

Summary of the LANE Report 2007

1. Background to the LANE Project:

Several initiatives at a national government and local government level have provided the strategic emphasis that schools welcome to support them in their endeavours to raise student achievement and provide the platforms for students so that they transition successfully to the workforce.

In October 2004 Garry Moore outlined a city guarantee to the youth of Christchurch to have young people either in work or in training, and he noted that to do this they would need certain levels of literacy and numeracy.

The 2005 Government release of the national Working and Growing Together initiative with targeted funding of \$43 million on reading and writing programmes and \$12 million on maths initiatives mentioned the strength of the Christchurch community and the Prime Minister specifically praised the local community forums their hard work and communication with central government.

The LANE (Literacy And Numeracy Empowerment) Project had its genesis from the above strategic visions and was started in 2005 as an initiative of Linwood College with financial and strategic support from the Wayne Francis Charitable Trust. The initial aim of the pilot project was to scope the variables affecting youth literacy and numeracy, and to investigate strategies to facilitate improvements.

Linwood College is a state co-educational secondary school in Christchurch, catering for approximately 950 students from diverse backgrounds. Students at Year 9 enter with reading ages ranging from 7/8 to 16 and junior classes are streamed to cater for the vast range of abilities.

The literature search carried out in 2005 by Alan Parris and the LANE Project team at Linwood College identified the need to remove significant barriers to learning such as deficits in physical and mental health before pedagogical solutions could be fully effective. This resulted in a recommendation to the Wayne Francis Charitable Trust to provide a medical assessment of all the Year 9 and Year 10 students at Linwood College, examining ears, eyes, and teeth; and assessing students' aerobic fitness and their mental health.

This gave the project an initial focus on the health and wellbeing of these children and the impact of the intervention on three groups of students: those with the medical treatment only, those with targeted literacy intervention only, and those who had both medical treatment and a targeted literacy programme as well.

2. The Health and Wellbeing Stocktake of Linwood College Students in early 2006

A review of available information of the health of the Year 9 & 10 students at Linwood College indicated disparities between the primary school records and the assessments being made by the school's health professionals (nurse, doctor and physiotherapist) and counseling staff.

A questionnaire based on the Counties Manakau AIMHI Project was devised by Alan Parris of Linwood College to collect demographic information. All Year 9 and year 10 students at Linwood College were individually invited to participate in the project. The project was part of an overall Health Expo held in February 2006. Only 6 of the 450 students's parents declined permission for their child to take part. Students also had the opportunity to decline to participate at any stage and a number did not complete the assessment.

From the information gathered, health assessments of all Year 9 and 10 students were recommended and undertaken under the LANE PROJECT to collect reliable data. These comprised assessments of hearing, sight, teeth and aerobic fitness and BMI (Body Mass Index).

A specialist team from the Collaborative for Research and Training in Youth Health and Development was contracted to assess students' vision, hearing, and oral health. This study was devised in consultation with medical experts from the Otago School of Medicine, and conducted under supervised medical ethics practices. Students who needed further treatment to remedy any problems found were given access to free treatment. BMI and blood pressure measurements were taken by contracted registered nurses and the school's physical education department using an international fitness standard to assess the overall fitness of the students (the Queen's College Step Test).

Results:

Hearing, eye and dental assessments:

402 students were tested and only 118 did not have a referral ie 71% had a referral for at least one health problem:

- 176 of the 402 (44%) were referred for eyes, 147 (37%) for teeth and 47 (12%) for ears
- Of the referrals 85 (21%) needed eye treatment, 147 (37%) needed dental treatment and 12 (3%) needed ear treatment
- 72% of all referrals resulted in some form of treatment
- 9% of all students received two or more treatments
- 2 students required all three treatments, but eye exercises not glasses

Mental Health Trends:

The data collected for the years 1996-2004 of the numbers of students accessing various counselling services at Linwood College can be usefully extrapolated from for the 2006 cohort of students (see section 4 of the Health and Wellbeing Stocktake in the full report).

The trends show that:

- Year 9&10 students make up the majority of self referrals to school counselling services (328 of 439 ie 75%)
- high numbers of Maori and Pacifica students – 32%
- increasing referrals for psychiatric problems

Psychosocial Risk Assessment (The HEADSS programme)

Dr Sue Bagshaw of the Collaborative for Research and Training in Youth Health and Development assisted the counselling team of Linwood College to screen for psychosocial risk. The HEADSS tool covers issues related to Home, Education, Employment, Eating, Exercise, Activities, Drugs, Sexuality, Suicide, Spirituality and Safety. This tool has been used “to engage young people in a therapeutic relationship and to help for strengths based management plan with the young person”. The HEADSS programme was also used by the Counties Manakau AIMHI Project.

In identifying students at risk the tool grouped students into low, medium and high categories for risk and for resilience. The most ‘at risk’ students were those who were identified as high risk with low resilience. The combined results were as follows: of the 393 students who participated in the project, 1 student was identified as “really at risk”, 5 students with “high risk”; 31 students “at risk” and 108 “OK and need monitoring. 245 were “OK” ie 62% were identified as not needing monitoring while 9% needed intervention. (Interestingly, an alternative psychometric assessment – ‘Friends’ – was undertaken on the same students as a control group for a similar decile school in Christchurch. 20% of these Linwood students had a score which deserved further follow up).

Aerobic Fitness:

Year 9& 10 students were assessed using the internationally standardized Queens College Step test. 72% were placed in the Superior, Excellent or Good fitness category. The BMI recordings placed 17% of Linwood College Year 9&10’s in the obese category and a further 13% in the overweight category. This is an interesting (and favourable) result given the national average of 30% obesity among children of this age. The LANE report

queries the BMI results for Linwood students, as this test is standardized against European and North American populations.

Physical Health Recommendations

Timely detection and treatment of health problems have the potential to improve learning outcomes for students by enabling them to engage in their secondary school education without the barriers of impeded sight, hearing and dental disease.

The report recommends that all children have timely and regular health assessments, that treatments are provided, and that the information is entered into a national database. This should improve follow-up and maintenance of treatment regimes, including for those students who move to other schools or to other parts of the country.

Of particular interest was the optometrists' feedback that most students would benefit from regular exercise of all the muscles of their eyes (not just the students who were prescribed exercises as part of their treatment under the project). Therefore the report recommends that attention be given to the development of a series of posters and pamphlets in the school, marketing the series of eye exercises that could be helpful. There is potential for this to be promoted nationally as well.

The results of a comprehensive investigation would provide the impetus for government ministries, local bodies and district health boards to collaborate in the development of a health assessment policy and national database.

Notes:

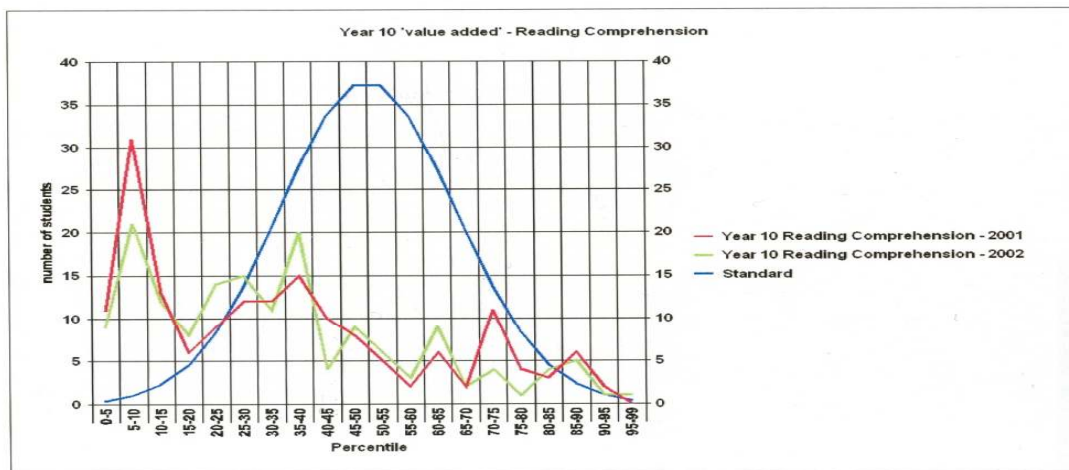
1. The fitness testing needs more research to verify the tentative results which indicate good levels of fitness for Linwood College Year 9&10 students compared to national results. SPARC or the Ministry of Education or Ministry of Health may be interested in following up the issues raised about assessment validity, particularly the BMI.
2. Managing student referrals to access free medical advice and treatment has proved an issue, and further work is required to identify barriers to students attending appointments.
3. Some students may benefit from assessment for Irlen Syndrome, after benefit was derived by some students in the Toe by Toe programme. Irlen Syndrome is a perceptual disorder (cf Chapter 5 of the LANE report)

3. Literacy

The academic ‘stocktake’ of Linwood College students on entry to Linwood College as Year 9 students and the assessment of Year 10 students was undertaken under the premise that “the most fundamental skill a student needs to perform academically is the ability to read. It can also be argued that if a student is behind their National cohort in reading they will have difficulty in making similar progress to their National peers.” (Lee Walker, Academic Performance in Linwood Schools 2006, The Lane Report).

The norm referenced PAT test was used until 2002 to assess vocabulary, reading comprehension and listening comprehension. The graph below indicates how far below the ‘normal curve’ the Linwood College cohort has been historically.

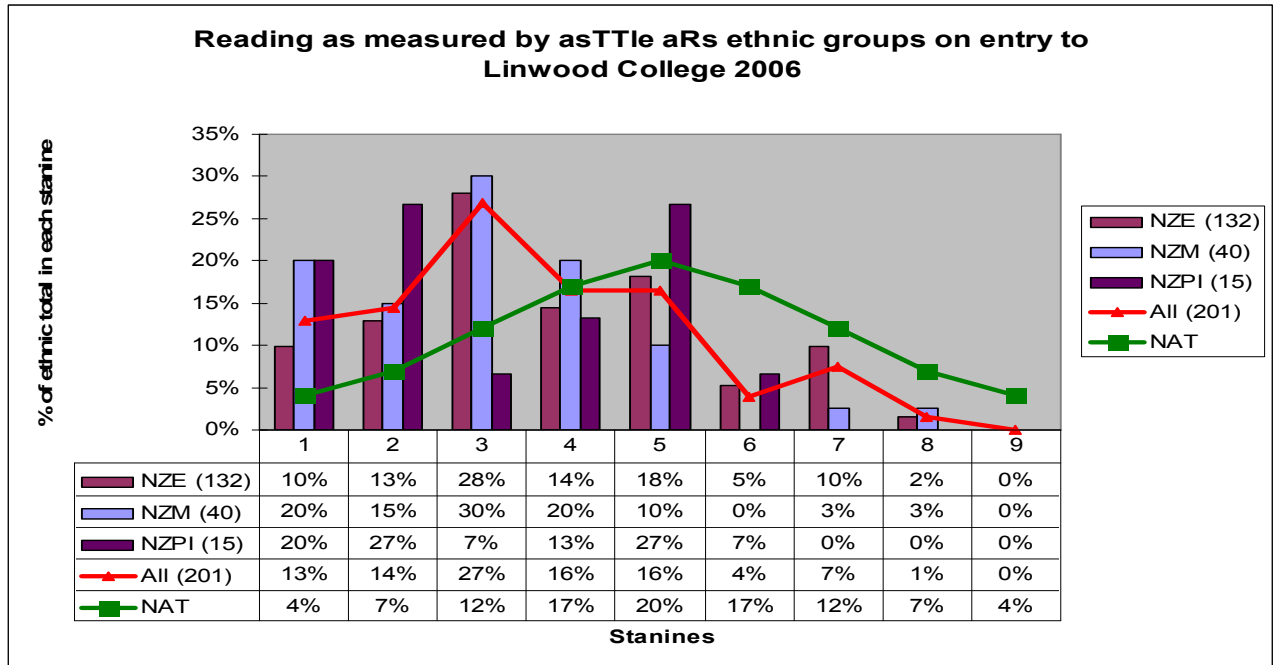
Figure 2: Year 10 PAT Reading comprehension 2001 and 2002



The more recently applied AsTTle test of reading (2006) shows similar patterns to the earlier PAT testing: there is a large number of students who, under Stanine 1+2 criteria, need remedial help. For the 2006 group of Year 9 students this amounts to 27%= 54 students.

See Figure 3 below.

Figure 3: Comparison of Ethnic groups reading ability on entry to Linwood College



Another nationally validated test, the MidYIS test, is administered at the start of the school year. It is a series of tests of vocabulary, mathematics and non verbal skills. The results for all schools are collated and students placed in bands. Nationally, 25% are in the top or A band, 25% in B,C and D. Figure 5 shows the results for 2006.

Figure 5: MidYIS results for students entering Linwood College 2006.

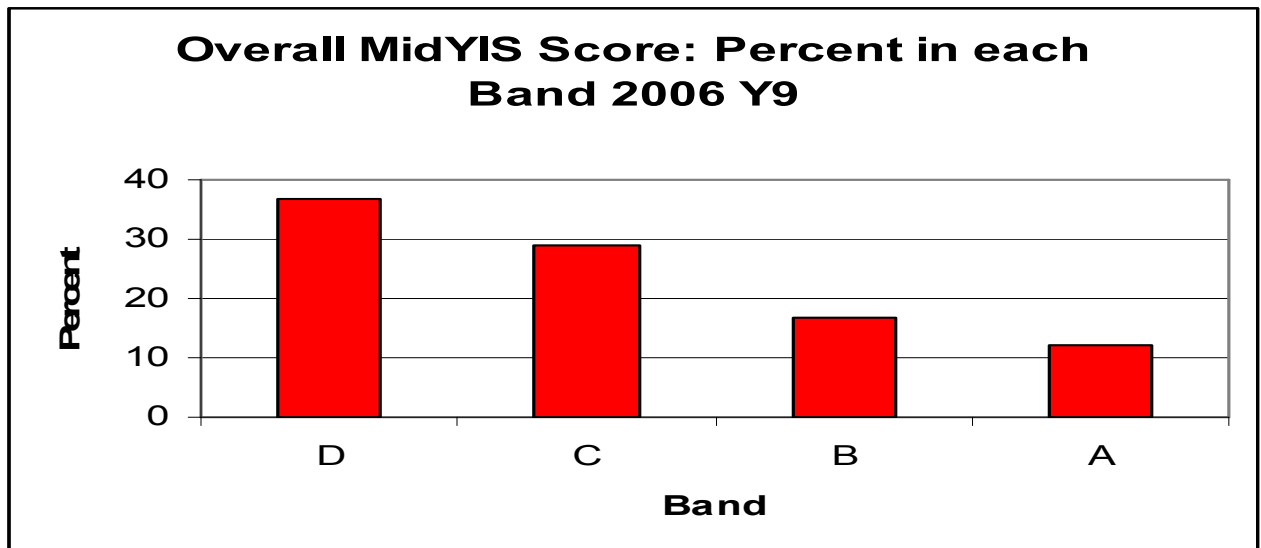


Figure 5 confirms the result of the asTTle test that showed that Linwood College has a higher percentage than normal in the below average band (65% of MidYIS as compared to nationally 50%).

The BURT reading test which arguably assesses more accurately the students' ability to actually read the words in a reading assessment (not a comprehension assessment) was used also in 2006. The results for 2006 Year 9 and 10 students are shown in Figures 6&7 (page 94, The Lane Project).

Figures 6 and 7 show the results for 2006 Years 9 and 10.

Figure 6. Year 9 BURT raw scores 2006

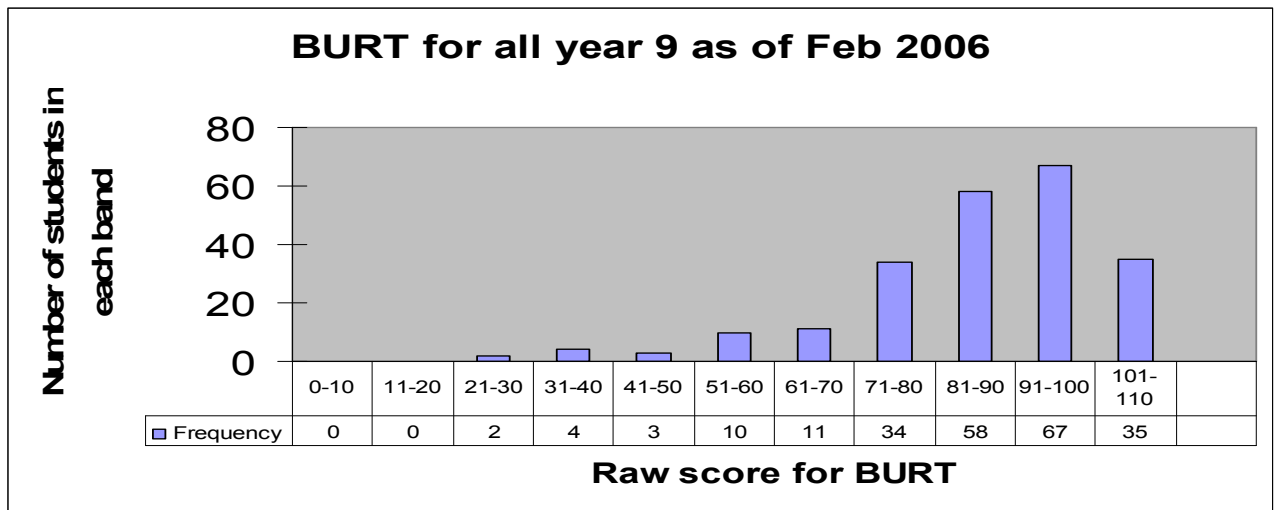
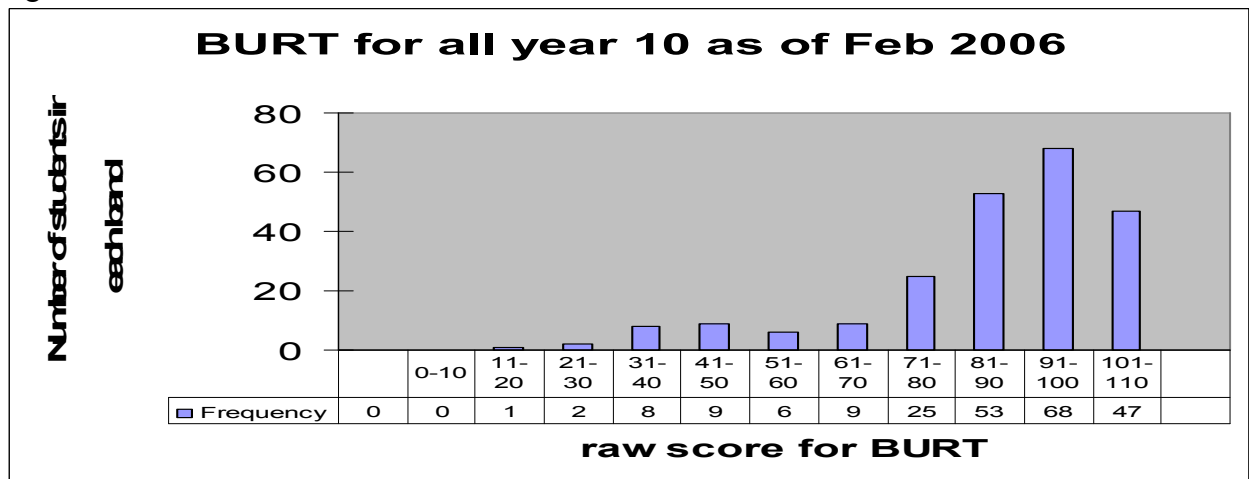


Figure 7 Year 10 Burt raw scores 2006



Those scoring below 80 in the BURT test were deemed to be in need of further investigation of their poor word recognition skills. All students who did not reach the 80 mark on the BURT were also assessed with a running record (PROBE). This included accuracy, comprehension and fluency into the assessment of these students and can give a "reading age".

This latter test, the BURT test, was the benchmark for the entry of Year 9&10 students into the Toe by Toe remedial reading programme which was also run as part of this research project. Toe by Toe is a synthetic phonics programme that uses repetition so that a student can learn the alphabetic sounds in English to allow easy decoding.

Only those who were in the Toe by Toe programme were tested again at the end of the year, in order to assess the effectiveness of the Toe by Toe project. A control group was randomly chosen by computer to match within one or two points the students in the intervention group.

Remedial Action (the Toe by Toe Programme)

- At the start of 2006, 43 Year 9 students and 36 Year 10 students were placed on the Toe by Toe Programme
- Students worked 1 to 1 with a teacher aide for 20 minutes a day for approximately 2 terms and worked through a booklet (working with a phonics emphasis)
- 12 different staff were employed and trained to work on the Toe by Toe programme (6FTE's)
- The bulk of the salaries were paid for by the LANE project

Results for students who completed the course in 2006

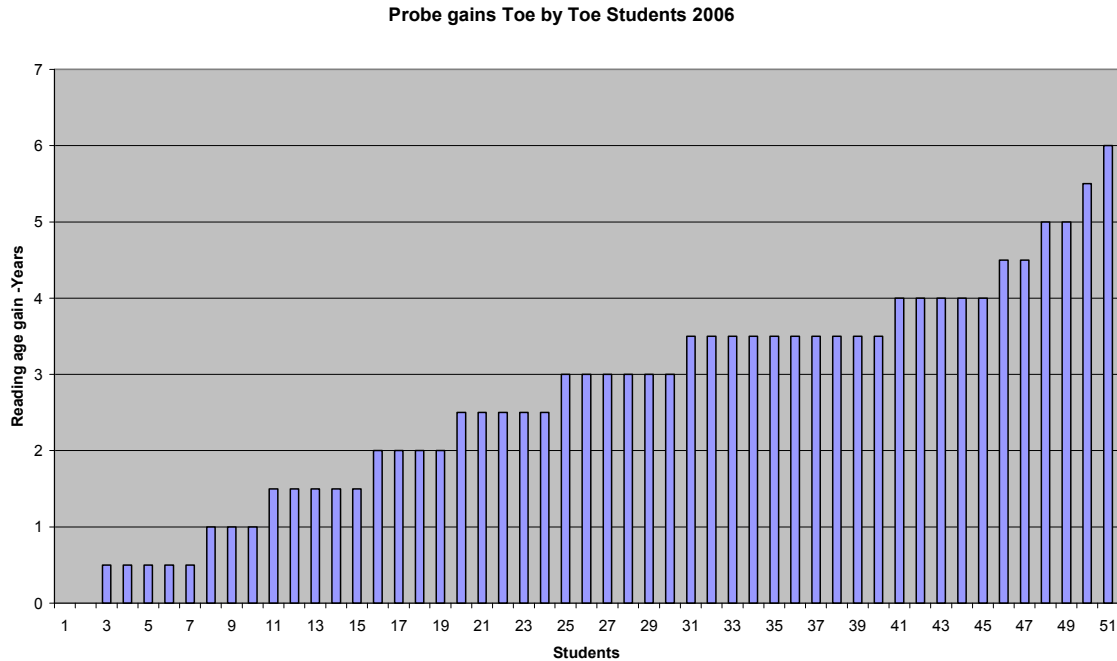
Fifty one students completed the course in 2006, improving their reading ages by an average of 2.5 years. The top improvement on a reading level on a PROBE assessment was 6 years (from 9 to 15 year reading age); and the BURT score for this student went from 9.5 to 14.9 years). Two students made no improvement on a PROBE test but improved their BURT scores by 25 and 26 points respectively (These results are reported in full on page 135 of The LANE Report).

One student summed up his progress: “Now I can read better it will help me get a job. Toe by Toe makes me think what the word is and I sound it out. If I had had the programme in Year 9, I might have been in a higher class because I would have been able to read. I used to guess words, now I can work them out.”

This programme has proved equally successful with adult students and students in Years 9, 10 and 11 over the last 3 years. Even this ‘late’ intervention can make a significant difference to the lives of many of these students.

Linwood College 2006 Toe by Toe Results

The following graph shows the individual gains in reading ages for the 51 students involved in the Toe by Toe phonics programme.



4. Evaluation: the Academic results of those who had participated in the Health intervention programme:

All students who participated in the Health Intervention programmes and the Control group were retested using the BURT reading test for word recognition, the asTTle Reading and the asTTle Mathematics tests in 2007 in order to gather data to evaluate the effectiveness of the interventions.

All students involved in the Toe by Toe programme were retested in 2007 using AsTTle tests in Reading and Mathematics to evaluate the effectiveness of the programme.

To compare the results of the Linwood College programme against national averages, the following data on student progress year by year compiled by the Ministry of Education provide useful benchmarks.

Nationally, students are expected to gain an average of 94 points on the AsTTle Reading scale from Year 9 to Year 10 and an average increase of 33 points in AsTTle Mathematics from Year 9 to Year 10.

Linwood College students on average start high school almost a year behind the national average in both AsTTle reading and mathematics scores.

Project Results:

In the Toe by Toe remedial reading programme , students made an average gain of 80 points in Reading and an average 127 point gain in mathematics, from Years 9-10.

In the Control Group, students made an average 104 point gain in Reading, and an average 59 point gain in Mathematics from Years 9 to 10 (the national averages are 94 and 33 respectively).

In the Health Intervention Group (ie interventions for deficits in the health of eyes, teeth and ears), students made an average 101 point gain in Reading and an average 119 point gain in Mathematics, from Years 9 to 10.

In the Glasses Group (containing those students who received glasses) , an average 110 point gain in Reading and an average 112 point gain in Mathematics from Year 9 to 10 indicates a significant gain, both in comparison with national increases and the Linwood College Control group increases.

Link between improved literacy and improved behaviour:

Lee Walker, Deputy Principal, studied the effect of the Toe by Toe Reading programme on student behaviour and found some useful results (graph on page 5 of chapter 11):

- The behaviour history of those Year 10 students in the Toe by Toe programme showed they were referred more often during their Year 9 for more serious classroom disruption than other students in that Year 9 cohort ie. they were causing more disruption in than their peers.
- However, after Toe by Toe intervention in Year 10 those same students were referred less often than the rest of their peers in Year 10. In one year, they had become the group who caused less disruption than their peers.

In summary, the following key outcomes were found (see Chapter 12 for full results):

1. Each of the three medical interventions had a positive impact on student performance with the most significant impact involving the acquisition of glasses.
2. The gains made by the Health Intervention students compared to the Control group and the Toe by Toe cohort exceeded all predictions compared to both national and Linwood College data, and they overcame the plateau effect evident in the national data for Year 10 students.
3. The control group underperformed significantly and this unexpected outcome requires further research.
4. General classroom behaviour improved in Year 10 for those students who had Toe by Toe remedial intervention in Year 9.
5. The absentee and transient nature of part of the student population at Linwood College has affected the acquisition of data and a more rigorous approach is needed to follow up students absent for either an academic or health assessment.

5. Demographic Information

Linwood College identified a number of separate but allied areas which may be barriers to learning. Students completed a comprehensive questionnaire which included access to computers, composition of their family, number of books / magazines in their home, number of schools attended, number of homes lived in, daily nutrition, access to health professionals, transport to school, participation in sport and exercise, and differentials between Maori, Pasifika and European and gender achievement in each of the above.

Areas of concern which need further investigation as possible barriers to learning and / or intervention include:

- The large number of students (24%) with few or no books at home
- 62% of students had attended between 2 and 20 different primary schools
- 38% of students have lived in 5 or more homes
- 33% of students had no breakfast on the day of the questionnaire; 24% had no lunch; and 12% had neither breakfast nor lunch
- 21% have no regular doctor; 46% have no regular dentist
- The proportionally higher numbers of Maori and Pasifika students in the questionnaire with 'at risk' characteristics.

Further Steps

The Academic component of the LANE project is still in the data collection phase. Good progress has been made in:

- Identifying the key data to be collected
- Collecting that data
- Identifying the weaknesses indicated by the data
- Putting into place specific programmes such as Toe by Toe and Steps to Literacy to address specific problems.

The 2006 result shows the collection of just one year's data. What is needed now is to continue the project for a suitable length of time to enable a longitudinal evaluation of the effects of the programmes. It would be desirable for the programme to continue for at least another two years to follow this year's Year 9 into their first NCEA year to see if there was a positive effect on their overall attainment.

The Health data gathered to date has also identified a number of possible barriers to learning, confirming the international research gathered on the subject. It is recommended that all students entering secondary school have a comprehensive ear, eyes, teeth and psychosocial screening assessment undertaken. Furthermore, to overcome the high transiency rates found in lower socio-economic families, it is strongly recommended that a major policy change involving recording of students' health data take place to enable students to be tracked and remain 'in the system' no matter which school they attend. This tracking feature is now possible through the implementation of the Ministry of Education's new ENROL national data base which records educational details of every New Zealand student.

Further efforts could be made to establish ways to overcome other barriers to learning, starting with discussions with other social service and health agencies about how to improve social and health issues for families. Such agencies could include, but not be limited to, WINZ, CYFs, Ministry of Social Development, Police, Canterbury District Health Board, (including Mental Health and Family Planning), Truancy Services, Christchurch City Council and local iwi.