Ergonomic Issues for Classroom Computing

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Computers in Schools

- Rapid proliferation of computers in schools.
- Primary focus on hardware and networking.
- Secondary focus on educational software and curriculum.
- Laptops increasingly being favored over desktops.
- Goal of ubiquitous computing.
- Teaching training/technology integration lags.
- Physical ergonomic issues seldom considered.
Laptop Computer Use

- In 1996, Microsoft and Toshiba began a Laptop Pilot Program at 52 schools across the United States in which students have 24-hour access to laptop computers and the computers are fully integrated into classroom instruction. The pilot program was designed to demonstrate that providing every student within a classroom with access to "real world" business tools would produce substantial educational benefits.

- No consideration of Ergonomic Issues

(http://www.microsoft.com/education/aal/research.asp)
Ergonomic Issues

- Children’s posture, age
- Computer design
  - desktops, laptops, pda’s
- Furniture design
- Backpack design
- Time management
- School and home use
- Effective Ergonomics Information
Ergonomic Design Research

• How ‘ergonomic’ are the different hardware and furniture designs?
Ergonomics Information Research

• What is the most effective way of delivering ergonomics information?
Computer Use Research

• How can we best structure the time that children use computers?
  – Curriculum issues
  – Rest-break issues
  – Software timers
  – Time limits

(http://www.microsoft.com/education/aal/research.asp)
Ergonomics Education Research

- How can we most effectively present parents and children with appropriate ergonomics information?
Ergonomics Programs Research

- “Get Techfit” program – Blackwell Elementary School, WA and Cornell University.
  - Classroom instruction on computer ergonomics
  - Class exercises on computer ergonomics
  - Parents booklet on computer ergonomics
  - Web-based program information
  - Teacher commitment
Good or bad?

• What is right or wrong with these pictures?

Extract from an Ergonomics slideshow prepared by children for children at Blackwell Elementary School, WA.
Good or bad?

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Future Agenda?

- Intensify efforts to promote public awareness of the importance of Ergonomics in school and home computer use.
- Promote professional awareness of classroom ergonomics issues.
- Provide effective Ergonomics education information for schools and parents.
- Define effective Ergonomic designs for hardware, software and furniture.
- Encourage professional initiatives for IEA/HFES to promote Ergonomics in Schools.
Our Responsibility?

- As professionals, we believe it is our responsibility to protect future generations against known injury risks, and to ensure that our children acquire good lifelong skills based on sound ergonomics practice.