

Papatoetoe South School: SMART™ Board Equipment for the

Physically Impaired Inclusive Centre

INTRODUCTION

Papatoetoe South School is a decile 2¹ year 1-6 contributing primary school, located on Milan Road Papatoetoe, off Puhinui Road. An expanding roll over the last few years is an ongoing trend, to the point where 2008 roll increases are exceeding projections. A roll of 510 at 2008 school start increased to 580 by the end of term 1 and is now expected to reach 640-50 by the end of the year. A new classroom and other purpose built rooms completed in August 2008 will lessen but not eliminate pressures on room space. The growth in school roll numbers reflects increased infill housing in the neighbourhood and an associated influx of Indian families with young children. It also signifies that the school has a good reputation among the Papatoetoe South community. Ethnic composition is: 30% Maori; 30% Indian/Asian; 30% Pacific Islands; 6% NZ European and 4% others. Principal, Mark Barratt, commenced at Papatoetoe South School in December 2007. The school's Board of Trustees comprises 5 community representatives (2 Maori, 2 Cook Islands and 1 European) as well as the Principal and the school's Executive Officer, Ann Yearbury. The Board of Trustees are persevering in their attempts to attract an Indian community representative to join them.

The physically impaired inclusive centre is located in room 10, alongside other class rooms encircling the school's main play area. The Senior Teacher in Charge is Julie Swale. For the sake of convenience and economy of words, the Physically Impaired inclusive Centre will often be referred to as room 10 in this report. I asked Julie Swale to provide a description of the children in room 10 while protecting their identities. Julie Swale and Mark Barratt provided the following class description:

The Children in room 10 all have some form of physical disability and most have intellectual disabilities as well. The intellectual disabilities are mainly to do with the way the children are able to process information from thinking to doing. The students all require one to one teaching and some have higher needs than others which means they need help eating and toileting. The physical disabilities range from mild coordination problem, fine and gross motor issues to being unable to walk or move unaided. Some children require a wheelchair so that they are mobile.

All children in room 10 have physical programmes in place to increase their independence with mobility. The children come from a mix of cultures mainly Pacifica – Tongan, Cook Island and Samoan also Maori,

¹ Decile rank is determined by census data and indicates the extent to which the school draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students. www.mined.govt.nz

Indian and European cultures. There are 12 full time students in room 10 and another 3 students who are attached to room 10 for Health needs only. These students are in mainstream classrooms full time.

We have a very strong individual inclusive education goal for all children with special needs at Papatoetoe South. For this reason Room 10 follows the New Zealand curriculum and whatever the rest of the school is into. We have mainstream children coming and going in and out of room 10 throughout the day for Literacy programmes; they interact with the children in room 10. These students have issues with their learning and need extra support.

Room 10 has a high staff/student ratio, including a Special Education Assistant who looks after the children's health needs. Visiting specialist services available to the room 10 children include Physiotherapy, Occupational Therapy and Speech Language Therapy. Individual Education Programme (IEP) Meetings take place twice a year involving family, the class teacher, therapist, and room 10's Special Education Assistant. There is a sharing of information on the child's progress and goals are set for therapy and learning. Twice yearly parent/teacher whole-school interview evenings, additional to IEPs, provide another opportunity for discussion of children's learning progress.

The word 'inclusion' is pivotal to understanding the way in which room 10 merges into the total school environment at Papatoetoe South School, with an underpinning philosophy of maximizing opportunities for all children to participate fully in school life, and eventually as adult citizens within society. The room 10 children do their fair share for all events on the school calendar, including concerts and sports days. In [Psychology](#) and [Social Work](#) practice, **Social Role Valorization** (SRV) is the name given to an analysis of human relationships and human services, formulated in 1983 by Dr. [Wolf Wolfensberger](#), Philosopher, Psychologist and Educationalist, as the successor to his earlier 1970s formulation of the principle of Normalisation.^{2 3}

"The theory is based on the idea that society tends to identify groups of people as fundamentally 'different', and of less value than everyone else. It catalogues the methods of this 'devaluation' and analyses its effects. It may be used by those seeking to counteract these methods and effects.

*An understanding of Social Role Valorization can lead to ideas about how to improve the lives of people who are devalued by society. These can be seen to have two themes - firstly removing devaluing features (for instance people being segregated from society in a building along with others perceived to belong to the same group), and secondly taking action that leads to people being valued. ... the approaches of SRV involve Socially Valued persons (in allying) themselves with Socially Devalued persons. This alliance will unify people, broaden acceptance of differences, and encourage the coexistence of people."*⁴

² Lemay, R. (1995). Normalization and Social Role Valorization. In A. E. Dell Orto & R. P. Marinelli (Eds.), *Encyclopedia of Disability and Rehabilitation* (pp. 515-521). New York: Simon & Schuster Macmillan.

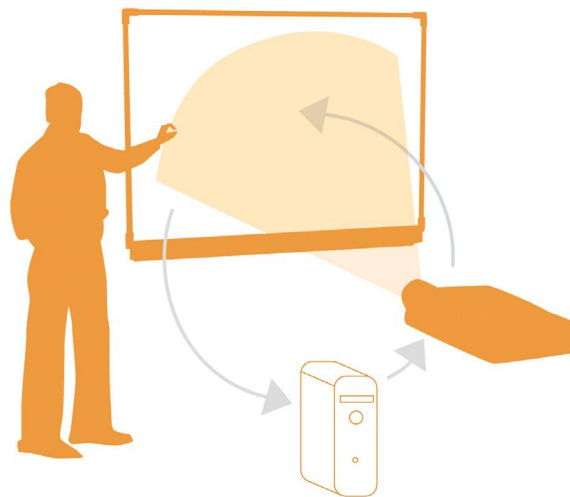
³ Wolfensberger, W. (1998). *A Brief Introduction to Social Role Valorization*. A higher-order concept for addressing the plight of societally devalued people, and for structuring human services. Syracuse, NY: Training Institute for Human Service Planning, Leadership & Change Agency (Syracuse University).

⁴ http://en.wikipedia.org/wiki/Social_role_valorization

SMART Board Description

Successful funding applications to the AACT in 2005 and 2006 saw Smart Board Interactive Whiteboard technology installed in all of the mainstream classrooms. A funding application submitted to the AACT in 2007 sought to extend the opportunities offered by Smart Board interactive technology to the room 10 children.

The **SMART Board interactive whiteboard** is a product of [SMART Technologies](#). It is a large, touch-controlled screen that works with a projector and a computer. The projector throws the computer's desktop image onto the interactive whiteboard, which acts as both a monitor and an input device (mouse and keyboard). Users can write on the interactive whiteboard in digital ink or use a finger to control computer applications by pointing, clicking and dragging, just as with a desktop mouse. Buttons launch a popup keyboard and a right-mouse-click menu for more input options. The interactive whiteboard is usually mounted on a wall or a floor stand.⁵ The interactive whiteboard allows control of any application simply by touching the screen.



From Installation and Users Guide SMARTBOARD™ 600 Series
Interactive Whiteboard⁶

⁵ http://en.wikipedia.org/wiki/SMART_Board_interactive_whiteboard

⁶ <http://www2.smarttech.com/kbdoc/1414>

PROJECT GOALS

Papatoetoe South School's 2007 funding application to the AACT envisaged that " *the installation of interactive Smart Board technology in the Physically Impaired Inclusive Centre would help the Special Needs children make " literacy gains commensurate with their 'atypical' able-bodied peers... Interactive technology engages children through touch, visual, auditory and thinking skills. Research shows that empowered children using this technology make significant gains in their learning."*

Items Purchased with AACT 2007 Grant

AACT Grant amount: \$8,483.00

Prices listed below are less GST.

Smart Board SB660 64 inches	\$3052.00
USB audio system for Smart Board	\$ 680.00
Sanyo PLC XU47 2991mm projector	\$2760.00
AMIS AMC30 Amplifier	\$ 279.00
Projector bracket	\$ 490.00
Installation costs	<u>\$ 1072.00</u>
TOTAL	\$8,483.00

DATA SOURCES

- 2005, and 2007 AACT funding application;
- Several interviews with Mark Barratt, Principal over the period April-August 2008;
- Several discussions with Julie Swale, Senior teacher, room 10 and the Special Education Assistant;
- Observation of Room 10 children and their use of the SMART Board on 2 occasions;
- Observation of SMART Board use in five mainstream classrooms. They included a combined 2 teacher class with 55+ children and a classroom where a boy who began in room 10 is now part of mainstream education;
- The classroom observations were an opportunity to gather feedback from teachers in mainstream classrooms on the technology.
- Discussion with a member of the school's Board of Trustees.
- Interview with Denise Moyle, Senior Teacher ICT at Papatoetoe South School.
- Data from a survey on 60 students and a sample group of teachers supplied by Mark Barratt, Principal. (Thank you)

USE OF SMART BOARDS IN MAINSTREAM CLASSES

School Principal, Mark Barratt emphasised that, for SMART Boards to be used to their full potential, teachers need proper training, not only in use of the technology, but in curriculum mapping to link the SMART Board into the curriculum. He favours an inclusive team approach, so that knowledge is distributed across the whole staff group, albeit with a core group of team leaders having a higher level of proficiency. Given the reality of staff turnover in schools, it is unwise to rely too heavily on two or three people trained to high levels of expertise, who could be poached by other schools.

The school has its own intranet, which is being constantly revised and added to. It includes a wide spectrum of school information, educational material and educational software accessed via the internet, such as Rainforest Maths. An item that is of particular interest to the room 10 children is a series of photographs recording their participation in a 2008 combined schools Para Sports Day at Mount Roskill School. Other mainstream children can also share in Para Sports Day experiences. The school's intranet offers a safe, relevant and diverse learning environment, categorised for junior,

middle and senior school levels, which Papatoetoe South children can access in non-class time. It also gives teachers ready access to lesson content.

Observation of the use of SMART Boards in mainstream classrooms was helpful for gaining insights into their adaptability for classroom teaching purposes. My observations were in year 4, 5 and 6 and new entrant classrooms. Two observations were of Maths lessons, one was oral reading (new entrants), one was written expression (words that link ideas) and one related to the recording of time based on a 24 hour clock. A boy in a wheelchair who was in one of the Maths classes participated equally with other students.

The information presented on the whiteboard was a combination of information written on the board with a special pen as part of the lesson, and information accessed via the computer. The computer information included lesson material prepared by the teacher, examples recalled from an earlier lesson and new examples for students to work through. I was able to gain a more complete picture of the potential of SMART Boards when I returned on another occasion to watch a year 5 teacher using a Readers Digest 'learning' DVD with the SMART Board. Taken at face value, the DVD was a Nature Studies lesson on the eating habits of blue whales, but the teacher incorporated extra components to turn it into a lesson aimed at developing skills in identifying key words and note taking. Once the SMART Board teaching session ended, the DVD was transferred to a laptop computer so that the children could access the information for themselves.

Teachers commented that, having experienced the benefits of teaching with a SMART Board, they would not want to return to teaching without one. The following were some of the advantages mentioned by teachers:

- 1) A new set of information can be placed in front of the class immediately;
- 2) It is interactive, producing an immediate response, e.g. new entrant class observation: children's touching of the screen triggered first the sound, then a word incorporating the sound accompanied by a picture.
- 3) The advantages of the pause function of the DVD were very apparent in the year 5 lesson on key words and note taking.
- 4) There is no need for the students to spend time finding books and pieces of paper;
- 5) Earlier lessons and examples can be recalled to the screen. This is a good security net for students who are slower to grasp information – less 'loss of face' for those students;
- 6) It enables access to a wide range of educational programmes;
- 7) It encourages self-initiated learning. Children who want to probe deeper can do so. A folder at the bottom of the screen linked with an on-screen keyboard gives children easy access to class projects and the school's intranet.
- 8) Children make good use of the resource to do 'extra topic' work before school and at lunch time. For example the room 5 teacher said that 8 children had been using the SMART Board before school on the day of my visit.

- 9) The SMART Board is useful for generating and recording ideas to solve a problem. For instance, the room 5 children contributed their own ideas for solving bullying problems. The ideas were circulated across the school and some were translated into action.
- 10) It encourages group work and peer tutoring – children help one another;
- 11) It engages the children – focuses their attention.
- 12) DVDs can be transferred from the SMART board computer to classroom lap tops, enabling children to retrieve information they may have missed out on or want to recheck.

Survey conducted by Mark Barratt, Principal

Influences on learning

In a questionnaire about learning, year 5 and 6 students were asked to rank what they thought had a big impact on their learning. In the context of the survey, ICT referred to a range of technology used by children while at school: computers, SMART Board, cameras, fax machine, telephone and photocopier. Students attributed importance in the following order (most to least impact). Teachers' attributions are shown in brackets.

1. Teacher and how they are perceived by the student (6)
2. If they knew what they were meant to be learning (1)
3. ICT activities (4)
4. Hands on activities (5)
5. If they knew they had to meet a high standard (2)
6. Size of the groups (3)
7. If they had physical activity that day (7)
8. Time of the day (8)
9. Topic being studied (9)

For the students, ICT activities were clearly important, but not as important as teacher related factors. The low ranking attributed to 'topic being studied' is surprising, as one might expect that a topic of high interest to a student would have a high level of impact for that student. There was relatively close agreement between teachers and students regarding the impact of ICT. However it is noteworthy that teachers attributed a higher ranking to ICT activities than they did to 'teacher and how they are perceived by the student' impact. This was a small sample but if it suggests any abrogation of responsibility by teachers in favour of ICT technology, it would be of concern.

Student impressions of the benefits of having a SMART Board in the classroom.

Reason	Number of Student Mentions	Comment
Communication	54	Students wrote they could see more clearly
Motivating	49	Students said it was exciting. You could do 'cool' things with them
Interactive	45	Teachers could show clearly how things could be better

Teacher impressions of the benefits of having a SMART Board in the classroom.

Reason	Comment
Motivating	Students faced the whiteboard as they were afraid they might miss something.
Interaction	Teachers are able to unpack concepts more easily
Learning Links	We are able to make cross-curriculum links more easily as a result of internet access. Makes learning more pertinent.

Students identified SMART Boards as an important learning tool as they improve teacher-student communication. Teachers also saw SMART Boards as a tool to improve teacher-student interaction, as well as helping to make learning pertinent to the students.

ROOM 10'S USE OF THE SMART BOARD

Julie Swale described the SMART Board as *"a wonderful interactive tool that provides inclusion for all students"*. Interactive communication technology is particularly important for room 10 children in improving their quality of life. For children who are non-verbal, key board skills are especially important. At the time of my research, only one of the families of room 10 children had a home computer, although several had X Boxes.

My first room 10 SMART Board observation was of a caterpillar game which reminded me of the popular children's book "The Very Hungry Caterpillar". There were 8 leaves and a bare branch, each numbered one to eight in random order. The challenge was to drag the leaves using finger touch on the screen and to place each on the branch in ascending numerical order. Each child had a turn. Once the leaves were correctly placed, the caterpillar ate up all of the leaves, metamorphosed into a butterfly and flew away. The task was more than a simple maths exercise as it involved hand-eye coordination and called upon social skills, in terms of the children waiting for their turn, cheering

others on and hand clapping. It was interactive, giving immediate reinforcement once the task was accomplished. As an observer, what impressed me most was the complete focus of this group of children who varied in their attention spans, and the encouragement and support shown for one another. The challenge presented by the task varied across the group of children. For example, one child, who was reluctant to even touch the SMART Board, took the hand of another child and placed it on the board, keeping his own hand on top, thus maintaining indirect control.

Digital photographs featured prominently in room 10's use of the SMART Board. The two sets of photographs I observed being used were of a walk around the local neighbourhood and the children's participation in a combined Para Sports Day at Mount Roskill School. Weather permitting, they try to do a walk around the local neighbourhood once a week, photographing items of interest, with the children themselves as central participants. The digital photographs are a way of recalling the experience and prompting discussion about what they saw on the walk, e.g. a household letterbox, power poles, cars, pedestrian crossing, birds, clouds, fences, colours, leaves, flowers etc. Because learning occurs through all of the senses, children are encouraged to touch things on the walk and talk about things that interest them. Seeing themselves and one another on the screen raises the excitement level. This was especially noticeable when they were viewing photographs of the Para Sports Day. The photographs of this day put on record the children's membership of a wider community and their efforts and successes, large and small. Learning programmes are available that link into the NZ primary schools curriculum (e.g. Kid Pix Deluxe – a simple to use drawing programme, the Magic School Bus and interactive maths games), although they are limited in number, and particularly so considering the accessibility requirements of the room 10 children.

In summary, I observed ways in which the SMART Board was a useful tool in the room 10 classroom situation. At the same time, I noted the following challenges:

- * Teachers had to cater to the education needs of children of a wide range of ages and levels of ability;
- * The limited attention span of some of the children required saint-like patience on the part of the teacher and teacher-aides.
- * Children were at varying points on a continuum of motor skills, ranging from mild coordination problems through to fine and gross motor issues. Children needed a certain minimum level of motor skills to be able to use the SMART Board.

Clicker 5 has gained a reputation among teachers of special needs children as a useful individual programme, as well as adding value to SMART Board use. The New Zealand distributors of Clicker 5 describe it as a powerful yet easy-to-use writing support and multimedia tool that enables children to write with whole words, phrases or pictures. The user clicks on words, phrases or pictures in a 'Clicker Grid' at the bottom of the screen, to send them into a talking word processor called 'Clicker Writer' at the top of the screen. They can hear words before writing them or whole sentences after writing them. Clicker 5 is ideal for primary-aged children. It is ideal for people with special needs, as

it is switch accessible – it can even be used as a communication tool.^{7 8} A localised product version is available to suit the Australian/ New Zealand market. Julie Swale believes that Clicker 5 would have the following benefits for room 10 students:

The benefits for room 10 students would be around their ability to adapt to the NZ curriculum, Clicker 5 programmes cover all NZ curriculums. Students' independence would grow because they would have access to a programme that would suit their needs, not just for now but as they progress through their schooling. The need to keep students engaged in today's and tomorrow's technology is extremely important to the students in room 10 having their place in being able to be part of their community and take a place in society as a whole. I am very aware of the need to keep students included in being able to learn within their particular ability and for the students to make progress. Technology is very much part of room 10 students' world and needs to keep up with the ever changing needs of the students, Clicker 5, I believe, is one way of ensuring that the students needs are being meet.

Clicker 5 systems requirements for Windows are: Pentium II 400 or greater, Windows 98, ME, NT, 2000, XP, Vista. 128 MB RAM, 400 MB free disk space. And for Mac, Mac OS x 10.3 or above, 128 MB RAM, 400 MB free disk space.

Licence costs appear reasonable. GST exclusive costs supplied by the NZ distributor are quoted below. It is to be expected that product upgrades from time to time would involve additional fees:

Licence fees	excl . GST	Dual Mac + Windows
1 user	\$314	For one computer
5 user licence	\$480	For up to 5 computers, includes install CD
30 user licence	\$1291-74	For 30 computers, include install CD
Additional licence each	\$53-76	in addition to single user, 5 user or 30 user for each computer.

Other costs are freight/courier/insurance from a Melbourne warehouse - \$8 + GST and training books. Training booklets price per title = Single: \$30 + GST; 5 pack: \$120 + GST; 10 pack: \$210 + GST

Clicker 5 Introduction

This booklet covers the main features of Clicker 5, including Clicker Writer; using and creating Grid Sets; Pop-up grids; and talking books.

Clicker 5 Advanced

This booklet looks further at the multimedia features of Clicker 5 and how it can be used for to create complex learning resources.

Clicker 5 Access

⁷ <http://www.cricksoft.com/uk/products/clicker/default.asp>

⁸ Norm Jager" <norm.jager@edsoft.co.nz

This booklet covers the range of access methods available in Clicker 5 and how it can be used to address the needs of a variety of learners.

Because many of the computers at Papatoetoe South School are old and have inadequate memory capacity, a minimum of two new computers would be needed to supplement what the school can make available. This would allow for individual use of Clicker 5 by room 10 children as well as combined SMART Board use.

CONCLUSIONS

Social Role Valorization advocates for improving the lives of people who tend to be devalued by society, among them the physically and intellectually impaired. Improvement has two facets, each with implications for human relationships and human services: a) removing devaluing features (for instance people being segregated from society in a building along with others perceived to belong to the same group), and b) taking proactive action that leads to people being valued. While the philosophy of inclusion underpinning the set up and organisation of room 10 exemplifies the first category, the installation of a SMART Board in room 10 exemplifies the second category of proactive action.

Education ranks importantly as a vehicle for enabling people with physical and intellectual impairments to attain equal rights and opportunities within society. Notwithstanding, the education task is accompanied by significant challenges, some of which were noted in room 10 observations that were central to this evaluation:

- * Room 10 teachers had to cater to the education needs of children of a wide range of chronological ages and ability levels;
- * The limited attention span of some of the children required saint-like patience on the part of the Senior Teacher, Special Education Assistant and teacher-aides, all of whom merit any support that can be given towards carrying out their roles.
- * Children were at varying points on a continuum of motor skills, ranging from mild coordination problems through to fine and gross motor issues. The fact that children needed a certain minimum level of motor skills to be able to use the SMART Board, was indicative of a much broader problem of specialised educational resourcing available to New Zealand schools. It harks back to the room 10 Senior Teacher's comments on the vital importance of interactive communication technology for physically impaired children in improving their quality of life and assisting them towards independence, especially when they are non-verbal.

By way of comparison, observations in mainstream classrooms provided useful insights into the potential of SMART Boards as a classroom teaching tool. While the SMART Board was undoubtedly a useful learning tool in room 10, there were significant accessibility issues around educational software currently available, which meant that SMART Board use was below potential. In the course of the evaluation, Clicker 5 emerged as a software package that would benefit room 10 students in their ability to adapt to the NZ curriculum. Clicker 5 programmes cover all NZ curricula. The room 10 Senior Teacher expressed confidence that "students' independence would grow because they would have access to a programme that would suit their needs, not just for now but as they progress through their schooling". From my own professional perspective, I can envisage definite advantages in installing Clicker 5 for room 10 children, both for individual use and combined SMART Board use.

The SMART Board technology has added greater excitement and interest to the room 10 learning environment. Group learning activity focused on the SMART Board touch-controlled screen appears to reinforce social bonds and mutual support among class members, as well as giving practice in social skills, such as taking turns. Use of the SMART Board in conjunction with digital photographs enables children to revisit and re-examine their experiences, discuss them with others, give and receive praise, and share emotions and feelings. Because the children feature prominently in the photographs, they see themselves as participating in a wider world, often in ways that bring satisfaction and commendation. Children do not take photograph folders home (as in the case of Papatoetoe Kindergarten), but appropriate importance is placed on organising regular meetings with parents/caregivers to review progress and issues and encourage their input to forward planning for therapy and learning.

The room 10 class are a very diverse group in terms of chronological age and learning ability. Learning achievement is assessed according to individual goals set for each student. Only when SMART Board use is tied into individualised learning goals for each student, preferably with the addition of new software programmes meeting accessibility criteria, will actual learning gains facilitated by the SMART Board become discernible.

