

Ergonomics in the e-class

Murrays Bay Intermediate School



PREVENTION. CARE. RECOVERY.

Te Kaporeihana Āwhina Hunga Whara



“The students in Room 22 reported a better feeling of well being using the procedures and ...were using the learning in other contexts such as using a PC at home.”
Stephen Kendall-Jones, Senior Teacher

Introduction

Murrays Bay Intermediate School, a decile 10 school with a roll of 843 on the North Shore, decided to carry out a ThinkSafe Education action learning project on the issue of injury caused by unsafe posture and practices when working on computers in the classroom. Students were heavily involved in all aspects of this project, from selecting the issue to investigating and implementing their solutions.

What was the issue?

When the teacher and students in Room 22 began their injury prevention action learning project, they brainstormed possible safety issues that affected them, and which they could research within constraints of time and budget. They eventually chose to research the topic of “safety issues relating to the ergonomics of an e-class at intermediate school-level”.

Intermediate school is a time when young people go through a stage of major physical development. But the difference in student size is often not reflected in the computer work stations and equipment they use at school. Because of cost constraints and lack of knowledge of the effects of poor ergonomics, desks and chairs are often not adjustable for the students’ size. This can cause future health problems.

What did the school do?

Investigation:

By interviewing a local physiotherapist, students found out about the health issues related to poor posture at computer work stations. They also checked secondary sources by searching the internet for reliable information on the subject.

The students measured their classmates' height, outside leg length, knee to floor height, width and shoulder to wrist length. They compared the results with the school's computer stations to find out which body sizes the equipment mostly suited. An ICT unit of work on using Microsoft Excel provided an ideal opportunity to graph this research.

Through their investigation, students found that the measurements of their classmates ranged considerably. As none of the equipment in the classrooms was adjustable, this variance could cause unsafe practices. Tall students had to look down at their screens, which strained their necks, while short students often knelt on their chairs to obtain the best eye level.

Students were using the computer for up to 50 minutes at a time without a break. Teachers were planning more ICT lessons, but not necessarily allowing for optimum time for safe viewing of the computer screen.

Interventions (action plan):

Having identified the health issues, the students suggested ways of dealing with some or all of the causes. They decided that interventions needed to be based on the:

- time spent at the computer
- posture of the individual
- position of the screen
- support provided by the chair
- support provided by the table or docking station.

Through discussion and debate, the students selected a number of the interventions to put into action.

Students learned about the correct posture for sitting at a computer, and posters were pinned above every station as reminders. Labelled photos of students sitting in the correct position were used as exemplars.

Students brought cushions to school to adjust their seating and support their feet. For taller students, the monitors were raised on telephone books to a more suitable height.

A three minute break every 30 minutes was trialled, using a magnetic cooking timer attached to the computer as a reminder device. Students commented on their increased ability to focus more sharply.

What happened as a result?

The students submitted a report on their findings to the principal, with a recommendation that adjustable equipment should be budgeted for in the long term. The report also recommended buying timers to be attached to every computer in the school.

They also presented their findings at a staff meeting, which provided a flow-on effect from their research and reinforced the authenticity of their work.

The action learning was integrated across the curriculum, so time could be devoted to the project without neglecting core teaching. Several curriculum areas and skills were used in this project, including:

- health, for inquiry-based learning on the health effects of computer use
- listening, reading and viewing, for interpreting published research and interviews
- speaking, writing and presenting, for interviews, presentations, reports, formal letters, images and posters
- mathematics and ICT, for gathering and interpreting measurement data.
- careers, for finding out about physiotherapy as a career option.

Involving a physiotherapist, parents, other students and staff in the research allowed the students to find out about the value of using the community as a resource.

How well did it work?

Overall, more outcomes were achieved than intended in the six-month project.

Students were fully engaged in an authentic learning experience that involved the whole class. The ability to self-manage and produce good results was a revelation for some students and produced a number of 'ah-ha' moments.

Parental and management support was offered freely. Students carried their learning into their homes, and one parent even reported that they in turn had transferred their information to their workplace.

In evaluating their project, the school felt that it could be improved by having more time to increase depth and high level thinking, and by using explicit thinking skills and graphic organisers.

Long term results in terms of discomfort, pain and injury prevention could not be measured in the short timeframe of the project, but the research was definitive on the effects of incorrect use.

What will they do in the future?

The school is committed to ThinkSafe Education, and is now considering applying this inquiry approach to a range of injury prevention topics chosen by each class. This action learning will emphasise the practical application of an authentic result in real life, rather than being purely academic.

Want more information?

Visit www.acc.co.nz/injury-prevention/schools.