed for multiple users. Observing my own children, one of the first things that occurs when a friend drops over is the Sony Playstation gets cranked up and the kids head out into space. The same kinds of conversations occur while traveling through the galaxies as happen over the Lego set or the model train.

> Of course, the Internet is a shallow and unreliable electronic repository of dirty pictures, inaccurate rumors, bad spelling, and worse grammar, inhabited largely by people with no demonstrable social skills.

Tongue-in-cheek commentary by students at the American University's Washington College of Law in a recent mock trial of the Communications Decency Act.

Much interaction with video games, computers, and the Net involve face-to-face communications as friends work on a project or show each other cool Web sites, or as parents and children share the digital experience together. Gene Giordano, from Rochester, New York, has three children ages 15, 13, and 9. He says that the Net increases interaction with his kids, not decreases it. Says Gene: "I spend a lot more time showing my kids stuff on the Net, and them showing me stuff too, than we do watching TV. You're not just sitting there watching something, you're learning from each other."

There is also a new generation of games emerging which are Net-based. No one watches the *Jeopardy*-style Net show *You Don't Know Jack*—everyone is a contestant. The game is played on the Net and everybody competes, and all the winners are rewarded.

Rather than losing social skills, N-Geners are actually developing these skills at an earlier age than their parents' generation. It's not just a new toy in the home to share with friends and siblings, but the N-Generation children have a new medium to reach out beyond their immediate world, to experience and to engage in play, learning, and overall social intercourse.

Digital kids are learning precisely the social skills which will be required for effective interaction in the digital economy. They are learning about peer relationships, about teamwork, about being critical, about how to have fun online, about friendships across geographies, about standing up for what they think, and about how to effectively communicate their ideas. When they challenge another child about having the C-name KKK, ask a newbie about her hobbies, float an inquiry regarding "kewl" sites about Leonardo DiCaprio, team up with kids from many countries to construct a vir-

tual city, ask a C-friend to initiate the parental process of arranging a face-to-face meeting (such as 12-year-old Nicco Pesci's Utah ski trip with his 13-year-old C-girlfriend), learn how to deal with a flame, chair a video conference, learn from a digital mentor, or help a grandmother learn how to use the Net, they are enhancing the social development which occurs offline in day-to-day life. It is not the N-Gen children who are being robbed of social development, it is those adults who, through fear or ignorance, deny themselves the experience of participating in the great revolution of our times.

Jordan Garland, 14, is an active user of the new media. He uses the Internet for school research, looking up everything from whales to mythology. Like other kids, he uses word processing to create essays and graphics tools for illustrations and title pages. Sometimes he works alone and other times with other kids. Jordan plays both acoustic and electric guitar, locating sheet music in guitar archives online. He also frequents chat rooms such as a music room where people talk about "stuff like what bands you like, and what instruments you play," he says. "It's a good way to meet people from all over the world, and get their opinions. Besides, it's fun." According to his mother Karen, he's on the computer at least an hour per day, depending on the weather. If it's nice out, he's out skiing, doing track and field, or playing with his band.

I met Jordan at a conference of Building Owners and Managers. He had been recruited to a "children's panel" I was chairing, discussing information technology in front of an audience of 2000. He struck me as a bright and thoughtful boy and contributed well to the panel. He also appeared a bit shy and, given his extensive use of computers, he might be unfairly stereotyped as the kind of boy who is "glued to the screen" and for whom the technology is not a positive force.

His mother believes the opposite to be true. "His shyness is a natural occurrence for adolescents. The computer provides him with a vehicle for social expression, an outlet to explore relationships, to talk to people and get new ideas." She says: "I don't view the computer as a negative force for these kids. It's what's happening in their world. If you reject that, you're rejecting what's important to adolescents today. It's their future."

The "Attention Span of a Gnat"?

Conventional wisdom says that because children are multitasking—jumping from one computer-based activity to another—their attention span is being reduced. "Most kids have the attention span of a gnat," complains one observer.[1]

The research does not support this view. It is ironic that it is often the same people who charge that today's kids are becoming glued to the screen that also say they have lost their attention span.

A more thoughtful view comes from demographer Eric Miller. "Kids hate to

be bored. This is no joke; it is a real issue. They have shorter attention spans, are used to a diet of highly stimulating visual information. From an early age they are gratified instantly and so have less patience for delay of any kind."[2] True, they are used to a stimulating environment. True also, kids hate to be bored. This is not surprising, given that they are more knowledgeable, likely smarter and more active than their boomer parents. Interaction with the digital media is many things but it is not boring—perhaps explaining why so many of the *Growing Up Digital* kids said TV was boring by comparison. But, as for instant gratification and short attention spans—at best, loaded terms—the evidence isn't there.

"I don't buy that these kids have short attention spans," says Dr. Idit Harel, author of the book *Children Designers* and founder of MaMaMedia. "They think in different ways than adults. Sometimes they are multitasking. Other times they can get into something and spend many hours on it if it makes sense to them."

All young children are easily distracted and focus on problems for short periods of time, but attention improves with age. Teachers are often told to plan classroom activities and lessons according to the age-plus-five-minutes formula. That is to say a typical six-year-old first-grader can be expected to stay on one task for about eleven minutes.

At the root of concerns about attention span is the fear that our children will not be able to focus on something and therefore not learn. This concern is consistent with the view that students need to be able to absorb a specific curriculum as the primary challenge of learning. However, it is not new thinking that the content of a particular lesson is one of the least important elements in education. What is more important is learning how to learn. John Dewey said this well many years ago when he wrote, "Perhaps the greatest fallacy is the notion that a person learns only what he is studying at the time. Collateral learning . . . may be, and often is, more important than the spelling lesson or lesson in geography or history."[3]

Moreover, it appears that by using the digital media, children become more able to ignore inappropriate sources of information and concentrate on the information which is essential for doing something, such as completing a task. Central to attention is adaptability—the ability to adapt their attention to the particular requirements of the situation. Another is planfulness—the ability to allocate attention according to a goal and sequence acts ahead of time.[4] Rather than killing attention, it makes more sense to view experience with multiple information sources, as it occurs on the Net, as helpful in developing this capability. For example, in researching a project on pollution, the child must take multiple steps: evaluate information along the way; organize findings through cutting from digital documents or creating bookmarks; postpone action in favor of an alternative; coordinate many different activities; segue out to a chat line to check on friends and then cycle back to the project; allocate time; remember a previous experience or

site: overall control, adaptation, and planfulness—the key elements in the development of attention.[5]

The preceding example involves working on a school project, but the same can be said for the free-time entertainment activities of children on the Net which all involve similar actions and attentiveness. Compare this type of activity to the child watching television. The child's attention span may appear good as he sits in front of the TV for an hour. But is this really developing the skills necessary for attention development? Overall, the evidence is that the digital media is not a problem to be concerned with, but instead a boon to children's development.
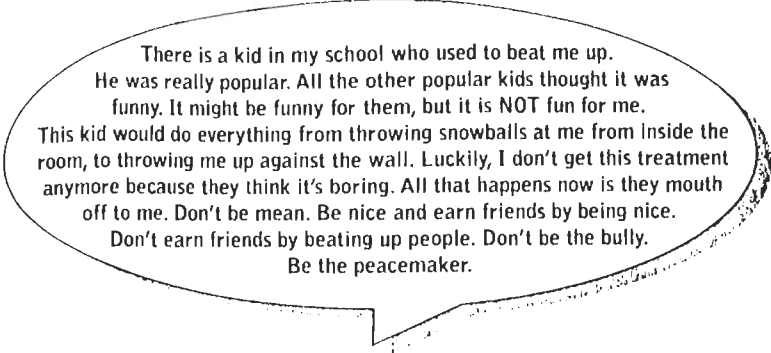
Sometimes Kids Are Cruel

Kids face substantial problems at any school—rural, urban, or suburban, private or public. If there isn't a real threat of drugs, sexual abuse, and/or violence, the fear of these things is transferred from adults and the fear itself becomes a threat. K–12 students also have concerns that are completely separate from the concerns of adults. "By the time children reach school age," a typical child psychology text notes, "they have mastered two essential concepts: that human beings are alike in being both agents of external events and experiencers of internal events, and that human beings are different in their experience of events. One's own internal state may not accurately predict those another person would experience in the same situation."[6] What this means is that kids at this stage notice similarity and difference, and it also means that they can respond to their perceptions with compassion, cruelty, or indifference.

Regardless of how individual kids respond, the social picture is not a pretty one. In the United States, it is estimated that as many as 3 million children are bullied each year and every day over 100,000 kids stay home from school because they are afraid of one of their peers.[7] Countless other children experience merciless teasing because of their height, weight, skin color, fashion sense, or hair style. Sometimes kids are cruel to each other and it is the responsibility of adults not to forget that it is neither fair nor easy for kids to deal with.

If face-to-face interaction is not always a positive experience for this generation, do children behave differently on the Net? Initial experience would suggest that while there are many new sources of support and encouragement, chat-line interaction can sometimes be tough.

"Tons of people get bullied on the Net," observes Reanna Alder, 15. "It's not true that just because you don't HAVE to reveal anything about yourself, you won't get picked on. If you get noticed in a positive way you will also, most likely at some point, get picked on in a negative way. And besides, most people want to reveal things about themselves, and if you don't, you get ignored. If you make everything up, you

There is a kid in my school who used to beat me up. He was really popular. All the other popular kids thought it was funny. It might be funny for them, but it is NOT fun for me. This kid would do everything from throwing snowballs at me from inside the room, to throwing me up against the wall. Luckily, I don't get this treatment anymore because they think it's boring. All that happens now is they mouth off to me. Don't be mean. Be nice and earn friends by being nice. Don't earn friends by beating up people. Don't be the bully. Be the peacemaker.

DET, 12, m, FreeZoner

can still be picked on." Some children, however, reveal little of themselves, instead constructing their ideal self. Ted McCoy, 18, of Calgary, Alberta, says on the Net kids create "masks" which make it hard for them to bully each other, "because nobody would ever reveal the points that make them vulnerable."

While the digital media is a vehicle for these kids to change the world, it is also a reflection of the world the way it is. Fifteen-year-old Kelly Richards explains: "I think that there's a certain amount of freedom from violence, but not completely. You can always delete messages with violence, or completely ignore them, but they're still there. There is no escape from violence anywhere, even on the Net."

The kids all note that such violence is not physical. Says Colin Cowsert-Hinrichs, 11, of Houston, Texas, "I think that in a way, it isn't as bad on the Net because in real life (not that the Net isn't real) you can receive physical and mental harm. Chances are someone is going to stick up for you. It's just not the same psychological thing as in real life!" Darla Crewe, 16, agrees: "You can't always just walk away from harm in the real world . . . but on the Net . . . you can only receive mental harm. And besides that . . . you can just go somewhere else . . . or ignore them completely. Or if you get really mad you can just hit that nice power button that is SO effective! :)"

In the school yard or streets, racism, sexism, discrimination based on socio-economic status, and the cult of beauty have historically been a physical basis for identifying those to be ostracized or brutalized. Does the Net eliminate this, leading to a new era of cooperation among children? Fifteen-year-old Deanna Perry of Florida says: "In chat sessions, people are judged not on looks or skin color, but by their personality. The Internet provides an alternative, a place without racism or prejudice. It's not as easy to make prejudiced comments about someone online when you cannot physically see them."

> The Internet definitely gives kids a break from the cruelties of reality. You can meet people on the Internet who have never seen you—they don't have the chance to judge you by your looks. You can plan your first impression, and you can finally get fair treatment. Treatment that is not based on the way you look, the way you act, or the way you dress. People on the Internet judge you by your thoughts and opinions. Sure, not everyone's got to be like you, but at least you've had the chance to let people know who you really are. The Internet shows a person's personality, and not the shell that we see in real life.

NEASA COLL, 14, Alberta

Most of Lauren Verity's friends are gothics. Victoria, Australia, is not the most friendly place for gothics, and even though 16-year-old Lauren is not one, she gets painted with the gothic brush. Gothics, Goths, aka Vamps and Zombies, are Shelley/Byron wannabes carried over from the punk movement. They wear mostly black, violet, and scarlet Victorian-looking clothes (lace and velvet) and wear white makeup. They tend to listen to The Cure, Marilyn Manson, and other ethereal kinds of bands. They hold both physical and online gaming events, such as Dungeons and Dragons, but with a vampire twist. They are big into shock value.

Lauren compares life at school versus life on the Net, for someone with Goth friends:

> I always get hassled a lot at school because my friends are gothics. . . . I'm not, but that doesn't seem to matter. . . . It sucks and it's really cruel. . . . We have people hiss at us, and call us devil worshippers and stuff. . . . I think they [the teasers] are the most pathetic people on earth . . . what matters is "who" people are, not "what" they are . . . that's why I like the Net coz it makes people judge you for you, not what you look like, or what race, or religion, or color you are. . . . I'm starting at a new school tomorrow . . . so *fingers crossed*, but I don't expect to escape it . . . sure I won't get the stuff I used to, because my friends won't be around . . . but I'm sure the kids'll find something else . . . but that's just the way that people are, right? . . . that's society for ya. . . .

Unfortunately, while the physical basis for picking on someone is absent on the Net, some children will find other bases. Reanna Alder, 15, explains: "It's very easy to make nasty comments about people, even when you can't see someone. As soon as they reveal something about themselves, you can insult them. Sure, you can't use

racial or gender slurs if you don't know what they are, but there are plenty of other names to call people."

The Growing Up Digital kids were unanimous, however, that in cyberspace it is harder for one child to isolate another. Deanna Perry explains that "if someone were to say a prejudiced comment in a chat session, several people would probably have a problem with it." Darla Crewe adds: "On the Net people don't seem as shy to speak up for one another . . . so if you're in a chat room and someone is making fun of you or whatever . . . chances are someone is going to stick up for you."

> You will still find people on the Net that will say mean things to you. Main difference is that it isn't physical harm, but more emotional. I can get really mad at people but I do that in real life too.
> : -)

MIKE UTTECH, 13

Vanity?

Lots of kids create their own home pages. This has led some observers to conclude that these children are vain.

There are as many kinds of kids' pages as there are kids. They create home pages to organize around some issue, to support their favorite singer, to solicit information on a topic, or for a school project. One category is the generic kid page—a place where the child can showcase his or her work, views, and meet with friends. Children are using the Net as a new publishing medium and a new meeting place. Their personal pages become places to say, "Here's who I am. Here's what I'm interested in. Have a visit and sign my guest book." This is something completely new. Children could show their art to the rest of the world by making snowmen in their front yards, or by posting their drawings in the corridor at school. A handful would see what they had done. Even fewer might get back to them with comments. With the Net, they have something very different at their disposal.

There are important safety issues here. A child should never post a photo of themselves or give out their address, phone number, or other identifiers. Furthermore, parents need to be aware of what the child is doing. Setting aside these issues, which are discussed in the chapter on parenting, we estimate there are now many thousands of children with such sites.

Allison Ellis does not view this trend as vanity, but rather as something positive: "When I was that age, I had extremely low self-esteem. If I had a vehicle like this for getting credit for things that I did, for expressing my personality, and being around like-minded people, it would have really helped me." Building self-esteem is important for every child. Not false esteem where the child is praised gratuitously for any action, but real self-esteem where the child is appreciated for his or her accom-

plishments. Says Allison, "I think everyone deserves a chance to express themselves and be important——it doesn't have to be at the expense of anyone else."

Stressed-Out or Stress-Relieved?

In one very significant way, members of N-Gen are just like their parents. Kids today have to be too many things to too many people. Everyone is stressed-out and stretched thin.

When it comes to stress, the children report that the Net is a double-edged sword. It adds another time-consuming activity to the already hectic day of homework, extracurricular activities, family responsibilities, and physical friendships. Says 16-year-old Kim Devereaux, "The Internet eats up a lot of my leisure time. When I have a free night with homework, I find that I'll spend much of it on the computer. Sometimes, it makes me feel as though I haven't relaxed at all."

The Net is also changing our perception of children——from being ignorant to competent. Surely this shift places additional pressures on them. Add to this what psychologist David Elkind describes as the growing demands on contemporary children for maturity——"participating in competitive sports, for early academic achievement, and for protecting themselves against adults who might do them harm. While children might be able to cope with any one of those demands taken singly, taken together they often exceed children's adaptive capacity."[8]

Yet overall, they report that activity on the Net is enjoyable and even stress-reducing.

"I disagree with anyone who thinks that the Internet stresses people out

> I have a lot of friends as it is . . . and being on the Internet is like multiplying it by two . . . and widening the age/location/variety of friends I have. . . . I think it's half pleasure and half pressure because when I log on . . . I always have at least 100 new messages all to me and besides that I usually have at least another 50 mailing lists I'm on . . . so it's a pressure to find time to read it all, It's also a pleasure because it's from friends . . . also . . . a lot of my family is on the Internet . . . and without it I probably wouldn't hear from them hardly at all . . . it's a big pressure to find time to write back . . . and read all the mail . . . and keep your quota down . . . and and and and . . . but everything has its pleasures and pressures . . . up sides and down sides . . . don't they??!!! :)

DARLA CREWE, 16
Nova Scotia

more," says Nicole Padua, 13, of Northville, Massachusetts. "It helps me to relax when I'm stressed-out over school or anything else that has gone wrong. Sometimes when you have a problem you can go in an IRC and ask for help. I've seen people ask for others' opinions on personal problems because they can trust them not to go gossiping to another friend."

Fourteen-year-old Neasa Coll says that being connected to the Internet, "makes the world smaller," which she enjoys. "My closest relatives live in Boston. The rest of them live in Europe, so guess how long it used to take mail to reach them! E-mail has allowed me to 'talk' to them several times a day, and it's fun. I don't necessarily think the Net gives us more leisure time (it actually uses it up), but it is definitely another of life's pleasures."

When asked if the Net relieves or increases stress, Kelly Richards, 13, describes both sides of the coin. "Keeping track of Internet friends, foes, and clubs can get to be stressful, but when you're actually dealing with them it's fun! The friends you meet can be the best you've ever had, and you know them so well it's hard to believe that you live miles apart. It's a fun release of energy sometimes if you need to relax, or just have some fun. Going on the Internet can keep you from doing something like trashing someone's house or something. So basically it's a lot of pleasure, but it can be stressful until you learn to—what's the word?—deal with it."

Net Addiction

"Our children are becoming addicted to the Internet." "A generation of addicts." If you believe the mass media, we're facing a big problem.

Various tongue-in-cheek addiction checklists circulate on the Net. You are addicted if, "You wake up at 3 A.M. to go to the bathroom and stop to check your e-mail on the way back to bed. You turn off your modem and get this awful empty feeling, like you just pulled the plug on a loved one. You ask Santa to bring you an ISDN line. You start using smileys in your snail mail. You get a tattoo that reads, 'This body best viewed with Netscape Navigator 1.1 or higher.'"

Broadly defined, *addiction* is persistent, compulsive, and harmful use of a substance resulting in withdrawal symptoms when use is terminated. The term has been extended, sometimes semi-seriously, beyond substances. Robert Palmer's now-classic tune says he's addicted to love. People talk about being addicted to cheesecake or chocolate. But somehow when we discuss children's *Net addiction*, the term is extended in a very serious way.

It's true, children who are wired will say that they love the Net. Lauren Verity is a good example: "I luv the Net . . . chat sites means talking things through with your friends . . .because that's the only reason why they're there, is to talk . . . so you can find people who will listen . . . I hardly ever watch TV anymore, because I spend

so much time on the computer . . . but I luv it all, and I wouldn't give it up for anything . . . the emos can get hard though . . . I'm not good at replying to them . . . but still I luv it . . . plus it's really interesting to find out what your friends are doing halfway around the world from you . . .".

> Me, I'm a
> chataholic.

LOOPS, 11, f

But to use the term addiction, we would have to show both compulsive use, serious withdrawal symptoms, and knowledge on the part of the user that use of the Net is harmful.

"I think the media has created a bad rap," says Allison Ellis. "People that have truly gotten addicted, have addictive personalities." Working with thousands of N-Geners, she's convinced that the kids keep coming back because they enjoy something, which overall is beneficial to them.

Dr. Idit Harel has the same view. She argues it is senseless to talk about being addicted to technology—you have to examine the function. "Holding power is not because of the technology," she says. "It's because the media enables them to do things which they care about—which are attractive and enjoyable. Kids with a Nintendo joy pad are not addicted to technology, they are racing a car. They are having fun, and playing with other kids." Kids on the Net are not using technology. Rather they may be "trying to solve a mathematical problem, designing or building something, or solving a puzzle—trying to figure something out."

Curiously, if you ask children online if they are addicted, they will invariably say yes. On the other hand, they don't seem too concerned about it because they don't believe that it's harmful to them.

> My sister and I
> both find chatting on
> the Internet very addictive.
> I'm trying to balance
> my time on it.

JOELDINE HAYTER, 15
New Zealand

When it comes to the term *Net addiction*, Sherry Turkle, MIT psychologist and professor of the sociology of science, says, "I hate it." To her, "the whole addiction thing is making us sound stupider than we need to sound about the complexities of this phenomenon. It is blinding us." She says the term addiction has a very specific and important meaning and by using it in this context, we close ourselves down to a lot of interesting dialogue about the Net and its implications.

Turkle says that if your child is addicted to a substance, you have one job and one job only—get him or her unaddicted. Unlike the Net, there is nothing positive that can be said about dependency. Turkle gives the example of heroin, something to which one is addicted. Unlike the digital media, no one can be said to use heroin to learn and work through problems and to explore different aspects of their self. "The drug takes away your ability to work through issues. It does not empower you to confront, learn, and deal with your issues in a constructive way."

While parents need to be concerned about any compulsive behavior of their children, there is clearly some antitechnology bias built into the hyperbole about Net addiction. You don't hear people talking about "book addiction," for example. Rather, we use the positive term "voracious reader." Or a child who "loves to read." Adults are concerned about addiction to video games, computers, the Net—in particular, chat lines—anything their children do that parents don't completely understand, or govern.

The issue is one of balance. If a child becomes involved for a prolonged period of time in something which is causing disequilibrium in his life, we should be concerned. If she is giving up her sports team, homework is suffering, friends are being neglected—then there may be cause for concern. However, experience shows that compulsive use of the new media is fairly rare and that when it occurs it is usually a temporary problem. It is also hard to argue that this is an activity—such as drug abuse or smoking—which is harmful. Further, N-Gen children show a remarkable ability to self-correct. Which brings us the striking story of Caleb Murphy.

Net Addiction: Caleb Murphy's Net Abstinence Diary

The topic of Net addiction is raised frequently by kids in chat rooms. One of them, 14-year-old Caleb Murphy, who goes online after helping his parents milk the cows on their dairy farm in central New York state, announced that he was planning to go offline completely for a while because he was worried that he too was addicted to the Internet and spending too much time in chat rooms. Caleb wanted to see whether he could break the habit. Researcher Kate Baggott, fast on her feet, sent a note to Caleb asking if he would be interested in keeping a diary of this thoughts over 14 days to share with readers of this book. "Could it be a diary of one week of abstinence?" Caleb asked. "I don't know if I could do two weeks without talking to my Net friends." After several more e-mail exchanges, Caleb agreed to go without the Net for two whole weeks. Below are excerpts from his diary.

December 2, 1996.

Hi, I'm Caleb Murphy and I'm a Netaholic. That used to be a joke on the chat line I frequented. As people's grades in school began to slip, and the relationships with real-life friends disintegrated, people started to realize it wasn't a joke. That is probably why I decided to go on a two-week Net abstinence, to see if I could raise my grades and do things with my friends, whom I feel I've ignored lately.

I spent an hour on the Net earlier today, sending e-mail to my best Net friends and updating my home page with a message announcing my decision. When a few of my friends heard about my upcoming abstinence, they decided to try it too. It became a challenge to us, and I know I at least was looking forward to it, kind of.

I'm looking forward to the chance to get out more, and to do some things I didn't used to have time for, but am frightened by the thought of being away from my "home away from home" for two weeks. It scares me. I had a knot in my stomach as I disconnected for the last time for a long while. It was rather awkward when I left, I had been hoping to meet some of my friends on our chat line, but only one was there, and so I e-mailed the rest. I almost feel like I'll never see some of them again, but I'm sure I will. Who knows, though.

Two weeks may not seem like a long time to people who have never been on the Net, or were lucky enough not to get addicted. But for someone like me, two weeks seems like an eternity. I spend sometimes more than two hours a day surfing, many more on weekends and nonschool days. If I decide my life is a lot better without it I may hardly ever go on even after my abstinence is over.

December 3, 1996.

Today being my first full day of abstinence, I didn't have too much problem staying away from the Net. It'll be a couple more days before I really start to feel isolated. I do miss talking to my Net friends, but I can deal with that. I'll probably call one or two of them soon. I did my homework early today, got it out of the way. After work, I spent the evening reading, listening to music, and relaxing. It felt rather good to stay away from T2, the chat line I frequent. There had been too much fighting and arguing there for me to stand lately. That's another reason I left. Net people were starting to get on my nerves.

Maybe there's something about the Net that makes people on it irritated. Actually, I'm sure there is. It can get very frustrating when it's slow, or when you run into someone you don't like, like someone with the handle CYBERNAZI, or KKK, or someone posting offensive pictures, etc. It sometimes makes me want to punch the thing, and put a hole right in the monitor. I've heard stories on the Net of people who have done things like that.

Maybe it's also the frustration of meeting a great person, someone you would love to know in real life and talk to without a computer or a phone between you, and never being able to really meet them because they live on the other side of the world. The Net brings us all together, but it also reminds you of how far apart we are.

December 4, 1996.

The need for the Net that I was expecting hasn't come yet. It's possible it won't, but I haven't been away from it for very long. T2 is such an easy place to miss. I first went to a chat line, one called Talker, on Memorial Day of 1996. I came in as a newbie, with absolutely no idea of what was going on. I started to make friends, communicating with them through e-mail and meeting on the chat line. I also started to learn a little about the Net, and how to use it. I frequented Talker until late August, when

I logged on only to find it not there. None of the addresses I had for it worked. I found out soon after that it had been shut down, for reasons I'm not sure of. At this time I had just finished my home page, and was rather proud of it, although it wasn't much to be proud of. After the shutdown of Talker, there was a massive e-mail campaign to those who shut it down, expressing our anger. Finally they created a new Talker, which was scorned by all the Talker veterans because of its differences to the original. Right after the original's shutdown, T2 was made, and I heard about it through a Net friend. A relatively small group from the original Talker started frequenting T2, and it became a replacement for Talker.

But many of my Talker friends never came to T2, and I was forced to meet new people and make almost entirely new friends. Since the amount of people in T2 was small, there were often only two people there at a time, so it was easy to meet everyone.

December 5, 1996.

Life without the Net has certainly been different, and I'm not sure if it's good or not. I constantly wonder what's happening in the chat line, if anyone else announced their pregnancy or the birth of their sister's child, etc. etc. A lot was happening when I left. Tomorrow night I'm gonna call a Net friend, one of the ones who's doing the two-week abstinence too.

I've already broken a couple of habits I had when writing on the Web. I always used . . . on the Web . . . like this . . . because commas and periods were too picky . . . and this was easier. . . I've stopped now to write this.

There are so many things I can't wait to do when I get back on. I've already written a list of things to do, so I won't forget over time. I guess the "withdrawal" is starting to set in.

I saw an article my parents were reading today in a newspaper about Net addiction. I'm gonna try to find it, and maybe critique it, see what's right and what they are wrong about.

I've been listening to music a lot, and calling a lot of people. I guess I'm finally getting back to normal life, like it was for me eight months ago, before I had the Net.

Looking back over this entry, I guess the withdrawal has come finally, just not strong yet. I've abstained from going anywhere near the Net for three and a half days now. If only I could keep it up for another week and a half. I'm sure I can. I think I can . . . I think I can . . . I think I can . . .

December 6, 1996.

Today I woke up to snow everywhere outside, and my prediction from the night before came true. School was closed today. I spent the day watching a movie, playing computer games, and calling people. All in all, a slightly boring day. It would have

been better if I'd had the Net. One of the best things about it is it gives you something to do when you have nothing to do.

I found that newspaper article about Net addiction. I read it twice, and then read the list of things that may show you're addicted to the Internet. I decided I was not fully addicted, because I didn't fit all the descriptions that were provided. For instance, I don't involuntarily make typing motions with my hands. At least I hope I don't.

The article gives a statistic that less than 5 percent of Americans who go online are actually addicted. Considering that almost everyone I know online claims to be, either the statistic is wrong or my friends don't know how deep a true addiction is. Some of the stories in here (and stories I've heard) are frightening . . . it's hard to believe people get that into it. I can understand having trouble tearing yourself away from it, and a little further than that, like taking all meals to the computer, but comparing it to cigarettes and alcohol . . . wow . . .

Reading what I wrote last night, I now know I can . . . if I go on like this, I can make ten more days. I'm going out tomorrow night, and around noon. I'm gonna try to keep myself busy. If I get through this weekend, I can get through all of it. Just as long as I don't start air typing.

December 9, 1996.

I had an almost irresistible urge to log on today. I abstained. When I got home from jazz band this afternoon, I walked into the computer room, sat down, and moved the mouse to Netscape. Luckily I stopped myself before I clicked. I played computer games to avoid the urge. I must either have a strong will or my addiction isn't very deep.

I just realized how much I have that I got through the Net. I'm listening to midi files I downloaded a couple of weeks ago, a lot of my guitar music I downloaded off the Net, a lot of the things I have in my room I printed or copied off the Net. I used the online phone books all the time for phone numbers, and now I need someone's number and I have to use Directory Assistance (ugh . . . how primitive . . .) to get it. If I'd never gotten the Net there would be a lot I would have to do without.

I was thinking today about the differences between my online friends and my other friends. I live in the boonies, way out in Central New York, and a lot of my friends are farmers or have some connection to a farm. But I have never met a farmer on the Net, except one person, who happened to also be an offline friend of mine. My online friends also always seem more lonely and willing to talk than offline.

Another thing is my online friends all seem to have great stories to tell, of amazing things that have happened to them and great (or terrible) things that are happening to them. I often wonder how much of it is true. At first I didn't always tell the

truth online. I figured none of them would ever meet me, so why not lie, try to sound more interesting. After a bad experience with a lie I told, I never told another serious one on the Net. Everything I say there is true, except for maybe just a little exaggeration now and then. But I've caught some online people lying to me, by asking them in-depth questions on things they said they knew about, and really didn't. And I've been told things I know aren't true, just because they are so unlikely. That's the problem with the Net. It's hard to tell when someone's lying.

December 11, 1996.

I called an Internet friend tonight. She told me about things I'm missing in the chat room, new people that have come, and old people that have left. Now I'm more anxious than ever to get back. I miss it so much. This is hard. I don't think I realized how long two weeks would seem to me. And with a lot of new things to look forward to online, I can't wait till this is over.

To open this writing program, I clicked on the wrong icon, I clicked on Netscape, my browser, simply because it had become a habit for me . . .

sit down at the computer--->click on Netscape--->log on.

I was so used to it after doing it for eight months, I click on it just about every time I sit down. It's very habit-forming.

I've discovered lately a lot of friends of mine who go online that I didn't know about. Some of them have AOL so I never see them, some go on at their neighbor's house, and most just go around looking at things on the Web, never getting involved.

This week I've certainly done a lot more than I would have without the Net. I've gone places, called people, done things I've never done before and I did it all without the Net! I'm so proud!

But I am really starting to miss my Net friends, and these midi files are getting boring, I need some new ones. And some new games. I need to work on my home page. I need to go to the chat line. All these "I needs". . . it's scary. What would I do if I knew I could never get back online? Die? Or something close. A long depression, anger, general mood swings, who knows?

December 12, 1996.

I discovered positive and negative aspects of the Net today. I had a project due in school on the 13th, and since I wasn't allowed online I was able to have a lot of time to do it. When I am allowed on I spend too much time on and not enough time doing homework, something that will change after these two weeks. But to complete my project I needed a couple of pictures, which I knew I could get online. My parents had to go on and find what I needed in order for me to get the project done. When I

got it I still took another hour to get it done, and I could have gone faster if it had been me going online to get the map.

I've really missed the Net today. Even though it would have kept me from working hard on my project, I would have had it easier and of course I miss T2.

December 13, 1996.

This makes it tough. I just heard from a Net friend that I called that the old Talker is back! Remember I mentioned it about a week ago? Well, it was brought back. This means my old friends might come back. Oh man, I am so excited. This is really gonna make it tough for three days, especially a weekend. I can make it.

I'm really feeling the boredom setting over me. When I have nothing to do, I wish I could go on, talk to my friends. I am also often pressured by hearing of a home page for a company, or a friend of mine's, or a new chat line—but I only have to wait three more days.

I was wondering today what the future of the Net will be like. A lot of people speculate that there will be a crash of the Net sometime, that could seriously screw up the world for awhile. I think it's very likely that that could happen. A good hacker could screw up the system for a while, or seriously disrupt something, like air traffic, subways, etc. There are certainly people with the know-how and the guts.

But I think and hope that someday the Internet will be as common as TV, e-mail will replace snail mail, and computers will be a more useful thing than they now are. It's the typical sci-fi future, but I believe it.

December 14, 1996.

I suppose since I only have three days left (if you count this one) I should start going over what I've learned, what I've decided to do from here, what I've decided NOT to do from here. I guess tonight I'll figure out what I'm not gonna do.

I'm not gonna let the Internet come before my homework. My homework grades went up these two weeks, and I'd like to keep them up. And my homework might come along a little better once I get access the Net again, cause I'll have access to more resources.

I'm not gonna spend really long periods of time online. I'm gonna cut down on how long I spend chatting, updating my page, and just doing surfing. It's pointless, often boring and it makes my eyes hurt, not to mention it annoys my parents.

I'm not gonna put the Net in front of doing things with my friends. I have been quite good about it in the past, but I found out that how much time I spent on the Net was annoying a couple of friends, so that's gonna end.

Those are really most of the changes I'm planning to make. Even a lot of what I was GONNA do got in there. Oh well.

I found out that one of my friends who also went on abstinence lasted for

awhile. I suppose she's still offline, although she's checking her mail, which I heard when I called an online friend. The friend I called also tried for two weeks, and lasted almost one week. She also told me about my one other friend who tried. She lasted two days. That's addiction. Although I only would have lasted three or four, maybe five days without the incentive I had.

I guess the Net really is quite addictive. I could stay away from the TV easy, or at least a lot easier than I can the Net. Eventually we'll start hearing about people suing AOL or Netscape because they were divorced or lost their job because they spent too long online (sounds ridiculous, but it's not unheard of).

December 16, 1996.

Wow, two weeks already? It's about time. It seems like it's just dragged on and it also seems it's sped by. When I wanted to go online, and I missed it, it was the slowest two weeks of my life. But when I was doing things with my friends and getting out more it went quick. So I guess it was both positive and negative.

I really learned a lot about the Net, and the lack of, these couple weeks. I learned that the Net has become part of my life now, almost as much as school, and I can't go without it. I'm addicted, no doubt about it, and I don't care. It's worth it.

I learned how much I depend on the Net for communication, education, and just fun in general. It gives me something to do when I'm bored, and even when I'm not, it provides a good escape from the life of a high school student.

I learned that I should never, ever, spend two weeks offline again. It was worth it this once, but if I ever did it again, I might die.

I learned how hard it can be to have to write a certain number of words, every day. Luckily it was on a broad topic. I learned a lot about diary writing (a relatively new experience for me) and a lot of discipline as far as writing every day and not being able to log on. It taught me better self control, something I can sometimes use.

I learned that I should put homework in front of the Internet (or try at least). Bad homework grades are not worth the time I spend surfing.

I also gained a little insight into what it might be like to be addicted to a substance. Trying to stay off what you're addicted to is a lot harder than I or most people imagine. It takes a lot of self control and effort.

gone

Six months after he completed his Net abstinence, we followed up with Caleb to see if he was able to adhere to his Internet resolutions.

"I have been involved in a lot of extracurricular activities like musicals and sports," Caleb reported. "I have been spending more time with my friends. In terms of grades, well, they're down, but I don't think that has anything to do with the

Internet. It's a grade 9 slump that I think everyone at my school goes through. Grade 9 is a lot harder than what I had to do previously."

In hindsight, Caleb has become suspicious about the term *Internet addiction*. He now thinks his earlier usage was just an enthusiastic phase and that Internet addiction was just the most readily available term to describe it. "I am definitely not addicted to the Internet anymore and I really don't know if I ever was," Caleb says. "It's something I control both in how long I use it for and what I use it to do."

If Caleb was a Net-aholic, the world needs more of them. Here is a boy who thoughtfully acknowledges that he has a possible disequilibrium in his life. He is concerned about how the Net may be negatively affecting his schoolwork and relationship with real life friends. He takes steps to investigate this through a two-week period of reflection. To help muster the courage to cut himself off, he spends the first few days thinking about the negatives—for example, he remembers being bugged about people with C-names like CYBERNAZI and KKK. He reflects on the issues which have come up on the Net—topics like censorship, addiction, the viability of the Net infrastructure, privacy. He thinks about friendship. He tries to understand how he feels about being away from his Net friends and lacking access to the Web. He ponders what is real in cyberspace. In doing so he reveals that he is articulate for his age. He reveals that he actually has a full life—he is a conscientious student in the school jazz band, with strong real-world friendships, and he is fulfilling his responsibilities to his family around the farm.

He conducts a thoughtful review of the benefits he receives from the Net and concludes these are considerable. He finds that his need for the Net is actually a need for Net products like midi files, new guitar music, a sense of community when he is away from his offline friends, and communication. He adjusts his life to find balance—real-world friends and homework will come first. In forming these improved work habits, he has examined not just his Net usage but his tendency to procrastinate as well. He will take steps to better ensure his privacy on the Net by reflecting before providing personal information. Through a comparison with a newspaper definition and his own understanding of Net addiction, he challenges his initial assumption that he is indeed an addict, and in doing so he draws conclusions about the dangers of substance abuse and the importance of self-discipline.

The most striking observation is that while Caleb appears to be an extraordinary 14-year-old, he is actually quite typical of the children with whom we have worked. In his story we see the contours of an N-Gen child—smart, fluent, social, analytical, self-reliant, curious, contrarian, creative, articulate, media-savvy, bored with television—a child that interacts with his world, and creates and achieves balance.