Chinook
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Into the Unknown… Again Parenting the Internet Generation

Parents of the culture's largest generation (that's right, kids under 21 are 30% of the populace; Baby Boomers are 29%) are challenged to understand not only *what* children and teens are thinking, but *how* they are thinking.

The advent of multiple, expanding forms and sources of media presents new challenges for guiding and nurturing children. In many ways, however, these challenges resemble those of telephone, radio, and TV cultures. Yet both the pace and freedom of the Internet are the antithesis of TV: kids actively participate and control their viewing…so both benefits and dangers expand exponentially.

Ten Themes of N-Gen Culture (Tapscott, 1998) provide a focus for how parenting needs to be different in the new millennium:

- *Fierce Independence*: Help kids be critical of and creative with all sources
- *Inclusive*: Welcome all kinds of friends and influence them for good
- *Free expression*: Model respect and creativity; be there when kids are hurt by 'flaming'
- *Innovation*: Challenge and support inventiveness rather than copy-catting
- *Preoccupation with Maturity*: Maintain safe boundaries, responsibility, but don't patronize—learn from them!
- *Investigation*: Urge kids to explore, adapt how programs work; let them use knowledge as a family resource (consumer items, vacation plans, geneology)
- *Immediacy*: Balance desire for rapid response, interactive format with reading, reflecting, chores-things that build patience.
- *Sensitivity to corporate Interest, abuse*: use savvy as consumers to aid family and help them apply insights to peer relations
- *Authentication and trust*: reflect on standards, values, signs of credibility in a variety of decision-making (cultivate thinking for self)

Tolerance, curiosity, and assertiveness of 'Net Gen kids provide open-minded parents fun experiences, with plenty of room to influence and inspire.

Source: D.Tapscott. (1998). *Growing up Digital: The Rise of the Net Generation.* New York: McGraw-Hill.

This newsletter seeks to outline what we do know and how to help kids manage digital thinking and responsibilities.

Inside this issue:

For additional resources, visit

Dreamcatcher
Family Life website

www.uwyo.edu/ag/ces/dream.htm

Research Update: Growing up Digital

Learning for Gen-Xers
B.L.Brown. (1997). New learning strategies for Generation X. *ERIC Clearninghouse on Adult Career and Vocational Education/ERIC Digest, 184.*
Notes fast-changing social and economic conditions in childhood of today's young adults. Commends teaching strategies which:

- Focus on outcomes vs. techniques (desired behavior vs. memorizing)
- Make learning experi-entail (role play, simu-lation, discussion)
- Give students control over learning (options)
- Use abilities for parallel thinking (multiple media and themes)
- Highlight key points (quick menu access)
- Motivate learning (setting standards, making formats, content to fit)
- Challenge learners (enable new skills and applications to real world)

Parenting Impacts
D. Baumrind. (1996). The discipline controversy revisited. *Family Relations, 45*, 405-414.
Reviews research on role of discipline in parent strategies and child outcomes. Identifies two critical outcomes for child development:
1) Character: accountability, persistence, impulse control, social respon-sibility, commitment
2) Competence: effective functioning as defined by personal, social goals (incl. communion, belonging and service; and agency, individuality and self-advancement).

Notes varying impacts related to development:

- With preschoolers, contingent reinforcement (predictable consequence) and regularity enhance security, reduces anxiety
- School-age children generally accept demands and expect support as part of family give-and-take
- Adolescents tend to accept moral directives as legitimate, social norms as negotiable, personal taste as beyond parent authority

Underlines mutually reinforcing impact of external rules for internal control. Illustrates cultural variations in parent roles, processes, outcomes. Reiterates support for authoritative model:

- Responsive (warm, sensitive, caring, clear communicators) and
- Demanding (firm, Non-punitive, organized, consistent) parents… tend to have cooperative, self-directed children.

Intelligence in an Information Society:
R.D.Pea. (1985). Integrating human and computer intelligence. *New Directions for Child Development, 28*, 75-96.
Critical skills for digital thinking include:

- *Cognitive skills*—seeking, searching, sorting, managing, interpreting data
- *Problem solving across disciplines*—analyzing, adapting, applying, integrating
- "*Metacognitive" skills*--planning, monitoring, learning how to learn
- *Communication*—verbal and non-verbal interpretation and dialogue
- *Critical inquiry skills*—questioning, strategies for investigation or research, use of theory or standards

Achievement and Educational Technology
J. Schacter. (1999). *The impact of education technology on student achievement*. Santa Monica: Milken Family Foundation.
Reviews of 5 studies found

- Students learn and enjoy it more when computer-based instruction is included
- Technology-rich classrooms benefit regular and special-needs youth
- Cooperative group work with technology is more effective than instruction-only
- Integrating technology into classroom improves test scores
- Technology involving higher-order reasoning skills produces higher math scores
- Student reflection, progressive thought, multiple perspectives, and independent thinking increase when technology is included
- Teaching students to use simple programming languages improves math scores

Stats and Facts: Growing up Digital

Computer Penetration

Household Computer Ownership (1998)

- Income > $75,000: 80%;
- Income < $15,000: 16%
- College Degree: 69%
- No High School: 16%
- White: 47%
- Hispanic: 26%
- African-American: 23%
- Male: 34.3%; Female: 31.4%

Internet Access

- Income > $75,000: 60%
- Income < $20-25,000: 12%
- College Degree: 45%
- No High School: 14%
- White: 53%
- Hispanic & African Am: 31%

Access at Public Libraries, Centers

- Internet use outside home is 2 ½ times higher for persons with incomes under vs. over $20,000
- Rates of public use for ethnic minorities, people without home computers, and lower education groups are 1.2-to-2 times higher than comparison groups.
- ➔ *Public access is critical to reducing the digital divide.*

Internet Access (for owners)

- PC: 61%
- Web TV: 1%
- No access: 38%

Service Providers

- National (aol, msn, etc.) 69%
- Local Phone Company: 14%
- Long Distance Phone: 4%
- Cable TV Systems: 2%
- Wireless Firms: 1%
- Other: 10%

Reasons for Not Using Internet

- Didn't want access: 25.7%
- Cost: 16.8%
- Access elsewhere: 9.6%
- No time: 8.7%
- Computer not capable: 8.3%
- Planning for future: 7.5%
- Concern for children: 6.0%
- Not useful: 5.6%
- Other: 4.0%

Internet Use at Home/by Income

Income $x1000	E-Mail	Info search	Take course	Job task	Job search
<5*	83.1	73.8	53.5	23.0	20.6
5-9.9	81.2	66.3	50.8	20.9	23.5
10-14.9	81.0	60.0	44.8	20.6	25.3
15-19.9	75.1	56.6	35.6	15.1	20.0
20-24.9	74.6	59.2	41.4	19.1	17.9
25-34.9	78.7	59.1	35.9	26.4	20.7
35-49.9	77.2	59.1	35.8	25.9	15.2
50-74.9	77.5	60.3	35.8	28.9	14.8
75+	78.7	60.0	35.0	34.5	11.7

Note: Income figures at left are in thousands. Usage figures (e-mail, etc.) are percentages.

Source: National Telecommunications & Information Administration. (1999*). Falling through the Net.* Washington, DC: U.S. Department of Commerce. For a detailed report, www.ntia.doc.gov/ntiahome/fttn99/contents.html

Schools Make the Difference

- K-12 home use: 1984 (12%); 1993 (27.8%)
- Rates for minority/low income home use (1993): under 10%; home + school use: 60%

Source: US Bureau of Census, October 1994 Current Population Surveys.

Health and Children on Computers

American Academy of Pediatrics recommends limiting children's screen time (TV, video, computer) to 1-2 hrs. daily; Public Health noted concerns for direct and cumulative musculoskeletal and radiation effects of adult workers. For info on how to reduce risks and cope, see Cornell Univ. Health Services: www.gannett.cornell.edu

Home Computer Use Questions

- When might a child need a computer?
- How should we select a computer?*
- Which hardware & extras are needed?
- What will be lost without a computer?

Source: Jane M.Healy. (1998*). Failure to Connect*. New York: Simon & Schuster, p.72.

*Dave Krauss of Michigan St. U. Computer Science Dept. offers a detailed Guide to Buying a Home Computer: www.css.msu.edu/PC-Guide/PC-Guide1.cfm

Stats and Facts: Growing up Digital

Digital Glossary

Digitally literate: able to operate and enjoy some multimedia entertainment.
Functionally literate: competent in operating a hardware (machinery) or software (program) application.
Edutainment: highly attractive software (graphics, animation, simulations) marketed as educational, but limited in content, impact

Applications Software

- *Word processing*: writing, saving, and editing tools for composing
- *Spell checkers, thesaurus, dictionaries:* composing tools linked to processors
- *Grammar checkers*: sentence structure tools, relatively unsophisticated
- *Outlining, organizational aids*: programmed frameworks for writing
- *Data base*: filing systems for storing or accessing by category, linking facts
- *Spreadsheets*: database-like tools for organizing, graphing, computing, comparing data records
- *Classroom, school mgt. aids*: record keeping, calculation, coordinated planning tools
- *Aids for the handicapped*: audio and adapted keyboard tools to write, access database and Internet resources
- *Computer-aided design*: applications for constructing blueprints, diagrams, 3-D models simulating dimensions
- *Laser discs*: visual presentations adapted for quick entry, flexible play
- *CD-ROM encyclopedias*: reference sources saved on disk
- *Hypertext and hypermedia*: tools for organizing non-linear branching programs which structure and guide viewers through linked sites
- *Multimedia authoring*: programs with text, sound, animation, and graphics to create teaching aid, reports, or projects

We parents want to see our children succeed, but the foundations for true success—even future technology "guru" status—rest on skills that will not become obsolete with the changing of a microcomputer. Most successful technology innovators did not grow up with computers, but rather with rich, internal imaginations.-Jane Healy

Basic Skills/Information Programs

- *Drill-and-practice*: highly structured but simple and repetitive skills for memory of basic skills
- *Integrated learning systems*: Comprehensive skill-building software which sequences, coaches, tests, tracks, and individualizes
- *Cognitive or "intelligent" tutors*: carefully sequenced and learner-sensitive programs designed to reinforce or reteach content
- *Interactive "edutainment"*: game-based learning, usually requiring little interaction or critical thinking

Links to Communication, Information

- *Internet/World Wide Web*: electronic connections to other network users (e-mail) and access to commercial, educational, government, and personal resources linked to the network
- *Distance learning*: formal or informal courses with text descriptions, video or image support, quiz and interactive applications

Problem Solving and Thinking Skills

- *Video games*: fantasy or practical software activities designed as simple or complex problem-solving games
- *Academic problem-solving*: games which foster general or subject-specific analysis skills
- *Simulations*: "pretend" experiences which parallel and offer practice in real-life experiences (piloting, urban design)
- *Systems thinking*: complex simulations which mimic interactive parts, processes
- *Programming languages*: technical commands structuring software

Source: Jane M.Healy. (1998*). Failure to Connect*. New York: Simon & Schuster, p.72.

For more computer literacy definitions, see ADITA Video, Inc: www.adita.com/literacy.htm

Step-by-Step: Supporting Technological Literacy

Profiles for Technology-literate Students

Even under the best resource and training conditions, children need learning experiences tailored to their personal and developmental needs. Research on child development and early indications of successful technology adoption have led to the following guidelines:

Pre-K to Grade 2: 1) use output devices (mouse, keyboard, remote) and output (monitor, printer) for computers, VCRs, etc.; 2) use variety of media resources for learning activities; 3) use accurate, developmentally appropriate terms to communicate about technology; 4) use stage-appropriate multimedia resources (interactive books, educational software, simple encyclopedias); 5) collaborate with peers, family, others using learning technology; 6) demonstrate positive social and ethical behaviors; 7) responsibly use technology systems and software; 8) create age-appropriate products with teacher, parent, peer help; 9) use technology resources (puzzles, logical thinking programs, writing tools, digital cameras, drawing tools); 10) with support, gather information and communicate using telecommunications tools.

Grades 3-5: 1) use keyboards and other input, output devices; 2) discuss uses, advantages and disadvantages of technology; 3) discuss issues and consequences of appropriate/inappropriate technology use; 4) use computer tools to enhance productivity, remediate skill deficits, aid learning; 5) develop individual or group products with multimedia or presentation tools (Internet, digital cameras, scanners); 6) access information and communicate with others via telecommunications; 7) participate in collaborative problem solving using telecommunications and online resources (e-mail, online discussions, web environments); 8) use technology resources (calculators, data collection probes, videos, software) for self-directed learning; 9) understand how to select appropriate tools and resources; 10) critically evaluate information sources.

Middle School (6th-8th grade): 1) apply hardware, software problem-solving; 2) know trends, effects for IT in workplaces and society; 3) exhibit, discuss legal, ethical behavior in tech use; 4) use content-specific tools, software, simulations in learning and research; 5) apply productivity/multimedia tools and peripherals for self, group learning, cross-curriculum; 6) design, develop, publish, present products; 7) collaborate with peers, experts using telecommunications in and out of classroom; 8) select and use appropriate tools for varied tasks; 9) understand concepts underlying hardware, software, connectivity, with applications to problem solving; 10) research and evaluate accuracy, relevance, appropriateness, comprehensiveness, bias of electronic information sources on real-world problems.

High School: 1) critically review capabilities and limitations of resources and systems; 2) make informed choices of systems, resources, services; 2) analyze impact of technology on society; 4) practice ethical use of technology; 5) use tools, resources for managing professional or personal information (finances, schedules, addresses, purchases, correspondence); 6) evaluate technology options (distance education, distributed education); 7) routinely use online information to meet needs for collaboration, research, publications, communications, productivity; 8) select and apply tools and resources for decision-making; 9) apply expert systems, intelligent agents, simulations to real-world situations; 10) contribute to knowledge base using technology resources

More information on suggested skills (to guide, not to evaluate) for all grades available at http://cnets.iste.org/68pro.htm

Source: International Society for Technology in Education. (1998) Performance indicators for technology-literate students. Eugene, OR: ISTE.

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University of Wyoming Cooperative Extension Service Youth and Family Development 7/00.

Internet Use: Thinking into the 21st Century

Internet technology introduces not only new sources and resources, but a whole new way to think. Instead of ceaseless searching for one library book on an exotic subject, kids need to learn to evaluate and sort, avoid distractions but creatively pursue paths that look promising. Parents can help build skills and self-confidence, monitor home use and encourage effective school computing for kids in any age group.

Basic Skills for Internet

- ***Online Research Skills***: Searching, selecting, and organizing an expanding volume of data (Information doubles every four years: facts and interpretations are more available, but also more easily lost in the surplus of new data). Just knowing where to get the latest "guide" to good sites or how to effectively use search engines
  - **Decision-making Skills**: clarifying project/content goals; establishing schedules and deadlines; scanning for awareness of available information sources; assessing most desired sources; incorporating text, images, sounds, and other types of data; using standards of quality, decency, and age-appropriateness to select information; documenting sources; organizing information effectively; exercising resource stewardship in printing/paper (for both assigned projects and informal surfing)
  - **Tool Mastery**: skills in using varied search engine features, zip files or hard drive folders, online links and bookmarks
  - **People Skills**: effective collaboration (equal and synergistic contributions), awareness of other users' time-share needs, netiquette

- ***Information Analysis Skills***: Critical thinking—evaluating and analyzing—beginning with a healthy skepticism regarding sources and extending to integration of ideas and inputs from several different sources requires refinement of traditional book-research sources.
  - **Evaluating Skills**: examining training/background of author/developer, credibility/purpose of sponsor, quality of knowledge source, reasonableness, relevance, accessibility (including e-mail), warning signs (dramatic claims, oversimplified solutions)
  - **Tool Mastery**: awareness/use of established systems for rating such as www.yahooligans.com/content/tg/evaluatingwebsites.htm as well as traditional
  - **People Skills**: healthy skepticism based on knowledge of standards and intuition, help-seeking with trusted sources (teachers, local and online experts), capacity to evaluate and select the best available information with peers using class or general standards

- ***Information "Coping" Skills***: Discipline and self-confidence help children manage the intimidating volume of information (which can be scary), learn from peers (without feeling intimidated or being led astray), and adjust to unpredictable changes in access (lines down, site modified).
  - **Information Management Skills**: allowing time for exploration (to see what's available), organizing and prioritizing information gained,
  - **Tool Mastery**: awareness/use of reviews (e.g., book reviews) and summaries (online encyclopedias and glossaries)
  - **People Skills**: relaxation (breathing, stretching, muscle tense/release, reframing, creative association), expressing feelings, help-seeking, sharing workloads, social support and assistance (online and in person)

Internet Use Skills

- ***Focus Skills***: Both immediate focus (awareness of screen contents or interactive events) and sustaining attention long-term demand extraordinary self-discipline
    - **Information Management Skills**: research plan with deadlines, short-term (15-min) and long-term (weekly) time schedules and checks blending source demands and self-capacities (physical, intellectual, emotional sharpness, endurance)
    - **Tool Mastery**: awareness/use of reference and resource sites (e.g., encyclopedias, folders), data base or outline software, and integration into presentation software
    - **People Skills**: relaxation, attending, self-awareness, scheduling/pacing, help-seeking, collaboration with online and in-person learning partners

- ***Online Networking Skills***: Flexibility in asking experts online as well as exchanging ideas and files with peers on a group project radically expands notions of library research and project reports
    - **Information Management Skills**: structuring, prioritizing information gathering (searching, linking, collecting, filing), analysis (sequencing, comparing, rating by criteria), and integration (organizing, blending, presenting)
    - **Tool Mastery**: mastery of search engines, familiarity/imagination with descriptors
    - **People Skills**: see information coping above

- ***Judgment Skills***: Academic, moral, and practical assessment capacities are required at several levels: real-time (continued participation or shift), reflective (whether/how to incorporate or integrate), and constructive (whether/how to express or interpret)
    - **Information Management Skills**: higher-order critical thinking including assessing source, logic, alternative approaches
    - **Tool Mastery**: use of reliable sources, best practice site selection criteria
    - **People Skills**: emotional intelligence (to test credibility clues), self-awareness (cognitive and emotional reactivity), help-seeking and consulting, social support

Adapted from: J.Carroll. (1997). *Wired for learning…Why teachers must harness the power of the Internet (first draft). www.jacc.com/articles/78.htm*

Understanding the Skills Needed by the Internet Generation

Digital thinking skills include intelligent interpretation and expression with a variety of media: written text, code, images and graphs, personal communication, and creative thinking…all the elements of a well-rounded, classical education. The equipment, software, abilities and needs of coworkers and neighbors in the new millennium require everyone to be more competent than ever before! Parents can help children understand and master these demands by ***scaffolding***, or helping children to make sense of projects and interests at each level of understanding:

- *Data*: identifying isolated bits: vocabulary, lines or pixels, facts, figures, elements, objects
  -ex: data on pet/show animal weight gain (expected or observed) for a 4-H animal project
- *Information*: collected data
  -ex: animal weight, height, health, with feed and other observed or researched facts
- *Knowledge*: organized information
  -ex: detailed summaries of several aspects of growth and behavior at each growth stage
- *Understanding*: ability to generalize and apply knowledge in new settings
  -ex: compare growth patterns of two breeds of the same or different animals
- *Wisdom*: sound judgment, self-regulation, ethics, reflection on consequences
  -ex: develop recommendations for raising animals or comment on existing guidelines

Adapted from Jane M.Healy. (1998*). Failure to Connect*. New York: Simon & Schuster, p.139.

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University of Wyoming Cooperative Extension Service Youth and Family Development 7/00.

A Parents' Guide to Effective School Use of Computers

Effective Integration of Technology in Schools

Education for the digital age is more than putting computers in a classroom. The following guidelines, *together with systematic assessment and evaluation of results*:

- Support innovators who seek funding, promote effective, experiential applications
- Plan for sequenced, extensive, hands-on teacher education from the beginning
- Establish technical support on-site, individualized, easily-accessed, teacher-oriented
- Move forward with those who are ready
- Anticipate changes in school power structure through dialogue and teaming
- Explore and articulate philosophy, classroom management, and curriculum which integrates technology use with current educational ideas and methods
- Link new tools and approaches to existing learning activities and goals
- Train through hands-on, personalized introductions and experiments vs. technical courses
- Be transparent and patient with the change time-line
- Engage students in teaching each other
- Use technology to link school, parents, and the wider community (e.g., parents, senior citizen, corporate involvement)

Sources: L.Foa, R.Schwab, & M.Johnson. (1996). Upgrading school technology*. Education Week, 52.*

Authentic Uses of Technology (getting beyond computers as educational toys)

- Technology supports student performance on an authentic task. When school-based technology applications resemble non-school settings (developing a business plan, making decisions on land use) or fill a genuine need (building a school landscape), tools and resources are relevant, engage multiple disciplines, and are challenging in complexity.
- *Technology use is integrated into core curriculum activities*. As part of research, dialogue, and collaborative problem-solving in math, science, language arts, or social studies, technology and telecommunications tools enhance the level and variety of thinking and communication skills in these subjects.
- *Technology is a tool used in complex content learning, not just a subject in itself*. Students learn to use hardware and software as a resource (Internet search, creating databases, video/web productions) rather than take computer classes for their own sake.

Online Lesson Plans

The US Dept. of Ed. offers an online gateway to lesson plans for all levels and content. Parents should urge teachers and curriculum directors to check out www.thegateway.org

E-rate

E-rate is a national program providing telecommunications services to schools and libraries at discounts from 20-90%, depending on need. For more information on e-rate and a variety of other media-application issues, contact:
Center for Media Education, 2120 L Street, N.W., Suite 200, Washington, DC 20037 (202) 331-7833
www.cme.org or www.eratehotline.org

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University of Wyoming Cooperative Extension Service Youth and Family Development 7/00.

Resources and Policy: Youth Risk and Resiliency

Aids for Parents

CYFERNET
www.cyfernet.org
Extension youth & parenting resources on many issues, including technology, connectivity, and parenting.

American Academy of Pediatrics
www.aap.org
Computers and media education are two of many child health topics; lots of links for parents, kids.

Growing Up Digital
www.growingupdigital.com
Information, issue discussions, resources for family computing.

The Daily Parent
www.dailyparent.com
News, issues, and links for many types of parents.

Kidlink
www.kidlink.org
Global dialogue network for kids 5-15.

I*EARN
www.igc.apc.org/iearn
Int'l. Ed. & Resource Network exchange projects in creative arts, language, humanities, social studies, science, environment, and action to prove global quality of life

The Connected Family
www.ConnectedFamily.com
Information, issue discussions, resources for family computing.

SafeSurf
www.safesurf.com
Reviews issues, tools for Internet safety

Closing "Digital Divide" (gaps in computer access, resources, abilities)

Children's Partnership Strategic Audit:
Activities & Opportunities for Low Income and Underserved Americans
www.childrenspartnership.org/pub/low_income/index.html
Survey of needs with recommendations for action

Closing the Digital Divide
www.digitaldivide.gov
Interagency site with resource data, policy, funding

Telecom/Info Infrastructure Assistance
www.ntia.doc.gov
Commerce Dept. site with info, funding, reports on issues and community programs

GirlTech
www.girltech.com
Info and activities from science to better understanding boys for kids and parents

WWWConsortium
resources for special needs children
www.w3.org/TR/1999/WAI-WEBCONTENT-19990505/
Online, newsletter, infosheet, videos

Plugged In
www.pluggedin.org
State-of-the-art Silicon Valley after school creativity/connectivity resource project for low income youth and families

Elements of Knowledge-based Business (emerging realities in the human-technology interface)

- The more you use knowledge-based offerings, the smarter *they* get (database tuned to preferences)
- The more you use knowledge-based offerings, the smarter *you* get (familiarity + feedback from database)
- Knowledge-based businesses and services adjust to changing circumstances (automatic modification of product/service offering on cue from customer/worker)
- Knowledge-based businesses can customize their offerings (add changing patterns, preferences to database)
- Knowledge-based products and services have relatively short life cycles (short-term [tech innovation, fad] market
- Knowledge-based businesses enable customers to act in real time (customize in person vs. wait for special order)

Source: Stan Davis & Jim Botkin (Eds., 1999). *Creating value in the network economy.* Cambridge, MA: Harvard University.

Paradoxes: Parenting the Information Age

Computers, TVs, cell phones, and other telecommunications paraphernalia BECOME part of a family system. Healthy families use them as tools rather than serving them as pawns. Healthy families in the Internet age require a healthy balance of cohesion, adaptation, and communication. They are most likely to keep these functions in balance through:

Cohesion (balance of togetherness and independence)

- Sharing time with tech tools, augmented with discussion, hugs and closeness
  -ex: searching a topic online together; discussing a rental video; building a family web site
- Teaching and trusting members to engage in safe, ethical, appropriate use of technology tools and resources rather than cutting off or neurotically monitoring individual use.

Adaptability (balance of structure and flexibility)

- Establishing and honoring rules for safety, time sharing, appropriate use, ethics
- Encouraging all family members to lead in sharing skills
  -ex: learning from mom's skill with financial software, dad's digital video of a family vacation, teen's CAD-CAM drawing, school-ager's family web page, kindergartener's e-mails to grandma

Communication

- Use of technology tools to stay in touch or increase family time
  -ex: telephone and e-mail work when contact and efficiency are balanced with time limits which allow for human contact and quality interaction
- Appreciation and cultivation of different communication and thinking styles and skills
  -ex: linear (cause-effect) thinking aids word processing while visual (image/web-oriented) thinking aids multimedia or multi-discipline projects