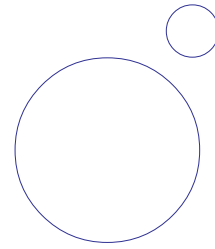


Count Me In Too

2001 REPORT



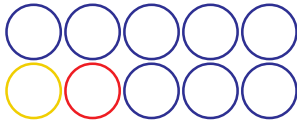
The Effect of Count Me In Too on
Year 3 Basic Skills Test Results

A report prepared on behalf of the
New South Wales Department of Education and
Training

by

Dr Janette Bobis
University of Sydney

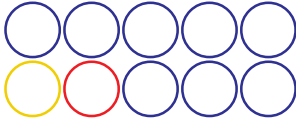
March 2001



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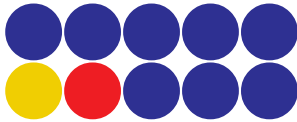
This report is the seventh in a series to be produced for the New South Wales Department of Education and Training as part of its ongoing monitoring and evaluation of the Count Me In Too Project. Other reports produced to date include:

1. Report of the evaluation of the Count Me In Project 1996. This report focused on the impact of Count Me In on the professional development of teachers.
2. Report of the Count Me In Too Project 1997. This report examined the degree of agreement between teachers when judging the arithmetical ability of young children on the Schedule for Early Number Assessment (SENA), a performance-based assessment instrument used in Count Me In Too to monitor students' arithmetical abilities.
3. The Mathematical Achievement and Self-concept of Kindergarten and Year 1 Children: Report of the Count Me In Too Project 1998. This report examined the impact of Count Me In Too (CMIT) on the mathematical achievement and self-concept development of Kindergarten and Year 1 children.
4. The Impact of Count Me In Too on the Professional Knowledge of Teachers: Report of the Count Me In Too Project 1999.
5. Count Me In Too: Guidelines for Successful Implementation. Report of the Count Me In Too Project 1999.
6. Count Me In Too: A Case Study of Implementation. This investigation was conducted in Terms 1 and 2 of the year 2000. It extended the findings of the 1999 study of teachers' professional knowledge by documenting the actual professional development process. The report provides an in-depth exploration of the *realities* of change experienced by teachers.



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EXECUTIVE SUMMARY

This report presents the findings of an investigation into the Count Me In Too project operating in Department of Education and Training (DET) primary schools throughout New South Wales. It was conducted in Terms 3 and 4 of the year 2000. The aim of the study was to explore the impact of CMIT on the Year 3 Basic Skills Test results for numeracy in schools that had effectively implemented the program. The program was considered to have been 'effectively' implemented if:

1. A school had been consistently implementing Count Me In Too for at least two consecutive years of schooling;
2. The teachers used the Learning Framework in Number to guide their instruction in Number; and
3. A school implemented Count Me In Too across whole grades.

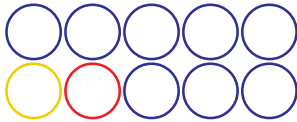
RESEARCH DESIGN

PROCEDURE

The study consisted of three phases. The first phase sought to identify primary schools in NSW that had effectively implemented CMIT in 1998, 1999 and 2000. The second phase sought to identify schools from those nominated in the first phase whose Basic Skills Test results over the past few years had undergone significant improvement. The third phase of the study involved the gathering of contextual information for three schools in different geographic locations identified in the second phase of the study and who had agreed to participate in the final phase. Such background information was sought to establish and verify causal links between a significant improvement in the Year 3 Basic Skill Test results and the Count Me In Too program. Information about the three schools was gathered via semi-structured interviews with executive staff and a range of selected teachers generally from Stages 1 and 2 at each school.

RESULTS AND DISCUSSION

The results are reported in two sections. The first section reports the context of the schools and their Basic Skills Test results for Years 3 and 5 in literacy and numeracy. This section presents those factors which principals and teachers from each of the schools perceived to have contributed to the significant improvement in their Year 3 Basic Skill Test results in the past 2-3 years. The second section draws together those factors common to the three schools and perceived to have had a positive impact on Year 3 BST results in numeracy.



COMMON FACTORS

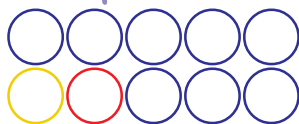
The primary schools selected for participation in the final stage of this study—Clifton Public School, Kurent Public School and Atherdon Public School—varied enormously in their geographic location and general demographic information. However, they also shared many commonalities.

The most obvious feature common to the three schools was the upward trend in Year 3 BST results for numeracy in the past few years. This trend was mirrored by the Year 3 BST results in literacy at both Kurent and Clifton Public Schools. Atherdon's BST results in literacy fluctuated so extensively over the past few years that no trend was evident in either direction. Year 5 BST results in both numeracy and literacy were generally below state average and showed clear downward trends, particularly at Kurent and Atherdon Public Schools. Clifton was the only school where Year 5 numeracy BST results in 2000 were actually above the state average, but this was exceeded by only 0.5 and was still significantly lower than their results for numeracy in 1997.

When reflecting on possible reasons for the improved Year 3 BST results in numeracy, the executive and staff of all three schools agreed that multiple factors were likely to be responsible rather than any *one* factor. While these factors were presented as distinct from each other by most of the interviewees, a closer analysis reveals that many of them are in fact interdependent, and ultimately led to better teaching and learning. For instance, a factor identified by executive and the general teaching staff at each of the schools was the existence of a *whole school focus on literacy and numeracy*, with a particular initial emphasis on K-2. Hence, improved outcomes for students in both these areas was considered a priority, with the Basic Skills Test results an obvious measure of their success.

Directly related to this focus were the many deliberate strategies implemented at the schools to achieve their "vision" or "target". Such strategies included on-going professional development opportunities, a leader or leadership team that was perceived to have clear goals and be supportive of its staff, and the introduction of structural changes designed to encourage collaborative planning at the grade and/or stage level. A number of these factors directly contributed to what those interviewed perceived to be "*a positive school climate*".

A positive school climate or culture considered to be conducive to "learning" was also perceived to be a function of the excellent quality and dedication of the teaching staff at each of the schools. Following-on from this, "better" teaching—as a consequence of the changes to instructional practices—was often considered to be a direct result of the professional development they had undertaken or the opportunities to collaborate with other staff members. This "better



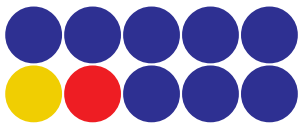
teaching” was in turn felt to contribute to improved BST results. Extensive professional development in both literacy and numeracy was a feature of all three schools for the past few years.

Changes to teaching and assessment practices as a result of professional development were considered to be a major reason for the improved BST results at each of the schools. CMIT was perceived to be a catalyst for many of these changes. The most commonly cited changes that occurred as a direct result of CMIT included: teaching that was more explicit and systematic, the utilisation of ability groups for instruction in mathematics; more explicit assessment and reporting procedures; and the movement away from textbooks.

A number of teachers from the three schools felt that their attitude to teaching mathematics had improved and this was a result of the increased confidence CMIT had provided them in regard to what they were teaching and how to go about teaching it. CMIT was also considered at each of the schools to have increased teachers’ expectations of children’s mathematical abilities. Each of these factors were ultimately perceived to have had a positive impact on the Year 3 BST results in numeracy at the three schools.

CONCLUSION AND KEY FINDINGS

The study found that multiple factors were offered as reasons why the Year 3 BST results in numeracy had improved. While these factors were often presented as distinct from each other, it was revealed that many were directly or indirectly linked. A point of origin for the ultimate improvement in BST results at each of the schools can be isolated—this being the point in time when numeracy and literacy became priorities at the schools and were targeted for improvement. What seemed to follow was a myriad of factors radiating from the central desire to improve teaching and, ultimately, student learning. The major vehicle by which this was achieved was the extensive professional development opportunities that were provided for the staff and other associated factors. Such factors included the adoption of a leadership style and structural changes perceived to be conducive to establishing and maintaining “better” teaching practices. An outcome of such changes at each of the schools was a positive school culture that had improved learning as its focus. While a positive school culture was perceived by many teachers to be a major reason for the improved Year 3 BST results, it can not be credited with being the determining factor. If this was the case then we would expect to see a similar upward trend in Year 5 BST results at each of the schools. Hence, while a positive school culture is necessary and desirable, it is not a sufficient condition for BST results to improve. However, the cultures characterising the three schools in this study were important factors in enabling CMIT to be effectively implemented.



THE EFFECT OF COUNT ME IN TOO ON YEAR 3 BASIC SKILLS TEST RESULTS

This report presents the findings of an investigation into the Count Me In Too project operating in Department of Education and Training (DET) primary schools throughout New South Wales. It is the seventh in a series of reports to be produced for DET as part of its ongoing monitoring and evaluation of Count Me In Too (CMIT). The investigation reported here was conducted in Terms 3 and 4 of the year 2000. Its aim was to explore the impact of CMIT on the Year 3 Basic Skills Test results for numeracy.

BACKGROUND TO THE STUDY

ORIGINS AND AIMS OF COUNT ME IN TOO

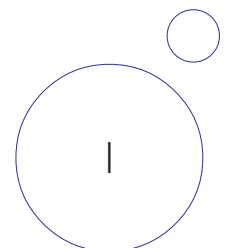
The Count Me In Too (CMIT) professional development program is an initiative of the New South Wales Department of Education and Training (DET). Its main aim is “for teachers to better understand children’s mathematical strategies and their development from less sophisticated to more sophisticated strategies” (Stewart, Wright & Gould, 1998, p.557). Hence, there is a major focus on the development of children’s mathematical thinking.

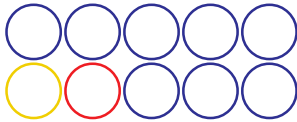
CMIT has its origins from the theory and methods of the Maths Recovery Program (Wright, Stanger, Cowper & Dyson, 1996). The project, which commenced in 1996 and involved only a handful of schools, grew in 1999 to include over 360 primary or central schools throughout NSW. In 2000 a further 400 schools became involved in CMIT. Key elements of the program include a research-based Learning Framework in Number and a Schedule for Early Number Assessment (SENA).

While the program operates differently from school to school it is essentially a classroom-based model of professional development that involves a close relationship between the district mathematics consultant and a group of teachers from each school. Consultants generally work in classrooms alongside teachers for a couple of hours each week, helping them assess the mathematical development of children according to the Learning Framework, and assisting with the planning and implementation of developmentally appropriate activities.

AIM OF THE STUDY

A previous study investigated the impact of CMIT on the mathematical achievement of Kindergarten and Year 1 children (Bobis & Gould, 1999; Bobis & Whitton, 1999). Using a pre-test/post-test design, it was found that the mathematical achievement of children who had participated in the CMIT program improved significantly more than children who had not participated in the program. The



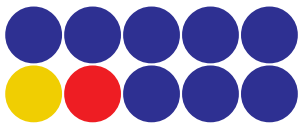


THE EFFECT OF COUNT
ME IN TOO ON YEAR 3
BASIC SKILLS TEST
RESULTS

findings clearly indicated the possible immediate impact of CMIT on the mathematical achievement of young children. The study did not seek to monitor the long-term effect of CMIT on students' mathematical abilities, nor was it able to make any comparisons with state-wide levels of numeracy or the level of numeracy from previous cohorts of students from the same schools. The present study was able to address these shortcomings.

The aim of the current study was to explore the impact of CMIT on the Year 3 Basic Skills Test results for numeracy in schools that had effectively implemented the program. The program was considered to have been 'effectively' implemented if:

1. A school had been consistently implementing Count Me In Too for at least two consecutive years of schooling;
2. The teachers used the Learning Framework in Number to guide their instruction in Number; and
3. A school implemented Count Me In Too across whole grades.



RESEARCH DESIGN

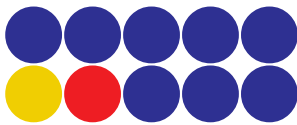
PROCEDURE

The study consisted of three phases. The first phase sought to identify primary schools in NSW that had effectively implemented CMIT in 1998, 1999 and 2000. This phase of initial identification was coordinated by officers of the NSW DET. In June 2000, a written request was sent to all Mathematics Consultants in NSW asking them to nominate a school in their district that was considered to have effectively implemented CMIT (see Appendix A and B for letter to consultants and nomination form to participate in the study). Hence, nominations for schools came from consultants after discussing the proposal with the school's principal.

The second phase sought to identify schools from those nominated whose Basic Skills Test results over the past few years had undergone significant improvement. This involved an exploration of the Year 3 numeracy Basic Skill Test results from 1996 to 2000 of the nominated schools. The Basic Skills Test is developed using an item response model, sometimes referred to as a Rasch model, combined with equating studies to produce a measure that is comparable from year to year. This initial assessment was conducted by the School Assessment and Reporting Unit of the NSW Department of Education. School principals were then contacted by DET officials seeking their approval for the third phase of the study to proceed.

The third phase of the study was conducted by an external evaluator, with no direct affiliation to the NSW Department of Education and Training. It involved the gathering of contextual information for three schools in different geographic locations identified in the second phase of the study and who had agreed to participate in the final phase. Such background information was sought to establish and verify causal links between a significant improvement in the Year 3 Basic Skill Test results and the Count Me In Too program.

Information about the three schools was gathered via semi-structured interviews with executive staff and a range of selected teachers generally from Stages 1 and 2 at each school. The final selection of interviewees was based on principals' recommendations after considering each teachers' involvement in Count Me In Too. There were 19 interviews in total. Together they allowed a contextual story to be constructed for each school. The interview schedules containing questions and topics for discussion are presented in Appendix C. All interviews were audio-taped and later transcribed for analysis.



RESULTS AND DISCUSSION

Reporting of the interview data will involve two sections. First, the context of the schools will be presented, but will exclude information that might disclose their identity or the identity of teachers. For this reason, the school districts from which the schools were selected will not be reported. While principals and staff were happy to have the identity of their schools known, the fact that Basic Skills Test results for each of the schools will be reported necessitates that confidentiality be maintained. This section presents those factors which principals and teachers from each of the schools perceived to have contributed to the significant improvement in their Year 3 Basic Skill Test results in the past 2-3 years.

The second section draws together those factors common to the three schools and perceived to have had a positive impact on Year 3 BST results in numeracy. Each factor is explored further so that a causal relationship might be established between certain factors common to each of the schools and their improved BST results.

DESCRIPTION OF THE SCHOOLS AND THEIR BASIC SKILL TEST RESULTS

CLIFTON PUBLIC SCHOOL

Clifton Public School is situated in the Sydney Metropolitan area. While student numbers have approximated 200 for the past 5 years, it was perceived by the principal and staff who had worked at the school for more than 4 years that the socio-economic status of the school's clientele was gradually increasing. This shift was mainly attributed to an increase in house prices in the area. Despite the perceived shift, the socio-economic status of the school population is typically low to middle class. It is predominantly Anglo-Saxon with a 26 percent non-English speaking background and 10 percent Aboriginal component. The school is not classified as a disadvantaged school. In Term 4 2000 there were 8 classroom teachers but there was a possibility that the teaching staff would be reduced due to a slight decrease in student numbers anticipated for 2001.

CMIT was introduced into the school in Term 4 1996. Of the teachers involved in the original training, only one still remained—the Kindergarten teacher. However, the mathematics consultant responsible for introducing CMIT to the school continued to work with other teachers at the school in 1997 and midway through the year joined the staff as the Assistant Principal. Since 1997 the Assistant Principal had continued to professionally develop the rest of the staff in mathematics. In addition, the school has had ongoing input from the Mathematics consultant for the district. The Year 2, 3 and 4 teachers were undertaking CMIT training in Term 4 2000.

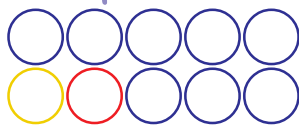


Figure 1 presents the mean scores for Clifton Public School and the State on the Year 3 Basic Skills Test (BST) for numeracy from 1996 to 2000. It can be seen from the graph that the school's mean score on the BST for the years prior to 1998 were 2 or more points below the State's mean score. While the Year 3 students in 1997 had never been exposed to CMIT, it had been operating in the Kindergarten and Year 1 classes since the end of 1996. The Year 3 in 1998 participated in CMIT for approximately 1 year prior to completing the BST and the Year 3 in 1999 experienced CMIT since they were in Kindergarten in 1996. Year 3 students in 2000 had been exposed to at least 3 years of CMIT prior to sitting for the BST and participated in CMIT for Stage 2 during term 4 of 2000. As evident in Figure 1 the mean score of the 2000 Year 3 cohort of students improved once again by more than 3 points from the previous Year 3 BST mean score. More importantly, this improvement occurred at a time when the mean score for the state actually decreased. A similar trend is noted in the Year 3 BST results for Literacy (see Figure 2). It is reasonable to suggest that the gradual increase in the socio-economic status of the school's clientele may have been a major factor for the significant improvement in Year 3 BST results. If this was the case then we would expect to see similar trends in the Year 5 BST results. However, this was not the case. As Figure 3 indicates, the Year 5 BST results in numeracy from 1996 to 2000 fluctuated with the 2000 mean score only 0.5 above that of the State. Similarly, Figure 4 shows that Year 5 BST results for Literacy have consistently been below state mean scores for the past 3 years. Hence, it seems probable that factors other than the gradual increase in socio-economic status of the general community have impacted on the improved BST results at the Year 3 level.

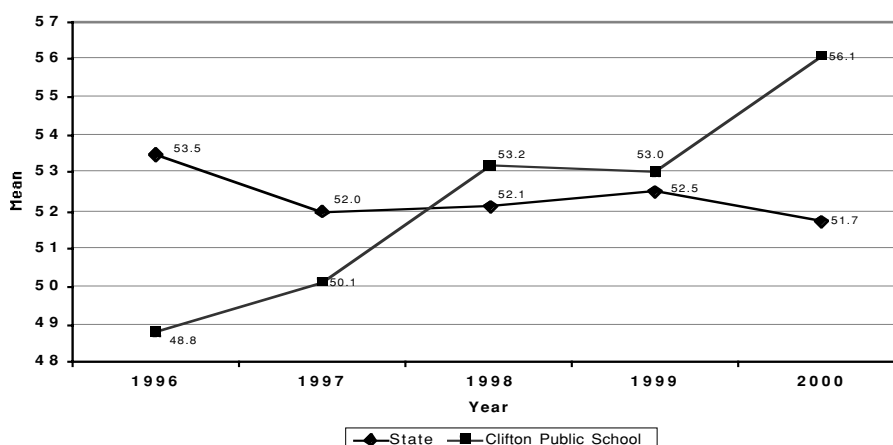


FIGURE 1 Graph showing the mean scores for Clifton Public School and the State on the Year 3 Basic Skills Test for numeracy 1996-2000

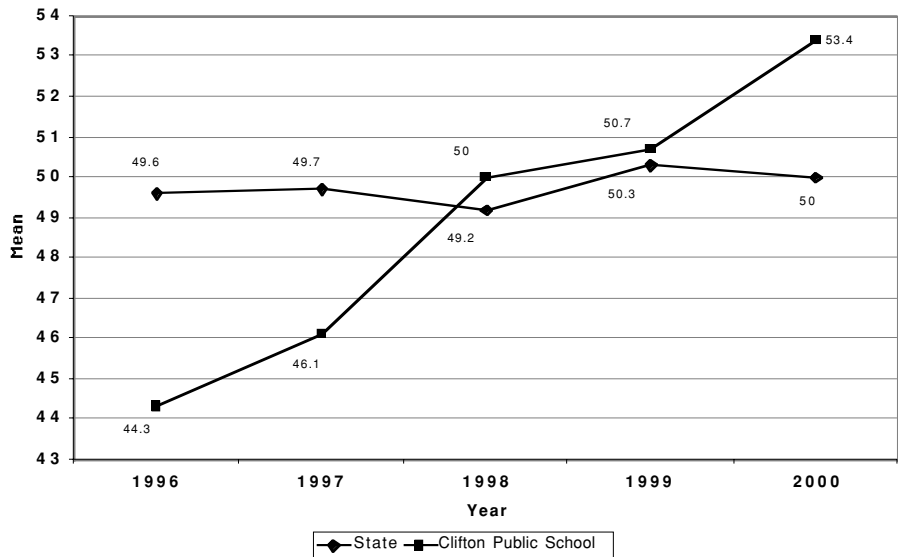
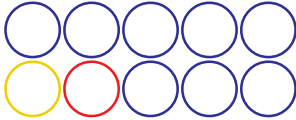


FIGURE 2 Graph showing the mean scores for Clifton Public School and the State on the Year 3 Basic Skills Test for literacy 1996-2000

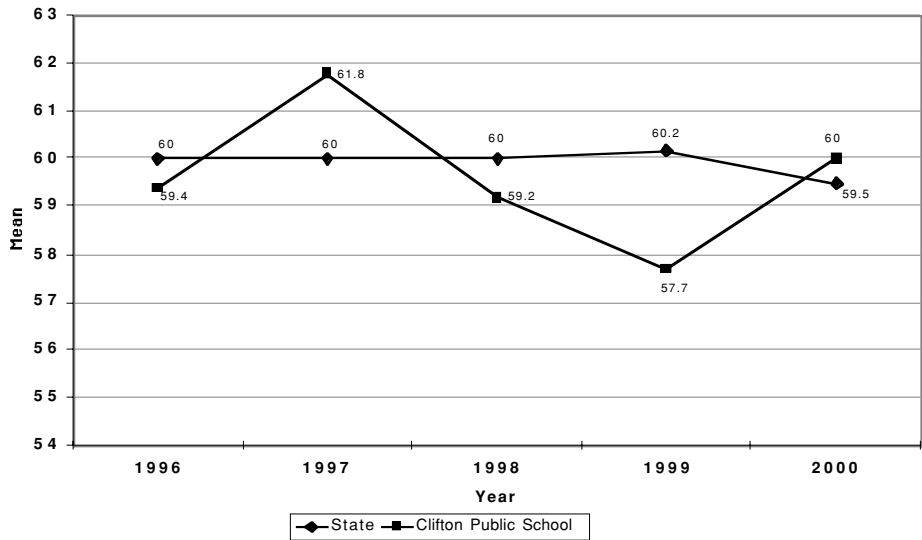


FIGURE 3 Graph showing the mean scores for Clifton Public School and the State on the Year 5 Basic Skills Test for numeracy 1996-2000

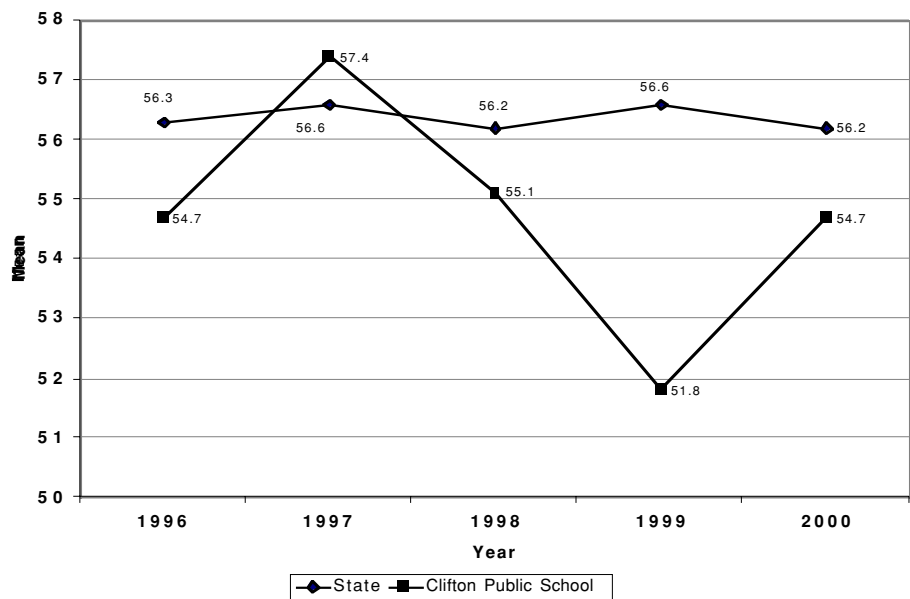
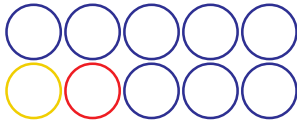


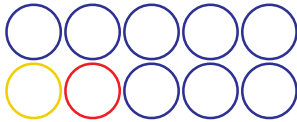
FIGURE 4 Graph showing the mean scores for Clifton Public School and the State on the Year 5 Basic Skills Test for literacy 1996-2000

Factors Contributing to Improved BST Results

The principal of Clifton Public School had been at the school for 10 years. She considered it “very hard to attribute the BST results to any one factor” but highlighted four elements she perceived to be the most likely reasons. The first factor was the general high quality of the teaching staff. The point was made that while the staff was now relatively stable, there had been a number of new staff in the preceding years with special “skills” who were willing to share their expertise with the rest of the staff. In particular, the mathematical expertise of the assistant principal was considered to have “benefited other teachers greatly”. As mentioned earlier, the assistant principal had been a mathematics consultant. Since joining the staff in mid-1997 she continued to conduct workshops for teachers and parents, to plan collaboratively with other teachers to assist with the implementation of outcomes-based assessment and basically “making herself available to anyone” who wanted her assistance with mathematics. According to the principal it had been “like having two mathematics consultants”.

A second factor that was perceived to be connected to the first, was the high degree of collegiality amongst the staff. This was evidenced by the increase in collaborative planning occurring, particularly among the Stage 1 teachers. The principal considered that such sharing of ideas had resulted in better teaching and encouraged the teachers to be more reflective of “what they are doing”.

The Count Me In Too program was considered to have “definitely been a contributing factor to the improvements in Year 3 and probably has extended into Year 4”. The principal felt that the majority of teachers



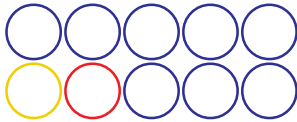
who had worked with the program “have really embraced it” because “they have seen the results”. It was felt that teachers were able to “give the students more of what is relevant to their level”, including the “extension of the brighter children”.

The final factor highlighted by the principal as contributing to the improved BST results was the overall focus placed on both literacy and numeracy. While literacy had actually been the priority, given that the school’s BST results for “numeracy had always been better than for literacy”, the importance of improvement in both areas had been emphasised.

As was the case for the principal, the assistant principal believed that “a combination of” factors had “probably led to the improvement in BST” results. However, she considered that ultimately all the factors had led to “better teaching”. For example, the development of the new assessment and reporting systems resulted in more structured assessment procedures that enabled each teacher to “focus more on what they wanted to achieve”. In addition, it was felt that the ongoing workshops conducted by herself and the district consultant over the past 3 years had played a significant role in “getting the teachers to change their way of thinking” about *what* mathematics and *how* mathematics should be taught. Rather than just using pen and paper, the teachers now focused more on children’s strategies and used more “open-ended questioning”.

CMIT was also highlighted as contributing to the change in teaching practices. In particular, teachers’ expectations of what children were capable of achieving in mathematics had been raised. While the assistant principal felt that the activities in CMIT were not very different to what the teachers were already using, “the actual focus on where children are at and how we are going to get them to the next level and letting them work at their own level” made an enormous difference to the way the teachers taught. The assistant principal also felt that the knowledge the staff had gained through CMIT and the other professional development opportunities they had received over the past few years had “raised their confidence in what they are doing in maths”. CMIT enabled the teachers to “know what to look for in the children” so that they could tailor their teaching more closely to the children’s needs. Following on from this was the recognition of the significant role played by “having the children properly grouped”. It was thought that grouping according to ability supported their attempts to provide appropriate experiences for all the children.

The high quality of the teachers at the school, the collegial nature of the staff, collaborative planning of stage teams, and the enormous amount of support provided by the principal and the district consultant were acknowledged by the assistant principal and 4 other staff members interviewed. In addition, all but one of the teachers



commented on the mathematical expertise and support they received from the assistant principal. Each of these factors were perceived as contributing to an overall positive learning environment at the school that focused on both literacy and numeracy and which ultimately had led to better teaching and improved outcomes for the students.

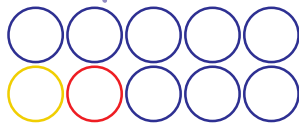
Three of the teachers interviewed emphasised the significant impact of CMIT on their teaching and the BST results. One teacher commented that the assessment training she had received as a result of CMIT had made her feel more confident in what she was assessing and teaching. The teacher of Year 3/4 considered that CMIT had “completely revolutionised the way” she taught certain content areas of the syllabus:

I don't think I'd ever really considered the mental strategies, the different strategies that they can use and that they do use before they get on to the written strategies. I've been a lot more content to leave them almost discover the written strategies...I actually can notice the improvement in the kids in what they're doing, but I feel like it's been a direct result of the different way that I'm teaching, particularly the mental strategies.

Similarly, the teacher of the K/1/2 composite felt that CMIT had improved her teaching skills and could not “understand how CMIT *could not* have a positive impact on the BST results of kids”. She attributed the change to the way she taught mathematics to CMIT because it gave her “so many other ways to teach numeracy rather than pen and paper”. She commented that she now taught “maybe 70% of my maths work on the floor” and considered that while she had always held high expectations of children, they were now “even higher”. It was also felt that the notion of grouping the children according to their ability for instruction in number “made it a lot easier for me to manage three grades and have them all working at different levels”.

Both the K/1/2 teacher and the Year 3/4 teacher considered that the textbooks they had used in previous years were no longer a viable alternative given that they perceived the majority of the children to be working beyond the content in the textbooks designed for each of the grades. The Year 3/4 teacher commented on her initial surprise of the Year 3 students’ “ability to talk about their strategies...I was amazed at what they could conceptualise and what they could articulate...and just their general ability in maths”. Another surprise to her was the students’ general positive attitude toward mathematics and the enjoyment they gained from the subject.

The Learning Framework in Number was mentioned by three of the teachers as helpful in making their teaching more focused toward “where the children needed to go”. As a result, they considered their teaching to be more explicit and systematic of both the mathematics



content and the development of strategies. Further to this, the K/1/2 teacher believed that her teaching had become more explicit as a result of the school's new outcomes-based assessment and reporting procedures adopted by the school. She felt that expectations for the children were now more clearly articulated to herself and to the parents. Such comments corroborate the perceived changes to the way the teachers taught by both the principal and assistant principal.

KURENT PUBLIC SCHOOL

Kurent Public School is a large rural school that has been on the Disadvantaged School Program for many years due to the predominantly low socio-economic status of its clientele. There is a large number of single parent families many of whom have been relocated in the area by government authorities. In recent years there has been a steady increase in student numbers—from 533 in 1997 to approximately 650 in 2000. The school population is primarily Anglo-Saxon with approximately 5 percent Aboriginality.

The school had performed well below the state mean scores on both literacy and numeracy Basic Skills Tests prior to and including 1997. Hence, in 1997 it was identified by the DET District Office for targeted assistance particularly in literacy and then later in numeracy. Figures 5 to 8 present the mean scores for Kurent Public School and the State on the Year 3 and Year 5 Basic Skills Tests for Numeracy and Literacy, respectively, from 1996 to 2000. It can be seen from Figures 5 and 6 that the Year 3 mean scores on the numeracy and Literacy tests for the years prior to 1998 were 2 or more points below the State's mean scores. The graphs also indicate the significant improvement to Year 3 BST results since 1998—one year after Literacy became a focus for the school and the year in which CMIT was introduced. However, Figures 7 and 8 show that the Year 5 BST results for literacy and numeracy during the same period indicate a downward trend.

CMIT was introduced into the school in 1998 and involved the Year 1 classes (Year 3 in 2000). In 1999 CMIT was extended to include Kindergarten, Year 1 and Year 2 classes. In 2000, teachers from Years 3 and 4 also participated in CMIT. Hence the Year 3 cohort in 2000 had participated in CMIT for approximately 3 years. However, due to the pronounced increase in overall student numbers at the school in the past few years, there were students in this group who had experienced CMIT for less than 1 year.

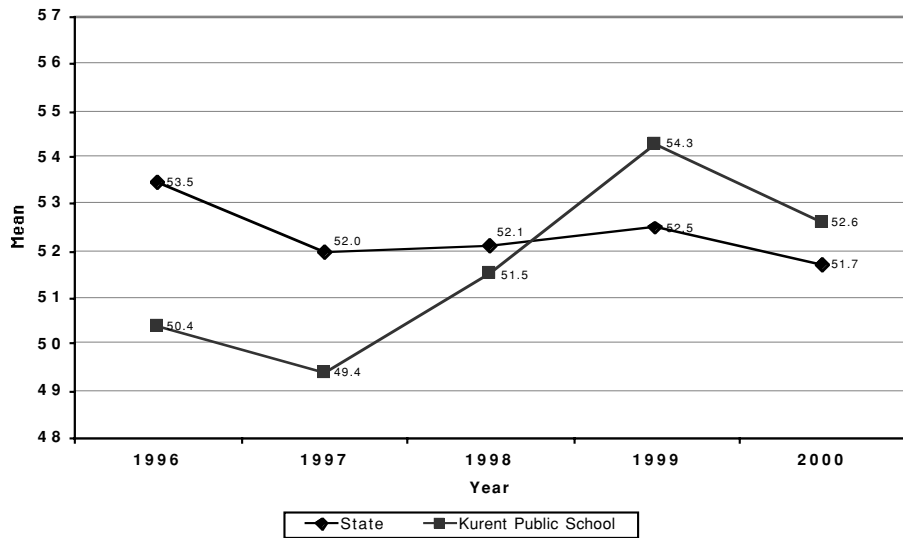
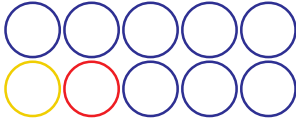


FIGURE 5 Graph showing the mean scores for Kurent Public School and the State on the Year 3 Basic Skills Test for numeracy 1996-2000

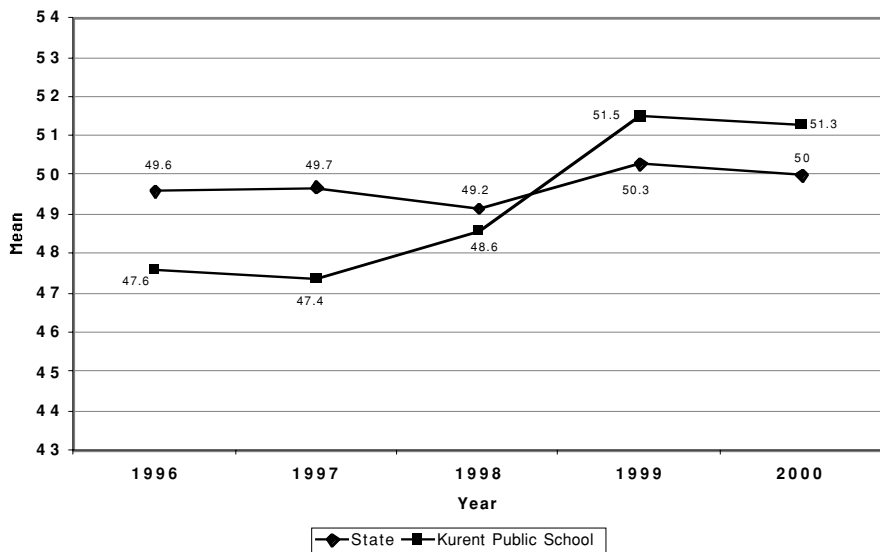
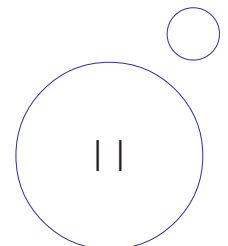


FIGURE 6 Graph showing the mean scores for Kurent Public School and the State on the Year 3 Basic Skills Test for literacy 1996-2000



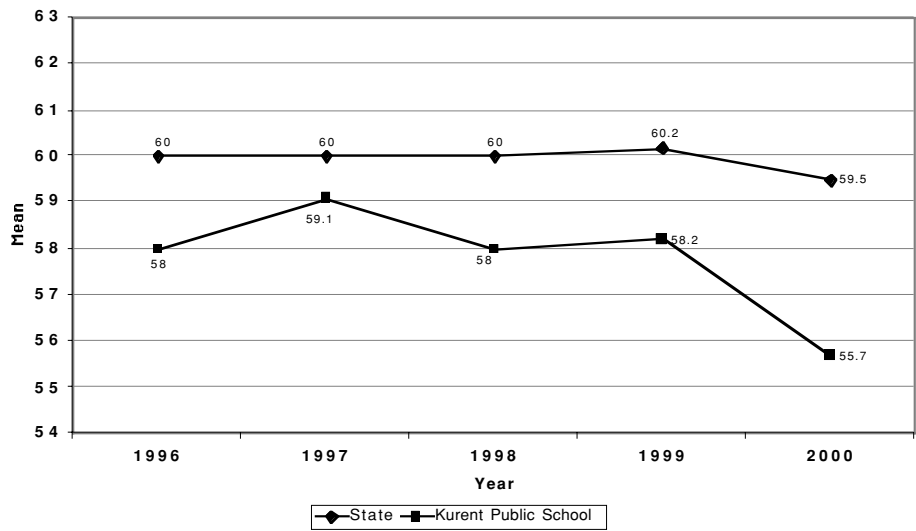
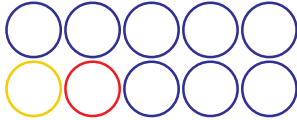


FIGURE 7 Graph showing the mean scores for Kurent Public School and the State on the Year 5 Basic Skills Test for numeracy 1996-2000

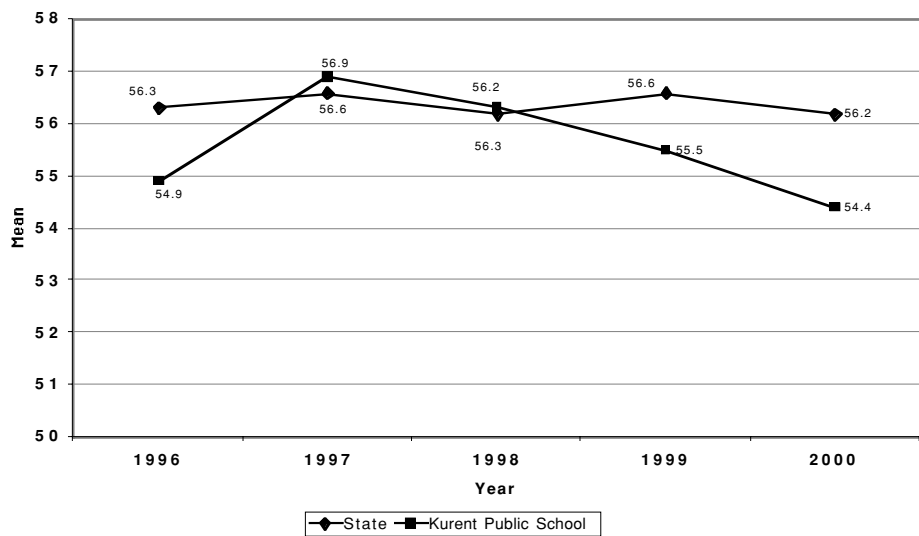
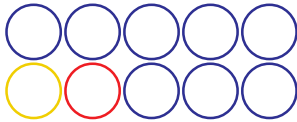


FIGURE 8 Graph showing the mean scores for Kurent Public School and the State on the Year 5 Basic Skills Test for literacy 1996-2000

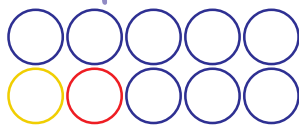


FACTORS CONTRIBUTING TO IMPROVED BST RESULTS

The principal of Kurent Public School was appointed in 1995 and the deputy was appointed in 1998—one year after literacy became a focus for the whole school. The principal advocated a “team approach” and considered it important to encourage more of his staff to assume leadership roles in the school.

The deputy principal echoed the principal’s sentiments regarding the quality and commitment of the staff. He confirmed that both he and the principal took a team approach to the planning and management of the school. The deputy considered that the “basic skills have really improved over the last 3 years...because of our desire to implement current curriculum and by the training and development opportunities provided for all our staff”. Professional development for the staff with in the area of literacy, in the first instance, and then numeracy, had been both intensive and extensive. While a whole school approach had been adopted, the deputy clarified that initially it had been an emphasis on K-3 to “catch them early”. This was offered as a possible explanation of why the BST results for literacy and numeracy in Year 5 have not matched the improvement evident in the Year 3 results (compare Figures 5 and 6 to Figures 7 and 8). As part of the school’s strategy to improve literacy and numeracy, prescribed times for teaching both these subject areas had been instituted. These were times in which literacy and numeracy were “explicitly taught” but, as confirmed during interviews with teaching staff, subject integration was encouraged. Literacy was timetabled for the first 2 hours of each day and numeracy was scheduled after recess for 40 minutes to an hour depending on the grade level. The deputy believed that the prescribed times were evidence to the staff of the executive’s firm commitment to improve the levels of literacy and numeracy of the children in the school. He also added that this commitment formed part of his and the principal’s “vision for the school” and that it “was being achieved”. The prescribed times for literacy and numeracy were now “considered as practice...the way we do things here...it is not a challenge to our staff any more”.

The deputy principal considered “support for the staff” in a variety of forms to be a key to the improvements already witnessed in students’ achievements and a vehicle for encouraging future improvements. He felt that the staff were supported mainly through the professional development opportunities provided by the school, the district office and, in particular, the mathematics consultant. However, it was also emphasised that funds for resources and release days for staff to assess the children were factored into the school’s management plan each year. He considered the school’s mathematics committee to have been beneficial in keeping numeracy a focus for the staff. It was the committee that would often recognise the need for professional development in a particular area or for new resources.



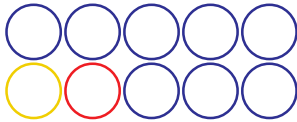
Literacy and numeracy were considered to go “hand-in-hand” and the changes instituted in one area were perceived to have had an impact on the teachers and children in the other. Despite this, the deputy was confident that CMIT had made a significant difference to the Year 3 BST results in numeracy. The school had:

...done a cross-reference check in regard to CMIT and the BST results. There are about 67% or 72% of the current Year 3 who started Kindergarten here. We found a discrepancy in regard to achievement between the students who had been involved in the program since Kindergarten and those who had only been in the school for say 12 months. Those who have been in the program since the Kindergarten have performed better.

It was also felt that CMIT “really made the teachers stop and think about the processes” children use to do mathematics. As a result, a number of changes to the way mathematics was taught were perceived. For instance, there was more extensive use of group work with teachers believing it to be a “really effective tool”. In addition, the Learning Framework in Number was considered to “be part of our assessment practices in Year 2” and to have “impacted on our assessment and reporting practices to parents”.

Five other staff members from stages 1 and 2 were interviewed: the assistant principal who was also a Year 4 teacher, a Year 3/4 teacher who was also the mathematics coordinator, a Year 3, Year 2 and a Year 1 teacher. Generally, their comments confirmed what the deputy principal had considered to be the major reasons for the school’s improved BST results. That is, CMIT was considered to be “a factor but not the only factor”. It was viewed as “a catalyst” that started “us thinking about our teaching strategies...we had lots of sessions where we talked about what goes into a good maths lesson”. It was also considered a catalyst for the production of “new resources” and for the “analysis of what resources and activities are mathematically worthwhile”. The Year 2, Year 3/4 and Year 4 teachers felt that CMIT “fitted with what we have been doing in literacy...we use more explicit teaching through the modelling of the maths language”. The teachers considered CMIT to be “a systematic way of teaching the strategies we didn’t know before...knowing where you can take the child to next...and there was a systematic way of doing it”. The Year 3/4 teacher had taught Kindergarten for a number of years prior to 2000. She considered CMIT to have made a “big difference” to the children’s mathematical abilities compared to previous Kindergarten classes.

Other factors that were referred to by a number of the teachers and that were perceived to have had an impact on the BST results included: the extensive “support from the executive”, a staff that were “good at sharing resources, ideas and...voicing their opinions”, the positive “learning culture in the school”, “good quality teaching”, “smarter teaching”, collaborative planning at the grade level, and the



“higher expectations of staff for the children to achieve and to behave”. Three of the teachers considered the culture of the school to have changed, particularly since the new executive started. One teacher commented that “there is a focus on *learning* at the school and the community is very involved”. Teachers attributed this change in culture to predominantly be a result of the “excellent principal” and deputy. Staff praised the executive for their leadership and support:

If you need something to help the children learn then that is important and it gets priority. The principal and deputy give us responsibilities and take note of what we say. [Deputy] is behind curriculum changes and is very much looking for anything that could improve the school. If we do make changes then he plays a large part in it. So we get support.

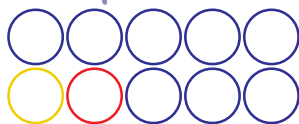
Two teachers referred to there being more “focus” at the school, partly due to what the Year 4 teacher described as “a clear vision for the school and the children that is shared among the staff. We actually know what we want” the children to achieve by the time they leave the school.

Three other factors were considered to be significant by at least four of the teachers interviewed. First was the decision not to use mathematics textbooks in the school. It was felt that not having a textbook “put the emphasis back onto hands-on mathematics”. A second factor was the utilisation of grade planning meetings during release times. It was at these times that “things are discussed and new games are made”. The third factor mentioned by a number of teachers was the use of group work for instruction in mathematics. It was felt that group work allowed the children to talk “more to each other about the work and answers, and to learn from each other”.

A final comment by the Year 4 teacher concerned the views of parents about their children’s performances in literacy and numeracy. A number of parents, particularly “those that have a child in Year 5 or 6 and another in the K-3 range” had commented on the “difference in the children”. Generally, the parents considered their younger children to have more positive attitudes toward literacy and numeracy than what their older children had at the same age and “they can see the children achieving”.

ATHERDON PUBLIC SCHOOL

Atherdon Public School is a rural school situated in the north west of NSW. It has a student population of approximately 220 but there has been a notable decline in numbers in recent years. This trend is likely to continue given the recent closure of local industries. It is not classified as a DSP school, but the already low socio-economic status of its clientele is on a downward spiral given the depressed nature of the community. The student population is predominantly



white Anglo-Saxon with a large proportion being the children of farmers, farm workers, miners and other associated rural trades. At the end of 2000 there were 8 classroom teachers with the school having recently lost 2 teachers due to declining student numbers.

CMIT was introduced into the Kindergarten, Year 1 and 2 classrooms in 1998. It continued in 1999 and has been extended in 2000 to include the Year 3/4. Figure 9 shows the mean scores for Atherdon Public School and the State on the Year 3 Basic Skills Test for numeracy 1996-2000. The graph indicates that the first major improvement to BST results in numeracy occurred in 1999 with almost 4 points difference between the 1999 and 1998 mean scores. Students from the 1999 Year 3 class had been involved in CMIT for one year and the 2000 Year 3 students had been involved in CMIT for almost three years. The dip in BST mean scores from 1999 to 2000 may be explained by two factors. First, according to the principal the 1999 BST results did not include scores from the Year 3 mild intellectually impaired (IM) students participating in the integration program at the school, but the 2000 results did. Another factor is the itinerant nature of the population. While a number of students who had undergone CMIT in Years 1 and 2 left the school, there were a number of new students in Year 3 who had no previous experience of CMIT. The fact that the Year 3 BST results for literacy and the Year 5 BST results for both literacy and numeracy in 2000 all continued a downward trend from previous years lends support to the argument that CMIT may be a key element in supporting higher levels of numeracy in the school at the Year 3 level (see Figures 10 to 12).

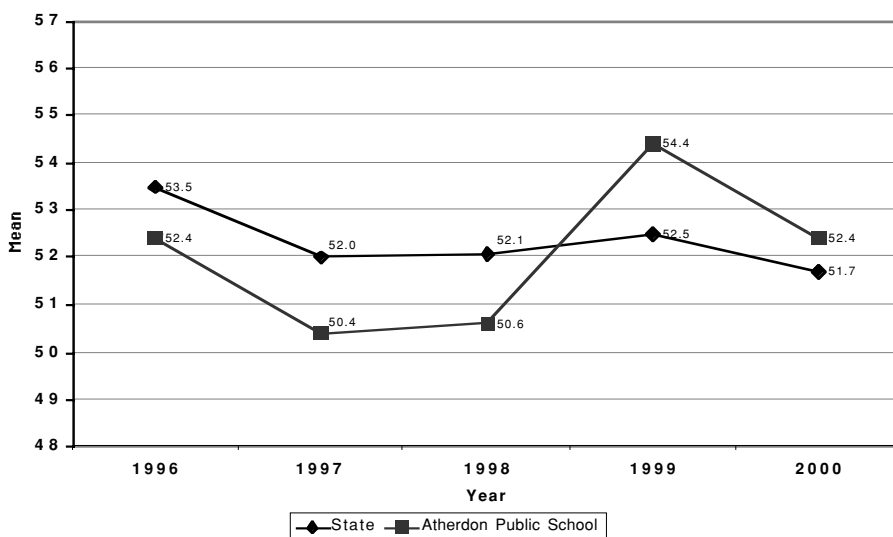


FIGURE 9 Graph showing the mean scores for Atherdon Public School and the State on the Year 3 Basic Skills Test for numeracy 1996-2000

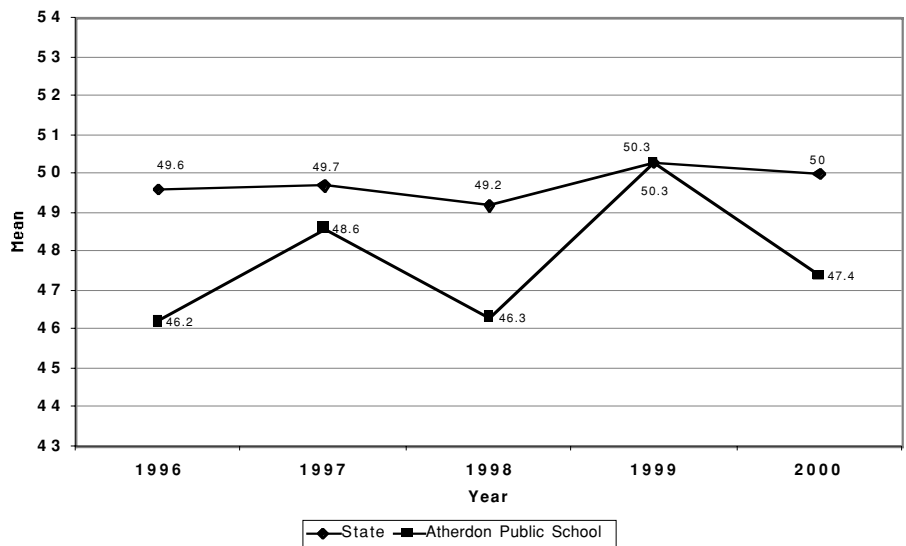
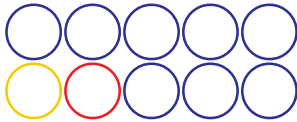


Figure 10 Graph showing the mean scores for Atherdon Public School and the State on the Year 3 Basic Skills Test for literacy 1996-2000

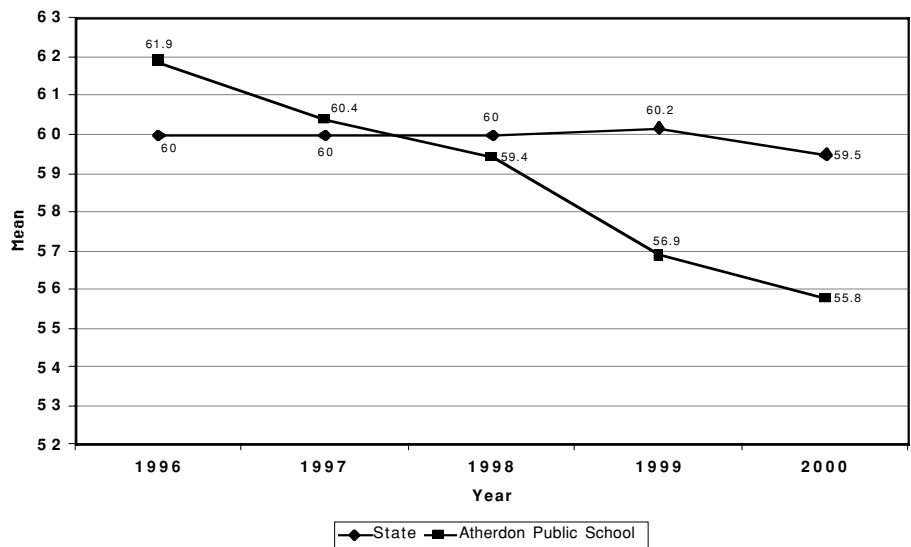


FIGURE 11 Graph showing the mean scores for Atherdon Public School and the State on the Year 5 Basic Skills Test for numeracy 1996-2000

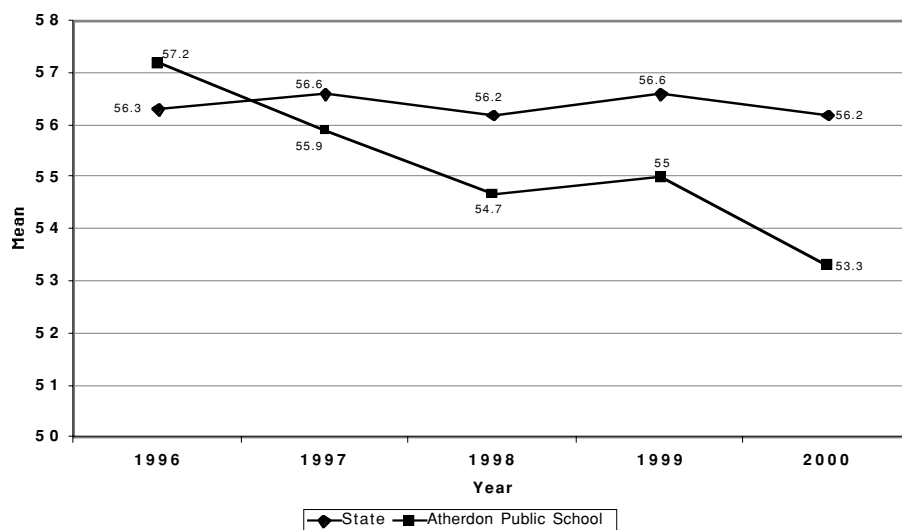
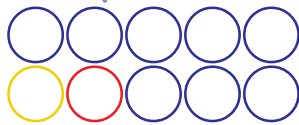


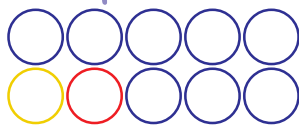
FIGURE 12 Graph showing the mean scores for Atherdon Public School and the State on the Year 5 Basic Skills Test for literacy 1996-2000

Factors Contributing to Improved BST Results

The principal of Atherdon Public School strived to build a positive learning environment in the school amidst a depressed local community. Since becoming principal in 1996 he had endeavoured to make literacy and numeracy a focus in the school, particularly in the K-2 grades. He attributed the improved Year 3 BST results in numeracy of 1999 and 2000 to a number of factors. Foremost among these was the quality and dedication of his staff. The collegiality of the staff was considered to have contributed to an overall positive school climate with team planning based on each of the three stages a highlight. This was fostered by a structural initiative of the principal which ensured an executive staff member was placed in each of the stages.

CMIT was also considered by the principal to have had a positive impact on the Year 3 BST results. He perceived changes to the teaching practices of many teachers involved in CMIT. For example, he commented that there seemed to be more “explicit teaching” of strategies and that there was greater use of ability groups in mathematics. Most of the teachers from the same stages had elected to conduct mathematics at the same time. Each teacher then took responsibility for a particular group of children. It was felt that this arrangement would give teachers the opportunity to focus on a particular ability group. The principal also considered the CMIT “style of teaching” to be enjoyed more by the children and that this had had a positive impact on the children’s attitudes towards mathematics.

The principal had participated in the CMIT training and was involved in the teaching of children in the lower ability groups. Hence, it was felt that he had a realistic and practical understanding of the demands imposed on teachers as they implemented CMIT. To assist his



teachers with its implementation, the principal initiated structural changes to accommodate “students’ needs in literacy and numeracy”. For instance, he was currently considering “how we’re going to organise our classes [for 2001]...organisation of maths groups based on CMIT is one of the things that would need to come to the fore”. The principal was hoping to introduce CMIT into Stage 3 and saw the assigning of teachers to different grades as a vehicle for achieving this.

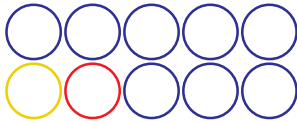
Five other teachers, all of whom were implementing CMIT in their classrooms, were interviewed—the Kindergarten teacher, the Year 1/2 teacher, 2 Year 3/4 teachers and the Year 5/6 teacher. The teacher of Year 1/2 and the two Year 3/4 teachers undertook CMIT training in Term 1 2000. One of the Year 3/4 teachers commented on her initial surprise at the mathematical knowledge and strategies the children in her 2000 class had displayed:

I found that the children that came into my class this year did have good number skills. They were better with their general addition and subtraction...it just really surprised me how some of the children worked out additions, especially horizontally presented. That was amazing.

The Year 5/6 teacher was the assistant principal and the only teacher from the original group of teachers trained in Stage 1 of CMIT remaining at the school. She related a number of factors as possible reasons for the improved Year 3 BST results in numeracy. Foremost among these was the positive school climate. This was attributed to “a staff who work together extremely well...who are receptive to new ideas... and are very committed to” programs they perceive to be effective. She felt that collegiality among the staff was strongest in each of the “stage teams” and that this had been fostered by the principal’s decision to place an executive teacher at each stage and his support for within-stage collaboration in regard to programing and planning.

The assistant principal also considered that CMIT had contributed to the improved BST results for their Year 3. While she considered CMIT advocated a “similar way of teaching mathematics using hands-on activities” to what she was accustomed, she thought it had made her teaching “more systematic”. This was due to the “specific activities for each stage of development that made it easy” to determine what each child “needed and where they were to go”. It was also considered to have made her teaching more explicit in that she was “able to really hone in on where each child was up to...and I think that really contributed to the good results”.

To conclude, the assistant principal praised the support obtained from their “terrific consultant”. She also wanted recognised the perceived benefits obtained from the “good organisation of resources” by a Stage 2 staff member.



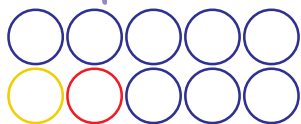
The Kindergarten teacher was an executive teacher and the supervisor of Stage 1. With no formal training in CMIT she had “taught herself” by reading the professional development package “over and over and over. It was hard to pick up but...I just went through a bit at a time and did the best I could”. She was committed to implementing CMIT because the staff had “decided it was going to be trailed in Stage 2 so it was just more sensible to keep it going through the school. We now have it going from K-4 and we will continue to do that...”. She considered CMIT to have “made a difference” to the children and to her teaching. She described her teaching as “more organised” because she now had a large array of resources “ready to go”. Her teaching was also considered to have become more explicit, predominantly as a result of utilising ability groups for instructing the children in number. For instance, with “all the emergents together, all the perceptuals together...we can really hone in on where the majority of the children are...its like being able to target exactly what they need”. While the Kindergarten teacher felt that CMIT had changed the way she taught, she also considered her expectations of what the children could achieve in mathematics to have been raised.

Specific aspects of CMIT were commonly attributed to have resulted in more explicit and systematic teaching. Namely, the grouping of children for instruction and the provision of activities specifically designed for particular ability levels. Another common outcome for teachers involved in the program was higher expectations of the children in mathematics and a more positive attitude toward teaching the subject. As well as the specific features of the CMIT program, all of the teachers commented on features of the school climate—the dedication of teachers, the positive learning environment, staff collegiality, the involvement of the principal and the support of the district consultant.

COMMON FACTORS

The primary schools selected for participation in the final stage of this study—Clifton Public School, Kurent Public School and Atherdon Public School—varied enormously in their geographic location and general demographic information. However, as the previous section reveals, they also shared many commonalities. This section aims to summarise the Basic Skill Test results and to draw together those factors perceived to have had a positive impact on the Year 3 BST results in numeracy that were common to all three schools.

The most obvious feature common to the schools was the upward trend in Year 3 BST results for numeracy in the past few years. This trend was mirrored by the Year 3 BST results in literacy at both Kurent and Clifton Public Schools. Atherdon’s BST results in literacy fluctuated so extensively over the past few years that no trend was evident in either

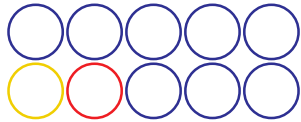


direction. Year 5 BST results in both numeracy and literacy were generally below state average and showed clear downward trends, particularly at Kurent and Atherdon Public Schools. Clifton was the only school where Year 5 numeracy BST results in 2000 were actually above the state average, but this was exceeded by only 0.5 and was still significantly lower than their results for numeracy in 1997.

When reflecting on possible reasons for the improved Year 3 BST results in numeracy, the executive and staff of all three schools agreed that multiple factors were likely to be responsible rather than any one factor. While these factors were presented as distinct from each other by most of the interviewees, a closer analysis reveals that many of them are in fact interdependent, and as noted by the deputy at Clifton Public School, “ultimately lead to better teaching and learning”. For instance, a factor identified by executive and the general teaching staff at each of the schools was the existence of a *whole school focus on literacy and numeracy*, with a particular initial emphasis on K-2. Hence, improved outcomes for students in both these areas was considered a priority, with the Basic Skills Test results an obvious measure of their success.

Directly related to this focus were the many deliberate strategies implemented at the schools to achieve their “vision” or “target”. Such strategies included on-going professional development opportunities, a leader or leadership team that was perceived to have clear goals and be supportive of its staff, and the introduction of structural changes designed to encourage collaborative planning at the grade and/or stage level. A number of these factors directly contributed to what those interviewed perceived to be “*a positive school climate*”.

A positive school climate or culture considered to be conducive to “learning” was also perceived to be a function of the excellent quality and dedication of the teaching staff at each of the schools. Following-on from this, “better” teaching—as a consequence of the changes to instructional practices—was often considered to be a direct result of the professional development they had undertaken or the opportunities to collaborate with other staff members. This “better teaching” was in turn felt to contribute to improved BST results. Extensive professional development in both literacy and numeracy was a feature of all three schools for the past few years. For example, staff at each of the schools had elected to continue with CMIT and to extend it. As a result, Stage 2 teachers had all undertaken CMIT training by the end of 2000. Added to this, executive teachers at two of the schools had already discussed strategies for extending CMIT to Stage 3. More extensive professional development in numeracy was particularly evident at Clifton due to the expertise of their assistant principal and an extremely close working relationship with the district mathematics consultant. At Kurent Public School, the initial professional development emphasis



on literacy had resulted in changes to teaching practices that also had implications for the way mathematics was taught. Hence, it was perceived that many of the teaching practices advocated by CMIT were easily accommodated by staff.

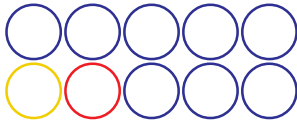
Changes to teaching and assessment practices as a result of professional development, were considered to be a major reason for the improved BST results at each of the schools. CMIT was perceived to be a catalyst for many of these changes. The most commonly cited changes that occurred as a direct result of CMIT included: teaching that was more explicit and systematic, the utilisation of ability groups for instruction in mathematics; more explicit assessment and reporting procedures; and the movement away from textbooks.

Teachers in each of the schools considered their teaching to be more explicitly focused on both mathematical content and strategies. For example, a number of teachers commented on how they now focused on mental strategies and encouraged the children to discuss their strategies with others. It was also felt that more explicit teaching was a direct result of the CMIT assessment schedule (Schedule in Early Number Assessment), the Learning Framework in Number and the extensive range of activities and resources. Teachers felt more confident that they knew where the children “were at” and where they needed “to go to next”. As a result of having the resources that focused on the specific needs of children they felt their teaching was more organised and systematic because they knew “how to move them forward” and had “the resources ready to do it”.

The utilisation of ability groups was also considered to result in more explicit teaching. Namely, because they allowed teachers to focus on the specific needs of a few children at one time or on children all with a similar need. Each school adapted group work to meet their own needs. One school initiated group work across whole grades to enable teachers to focus on a specific ability level.

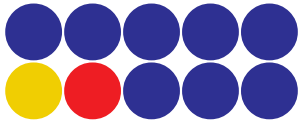
Stage 1 and 2 teachers from each of the schools commented that they no longer used textbooks as they had in the past. It was considered that textbooks moved the emphasis away from “hands-on” mathematical activities and were no longer appropriate for the children’s levels in mathematics as a result of their continued involvement in CMIT.

Assessment and reporting practices were noted to have changed particularly at Kurent and Clifton Public Schools. While the Schedule in Early Number Assessment (SENA) and the Learning Framework in Number from the CMIT program were claimed to have directly impacted on the assessment practices at Kurent Public School, teachers from Clifton Public School had specifically addressed issues surrounding their practices in separate professional development sessions. However, individual teachers from Clifton considered



their assessment to be more “explicit” as a direct result of their involvement in CMIT and in particular, as a result of the SENA.

Noticeable differences in the children were commented on by their teachers and attributed to their involvement in CMIT. For example, Year 3 teachers from two of the schools remarked on their children’s abilities to work beyond the level of Year 3 children they had had in previous years and beyond the level prescribed in a textbook for that grade. Teachers also remarked on their surprise at children’s positive attitudes and general abilities in mathematics (particularly mental addition and subtraction) and their ability to talk about their strategies for solving problems. Furthermore, a number of teachers from the 3 schools felt that their attitude to teaching mathematics had improved and this was a result of the increased confidence CMIT had provided them in regard to what they were teaching and how to go about teaching it. CMIT was also considered at each of the schools to have increased teachers’ expectations of children’s mathematical abilities. Each of these factors were ultimately perceived to have had a positive impact on the Year 3 BST results in numeracy at each of the schools.

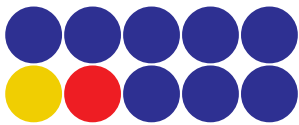


CONCLUSION AND KEY FINDINGS

The aim of this study was to explore the impact of CMIT on the Year 3 Basic Skills Test results for numeracy in primary schools that had effectively implemented the program. It involved the gathering of contextual information via semi-structured interviews for three schools from different geographic locations across NSW. This background information was used to establish and verify causal links between certain factors common to each of the schools and their improved Year 3 Basic Skill Test results. Contextual factors identified within the three schools such as student mobility, changes in staff and the like are reasons why a simple experimental design was not possible when looking for such a causal relationship.

In short, the study found that multiple factors were offered as reasons why the Year 3 BST results in numeracy had improved. While these factors were often presented as distinct from each other, the preceding discussion reveals that many were directly or indirectly linked. A point of origin for the ultimate improvement in BST results at each of the schools can be isolated—this being the point in time when numeracy and literacy became priorities at the schools and were targeted for improvement. What seemed to follow was a myriad of factors radiating from the central desire to improve teaching and, ultimately, student learning. The major vehicle by which this was achieved was the extensive professional development opportunities that were provided for the staff and other associated factors. Such factors included the adoption of a leadership style and structural changes perceived to be conducive to establishing and maintaining “better” teaching practices. An outcome of such changes at each of the schools was a positive school culture that had improved learning as its focus. While a positive school culture was perceived by many teachers to be a major reason for the improved Year 3 BST results, it can not be credited with being the determining factor. If this was the case then we would expect to see a similar upward trend in Year 5 BST results at each of the schools. Hence, while a positive school culture is necessary and desirable, it is not a sufficient condition for BST results to improve. However, the cultures characterising the three schools in this study were important factors in enabling CMIT to be effectively implemented.

In conclusion, the findings indicate the existence of a causal relationship between CMIT and the improved Year 3 BST results in numeracy at each of the schools in this study. This finding is significant given that the BST is a paper and pencil assessment instrument that covers content from each of the strands in the K-6 mathematics syllabus and, as such, is not the focus of teaching in the Count Me In Too program. Hence it can not be argued that Year 3 BST results at each of the schools in question improved simply as a result of teachers ‘teaching to the test’.



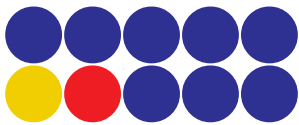
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APPENDIX A

LETTER TO CONSULTANTS

COUNT ME IN TOO EVALUATION 2000

During 2000 we will commence an evaluation of the implementation of the early numeracy project Count Me In Too, in relation to Year 3 Basic Skills Tests results. The study will examine whether the project is having an effect on BST results, where schools have implemented CMIT effectively.

We are requesting your assistance to identify one school in your district that could be included in this evaluation.

In looking at the effect of CMIT, we need to identify a school which has implemented CMIT effectively in 1998, 1999 and 2000.

“Effective implementation” may be described as:

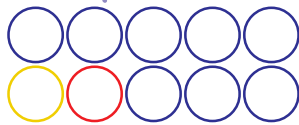
- CMIT has been implemented consistently in classrooms over at least two consecutive years of schooling
- All classes in the grade have worked with CMIT
- Teachers have used the Learning Framework in Number to guide their instruction in Number mathematics.

An initial assessment will be carried out by the School Assessment and Reporting Unit. Following this initial evaluation Dr Janette Bobis, our CMIT external evaluator from previous years, will contact several of the nominated schools to provide additional information later this year.

Please have the district consultant complete the nomination form and return it to Diane McPhail by groupwise or Fax 9886 7654 by Monday 19 June, 2000.

If you or the district mathematics consultant have any questions, please contact the PEO Numeracy, Diane McPhail, telephone 9886 7427.

Peter Gould



APPENDIX B

GROUPWISE OF FAX (98886 7654) TO DIANE MCPHAIL

BY MONDAY 19 JUNE, 2000

NOMINATED SCHOOL FOR COUNT ME IN TOO EVALUATION

Nominated school _____

District _____

Principal _____

When did the school commence working with CMIT? _____

Please complete the table below by writing the classes which were involved in CMIT each year. (e.g. 1998 - K, 1, 1/2, 2)

Year 1998	Year 1999	Year 2000

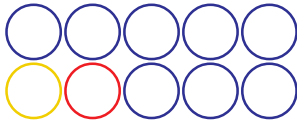
Are there any K-2 classes which were not involved in CMIT during 1998/99/00? YES NO

If "yes", please list the classes:

1998 _____

1999 _____

2000 _____



APPENDIX C

INTERVIEW SCHEDULE & DISCUSSION TOPICS FOR SCHOOLS IN BASIC SKILLS TEST & CMIT STUDY

Please note:

- All information provided will be kept confidential—the names of schools or individuals within schools will be changed to maintain anonymity;
- Interviews may be audio-taped but interviewees can stop the tape or interview at any time they wish.

PURPOSE

The main purpose of the interviews is to gather as much information as possible to enable background information of the school (particularly 1996 to 2000) to be gathered. A focus will be on the notable improvement in BST for Year 3 and the identification of some possible reasons for such improvement.

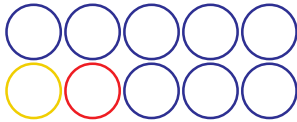
N.B. The following topics for discussion are a guide only.

General background Information of the School: (Maybe obtained from available documents e.g. School reports, management plans etc)

1. Number of pupils in each year 1996-2000
2. Current general Socio-economic status
3. Any major shifts in SES in past few years?
4. Current NESB or ESL or Aboriginality component of school.
5. Any major shifts in ethnicity in past few years?
6. Current Number of staff (and support staff eg. STLD)
7. Any recent increases/decreases in numbers of staff?
8. How many current staff members were part of original CMIT training?
9. How were/are new staff inducted into CMIT (if inducted at all)?

TOPICS FOR DISCUSSION WITH PRINCIPAL

1. Your impression/understanding/knowledge of Basic Skills Test Results (BST) of Yr 3 over past few years. Describe.
2. Suggestions for possible reasons for increase in BST results in past few years. Name specific factors considered responsible for improvements to BST if possible.
3. Identify specific factors from (2) and explore in more detail. E.g. In your view, how did xxx help BST?



TEACHERS

1. Biographical details (e.g. years of teaching experience, grades taught, teaching qualifications, experience in mathematics etc)
2. What do you perceive as possible reasons why children's results in BST have improved at your school?
3. Identify specific examples from (2) and explore in detail. Do you consider CMIT to be a significant factor? Explain.

CMIT Specific

4. Changes to children noted over the years of CMIT implementation.
5. Specific reference to any changes in math content knowledge as a result of CMIT.
6. Changes to the way you teach mathematics.
7. Changes to understanding of how children learn mathematics.
8. Changes to your expectations of children.