

# LEGISLATING COMPUTER USE SAFETY IN THE CLASSROOM: IS IT POSSIBLE?

Anne Hainsworth, Master of Public Policy, 1986

**Abstract.** Various authorities have predicted increased incidence of Repetitive Strain Injuries among children and teenagers due to improper use of computers. Given the fact that these injuries tend to be disabling and lifelong, this is a truly chilling prospect which does not seem to be on the radar screens of parents, schools and the manufacturers of this equipment. Attempts to get school districts to voluntarily institute corrective measures have met with very limited interest and often outright denial. Currently there is a bill before the New Jersey Assembly to require a statewide study of this issue. This bill would establish a Commission composed of educators, medical professionals and ergonomic authorities to examine the “need, viability and cost” of promoting safe computer practices in the classroom. In a state currently facing a six billion-dollar budget deficit, any new expenditure faces a steep uphill battle. The speaker will discuss the current status of the bill and strategies to promote its passage. The speaker will also address alternative options should prevention be discounted. Specifically, the example of the asbestos industry and its’ experience with disabled workers will be discussed.

There are fifty two thousand teenagers and young adults under the age of thirty who are on Social Security Disability due to musculoskeletal disorders. Since 1990, disorders of the musculoskeletal system have risen 3.7% and are the fastest growing cause for disability in the United States<sup>1</sup>. Of the 582,000 employees in 1999 who missed time away from work due to these disorders, 72,000 or 12% were under the age of twenty-four. These disorders include sprains, strains, carpal tunnel, tendonitis, soreness, pain, and back pain<sup>2</sup>.

According to a study recently conducted at a private university over fifty percent of the undergraduate students reported having pain and discomfort at the computer and 12.5% reported problems after only one hour or less at their workstation<sup>3</sup>.

Tom Gallagher, Karen Lange, Scott Mortimer, Erik Nelson and Josh Gold are among the teenagers and young adults suffering from musculoskeletal disorders, more commonly referred to as repetitive stress injuries. Unfortunately, there is very little research that has been done on children. Nevertheless, doctors and physical therapists are seeing younger patients. Patrick Foye, M.D., specializing in physical medicine and rehabilitation at the University of Medicine and Dentistry in New Jersey, is one of them. He sees patients in their twenties and thirties who started developing problems in their teens<sup>4</sup>. Margit Blecher, Director of the Center for Occupational and Environmental Neurology in Baltimore, is now treating school age children with computer related problems when previously she was only treating adults<sup>5</sup>.

What are the effects of these injuries? Many doctors, physical therapists and ergonomists feel that the types of injuries sustained by adults will also affect children. Dr. Alan Hedge, Professor of Ergonomics at Cornell University, states "...there is no reason to assume that what happened to adults won't happen to children, too."<sup>6</sup> Repetitive stress injuries creep up slowly and can take years to manifest themselves. Dr. Foye's concern is that "Ten years from now we may be seeing 15 or 16 year olds who are affected."<sup>7</sup> Deborah Quilter, health writer, has observed that "Computer users tend to adapt to the shape of their furniture" leading to improper posture, strained muscles and a curved spine<sup>8</sup>. Once this happens it is very difficult to correct and the problem becomes long term. The injured person soon becomes a doctor's patient requiring care in the forms of physical therapy, medication, tests, splints, injections, and sometimes surgery. Family members have to take on responsibilities that were handled previously by the injured person. The injured person feels guilty and depressed. The helper feels overwhelmed. Intervention by a mental health professional is sometimes needed to help everyone cope.

In 1999, over one million persons were disabled due to musculoskeletal disorders. In that year, the United States government and Social Security participants paid out over nine billion dollars in benefits for this category of illness alone<sup>9</sup>. In addition, businesses lose billions of dollars each year in worker's compensation costs, lost wages, and productivity<sup>10</sup>.

These numbers indicate that a major problem exists and that not much is being done about it. Early intervention and instruction of preventative techniques can go a long way in offsetting future health problems. Unfortunately, children in schools are being taught how to use and apply the hardware and software but not about good ergonomics techniques. School districts are not purchasing appropriately sized workstations<sup>11</sup>. "The most recent Congressional study investigating school facilities addressed facility improvements in terms of acquiring hardware and software... increasing electrical capacity and providing conduits." Issues relating "to ergonomic furniture, were not addressed<sup>12</sup>".

Jackie Ross, a physical therapist, says that even though parents know that computer misuse and overuse causes repetitive stress injuries in adults they overlook the fact that their children are spending time at their computers making the same movements over and over again<sup>13</sup>. When the author asked a New Jersey School Superintendent if her district would permit an anonymous survey of students to obtain data on early symptoms of repetitive stress injuries, it was denied and I was later told that the district was fearful of acknowledging a problem for fear of encouraging lawsuits.

Lack of information, the rush to technology and costs are just some of the factors inhibiting attempts to address this problem effectively. In a survey of teachers in Oregon, Dr. Inger Williams, consultant in computer ergonomics, found that 80% felt that elementary school children should be taught proper computer use techniques and 74% were concerned that students lacked appropriate workstations<sup>14</sup>.

Although Cheryl Bennett, with the Lawrence Livermore National Laboratory, has instituted low cost improvements in a California School District she states "Until ergonomics in schools is regulated (judging by the rate of workplace ergonomics regulation this is not likely to occur soon in many countries), the key to changing the conditions may be at the local level."<sup>15</sup>

Unfortunately, voluntary measures taken at the local level might not be sufficient. Rolled up towels and telephone books won't help in the long run. In addition, how will follow up be conducted? What sanctions will be used to ensure compliance? Most school districts will not implement any new initiatives without a mandate. Safety gear is used in sports; safety glasses are required in the chemistry lab; health exams are required; sex education classes teach students about sexually transmitted diseases and how to avoid them. So how did teaching children how to avoid repetitive stress injuries get left out

of the curriculum? How did purchasing ergonomically correct workstations get left out of the classroom? The reasons do not matter; the consequences do.

New Jersey Assembly Bill 3624 was introduced last year and reintroduced this year as A545 by Assemblyman Joseph Roberts Jr., and Assemblywoman Nilsa Cruz-Perez. (District 5) Its purpose is to establish an Ergonomics in Education Study Commission. The job of the Commission is to ascertain the need, viability and cost associated with educating K-12 th graders about ergonomics. Its methods will include examining the types and levels of severity of injuries associated with non-ergonomic study environments; the development of ergonomic design standards and education programs and ascertaining the funding levels required to support high quality ergonomics programs.

The Governor will appoint the eleven members of the Commission which will include professionals in the fields of medicine, physical therapy, business and research as well as representatives from New Jersey's unions and educational associations. The Commissioners of Education and Labor will be ex-officio members. The Commission will issue a final report to the Governor within six months of its' organizational meeting, outlining its' findings and recommendations.<sup>16</sup>

As of this writing, A545 has eight cosponsors including both medical doctors in the Assembly and one minority party Assemblyman. In addition, it has the backing of the New Jersey Education Association, the New Jersey State Federation of Teachers, the New Jersey Education Association, and the Camden County Board of Chosen Freeholders. State Senator Wayne Bryant (District 5) is preparing a bill to run concurrently in the Senate. Letters of support have come from around the country. It has captured the attention of the medical and professional community, the media and the public.

Nevertheless, A545 faces hurdles. Some of them are foreseeable; others are not so obvious. One of the biggest problems is the budget shortfall identified by newly elected Governor McGreevey. New Jersey faces a six billion-dollar deficit over the next two years. For fiscal year 2002- 2003 the Governor is proposing those school districts' funding remain the same as was in 2001-2002. This is meeting with opposition. The New Jersey School Boards Association is lobbying the State Legislature for hold harmless aid to account for increasing costs prompted by enrollment growth, state required special education programming, insurance, utilities and other factors.<sup>17</sup> The question remains will there be any money left for anything else?

Secondly, New Jersey school districts don't like mandates for the simple reason that they create more work for the school boards, the administrators, the teachers and the support staff. This is especially true in the thirty Abbott districts. These low income districts receive millions of dollars in supplemental aid but at the same time are scrutinized more closely and are held more accountable than the higher income districts.

A third challenge is that this bill is the first of its' kind in the United States. Hence, there is no model to follow. It is on its' own.

Challenges aside, A545 has a good chance of getting legislative approval and being signed into law. With Joseph Roberts, Jr. (D) now the Majority Leader in the Assembly and Wayne Bryant (D) Co-Chair of the Senate Budget and Appropriation Committee, a Senate which is split 20-20 and a Democratic Governor, there should be little opposition to the Bill. Secondly, the Bill is not asking for any funding.

It is clear, however; that findings by the Commission will identify the dollar amount needed to fund such a program. The question then becomes "Where will the money come from?". Robert Alberti, a former lobbyist with the New Jersey School Boards Association offered that the existing budget might be sufficient. His suggestion was that a tie in could be established between receiving state funds and purchasing ergonomically correct workstations and introducing ergonomic techniques in the curriculum.

Teachers would be trained in ergonomic principles so that they could pass this information along to their students. Simultaneously, teachers could learn ergonomic techniques that would also apply to themselves. More often than not, they sit at desks that are inappropriate for their size.<sup>18</sup> The author, during the writing of this article, walked past a middle school classroom where the students were using computers. The children were slipping and slouching in hard plastic chairs overreaching for the mouse with one arm and cutting off the circulation in the other. This repeats itself every day in hundreds of thousands of classrooms across the country.

What happens in the event the Bill is not signed or the Commission fails to acknowledge the problem or identify workable solutions? This is only one step in a long process to correct this problem. My husband Michael, an Asbestos Worker in the early 70's, was involved in attempts to improve the working conditions on sites where asbestos was being used. He shared with me how employers discounted mounting evidence of a problem, while paying out substantial sums in workers compensation claims; how the manufacturers denied any problem with their product and refused to do anything to reduce the amount of dust. Government agencies suggested voluntary solutions to the problem and denied having any authority to intervene. Common sense ways of reducing the amount of dust in the air were "too costly" and not competitive. Productivity and profits were more important than safety and there was always someone willing to do whatever was required to keep his job.

Eventually, a small law firm agreed to take the case despite the fact that countless other firms had turned it down. There really isn't an asbestos industry, in this country anymore. The insurance companies that insured them lost hundreds of billions in judgements. Lloyds of London was forced to reorganize and was rumored close to complete failure because of its' losses. Fortune 500 companies, which were not known as "asbestos companies" but had a subsidiary involved with asbestos have been driven into bankruptcy court. Cases continue to be filed, to this day, by the thousands while tens of thousands have died as a direct result of asbestos exposure. Several of my husband's coworkers have been disabled since the early 70's. Many more have since died. While no one is associating repetitive stress with cancer it can be every bit as disabling with little prospect of complete recovery.

As the law firms, which specialized in asbestos litigation, run out of companies with any assets to sue; they are identifying new areas to pursue. Some have gotten involved in tobacco litigation; others are still looking. Will our employers, computer equipment manufacturers, insurance companies and school districts wake up one morning and find out that they are involved in another "asbestos" disaster? My hope is that they will stop ignoring this problem, shifting the blame and start working proactively with the medical community and ergonomic professionals.

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<sup>1</sup> Social Security Administration, Annual Statistical Supplement. Number and Percentage Distribution, by diagnostic group, age, sex. Tables 5. D6. 1990-1999. Accessed March 2002.

<sup>2</sup> Bureau of Labor Statistics. US Dept of Labor. Number of Median days of non fatal occupational injuries and illnesses with days away from work, involving musculoskeletal disorders. 1999. Table 11. Accessed March 2002

<sup>3</sup> Katz J.N., MD, MS, Amick B.C. PhD, Carroll B. B., EdD, Hollis C., MPH, MPS, Fossil A.H., Coley C.M. MD., Prevalence of Upper Extremity Musculoskeletal Disorders in College Students, Am J Medicine. 2000; 109:586-588

<sup>4</sup> McMahon, P. Kids and Keyboard Injuries, Health State. Vol 18. No.1 Winter 2000, p12.

<sup>5</sup> Kadaba, L. Younger PC users feeling stress injuries, Philadelphia Inquirer, Feb. 11, 2001.

<sup>6</sup> Gross, J. Missing Lesson in Computer Class: Avoiding Injury, New York Times; March 15 1999.

<sup>7</sup> McMahon, P. Ibid.

<sup>8</sup> Quilter, D. Computer Injuries: The Next Generation, VDT News 1995.

<sup>9</sup> SSA, Tables 5. D. 6 Ibid.

- <sup>10</sup>Johnson, C. Researchers study Children's PC use. Washington Post, May 16, 2001.
- <sup>11</sup>Bennett, C. Classrooms and Computers: An Elementary School Case Study. Advances in Occupational Ergonomics and Safety. 2001, pp. 354-360.
- <sup>12</sup>Laeser, K., Maxwell, L., Hedge, A. The Effect of Computer Workstation Design on Student Posture. Research on Computing on Education. W98, Vol. 31, I.2., p. 174.
- <sup>13</sup>Newman, M. Computers aren't Child's Play. Update Blue Cross Blue Shield. Summer 2000. Vol. 16. No2., p.10.
- <sup>14</sup>Williams, I. PhD., Cook, T., Zigler, T. Computer Ergonomics For Teachers And Students. Ergonomics for the New Millennium. 2000 Vol. 2, p.91.
- <sup>15</sup>Bennett, C. Ibid. p.359.
- <sup>16</sup>New Jersey Assembly Bill 525; 210<sup>th</sup> Legislature, 2002.
- <sup>17</sup>School Board Notes, Vol.25, No. 30., April 4, 2002, pp.1-2.
- <sup>18</sup>Alberti, R. and Hainsworth, A. Telephone conversation., Fall, 2001.