Count Me In Too

EVALUATION OF STAGE 2

A report prepared on behalf of

the NSW Department of Education & Training

by

Dr Janette Bobis

University of Sydney

April 2003

Count Me In Too

2003 Report

Count Me In Too

2003 Report

Contents

Executive summary

Aim and scope of the evaluation

The aim of this project was to evaluate the Stage 2 (Years 3 and 4) implementation of the Count Me In Too (CMIT) program in Department of Education and Training (DET) schools across New South Wales. The investigation was conducted in Term 4, 2002. It was conducted via a teacher survey, interviews and informal discussions with Stage 2 teachers and mathematics consultants.

Summary of results

Teacher survey results

1. Final analysis included 95 surveys originating from 20 of the 40 school districts.
2. Generally, Stage 2 teachers' responses towards the overall impact of CMIT were quite positive.
3. Respondents indicating that they had previously been trained in Stage 1 CMIT and/or had implemented Stage 1, were generally the same respondents who indicated strongest satisfaction with their initial training and follow-up support for Stage 2 of the program.
4. The majority of teachers participated in the program due to a whole-school decision to extend CMIT from Stage 1 to Stage 2 with the view of eventually involving all grades.
5. High proportions of the sample indicated that their involvement in CMIT resulted in improvements to their attitude towards mathematics and to the teaching of mathematics (69.5%).
6. High proportions of the sample indicated that their understanding of how children learn mathematics (71.6%) and the way they taught mathematics (77.9%) had changed as a result of CMIT.
7. A smaller proportion of teachers indicated an increase or improvement to their mathematical content knowledge (48.3%) as a result of their involvement in CMIT.
8. The most commonly cited changes to the way teachers taught mathematics included: more use of 'hands-on' activities, increased emphasis on thinking strategies, reduced use of textbooks and an increased use of ability groups.
9. Only 25.3% of teachers were entirely satisfied with either their initial training or follow-up support to implement CMIT Stage 2.

10. Commonly cited aspects of the training considered to be most helpful included: the practical resources and activities, the assessment process, classroom support, the influence of significant people, and the opportunity to share ideas.
11. Aspects of the training considered least helpful included: information overload, the lack of an organised system (or folder) to collate activities and resources, associated feelings of stress and anxiety related to the perceived amount of time needed to implement the program.
12. Factors that emerged as significant barriers to the implementation of CMIT related mainly to issues of *time, resources*, and *class management*. For example, teachers commented on:
    - The initial stress of feeling overwhelmed
    - The uncertainty of how to implement the program
    - The enormous amount of time needed to assess individual children
    - Time to make resources to start the program and then to keep up with the needs of the children. (However, most teachers agreed that this would not be as big an issue in the future)
    - The lack of space in the classroom for group work
    - The lack of organisation and management strategies to successfully use group work
    - The inability to secure reliable parent volunteers to help with group work in the classroom
    - The lack of a comprehensive resource folder
    - Confusion as to where activities fitted with the program or the syllabus
    - The need to finish the textbook
    - The preparation for basic skills tests
13. The most frequently cited requests for assistance related to aspects of resource production and management, and more time.

Results of interviews with consultants

1. Generally, consultants were not entirely satisfied with either the way teachers received their initial training or the manner in which schools were implementing Stage 2.
2. Consultants referred to a number of factors they perceived as barriers to a more successful implementation of Count Me In Too Stage 2. These included:

- Overload of information for many teachers
- The over-emphasis schools placed on resource production
- The need for more in-class support for the implementation stage
- Stage 2 teachers' over-reliance on a textbook
- Entrenched conservative teaching strategies of many Stage 2 teachers (e.g. chalk and talk, and whole-class teaching strategies)
- Teachers' lack of familiarity and comfort with group work
- Teachers' lack of desire to involve parents in the classroom
- The reduced use of concrete materials in many Stage 2 classrooms
- Lack of time for teachers to conduct the SENA and to make sufficient resources
- Teacher movement to a different stage each year with little concern for CMIT experience
- Lack of links with the (old) syllabus

3. All consultants interviewed had considered these barriers and were planning to, or are already implementing, strategies to help alleviate the problems caused by these factors. These included: focusing more on resources that were less time-intensive to produce and providing teachers with information at a slower rate via follow-up workshops and in-class support over an extended time frame.
4. Schools that were considered by consultants to be more successfully implementing CMIT Stage 2 seemed to share a number of characteristics. These included:
   - A whole-school or K–6 vision for the program with statements to that effect in the school management plan
   - A supportive executive
   - Well-informed parents who were also involved in the implementation of the program
   - The inclusion of a budget to assist teachers with the assessment of children in the future
   - An executive teacher to help with the co-ordination of the program

Results of case study

1. Generally, comments from teachers involved in the case study confirmed and elaborated upon those provided by those responding to the survey.

2. In particular, teachers indicated that they were willing to continue with Count Me In Too because they perceive it will ultimately benefit the children.
3. Factors most frequently mentioned as barriers to the implementation of CMIT were consistent with those cited by teachers in the survey. Additional barriers mentioned included: staff members perceived to be opposed to the program, and the need to 'relearn' how to teach mathematics.

Conclusion

There was a high level of consistency in responses among teaches, among consultants, and between teachers and consultants. The picture that emerges from the data is generally very positive, but the evaluation identified a number of significant issues at the implementation phase of CMIT Stage 2. Issues surrounding time, resources, class management and information overload were highlighted as potential barriers to the maintenance and expansion of the program at Stage 2. Despite the concern surrounding these issues, an overwhelming proportion of teachers reported a willingness to continue with its implementation. The factor that seems to emerge as assuming greater significance than concerns surrounding these issues, is teachers' inherent perception of the program's worth for children.

Recommendations

Initial training

1. It is recommended that initial training be followed-up with strong support that constantly revisits and clarifies aspects of the Learning Framework In Number and deals with teacher concerns as early as possible.
2. It is recommended that consultants use (where possible) children or videos of children to introduce teachers to the SENA.
3. It is recommended that an emphasis be placed on effective production and maintenance of purposeful resources. Resources produced should be effective use of teachers' time, and should clearly link to the Framework and the needs of the children.
4. It is recommended that links between the Framework and the 2002 Syllabus be emphasised wherever possible.

Follow-up support and resource management

1. It is recommended that information provided at initial training days be consolidated over an extended time-frame and in smaller quantities.
2. It is recommended that in-class support be provided early in the implementation of the program.

3. It is recommended that in-class support be provided by a person perceived by teachers to be an "expert" in CMIT.
4. It is recommended that teachers be provided with follow-up support to:
   a) analyse SENA results and place students on the Framework; and
   b) use this information to provide appropriate instruction.
1. It is recommended that networks within and between schools be encouraged to share examples of successful lesson plans.
2. It is recommended that teachers be provided with comprehensive support material comprising the appropriate selection and sequencing of activities for students of various ability levels and that this material be available to teachers during their initial training in subsequent extensions of CMIT (e.g. to Stage 3).

Schools

Recommendations for schools emerging from this evaluation confirm those made in earlier reports of CMIT evaluations (e.g. Bobis, 2002). Many of these recommendations have already been incorporated into the CMIT Professional Development Package (DET, 2002, Section 2, page 11, Strategies for future management). Generally, recommendations state that successful implementation of CMIT, including its expansion, requires a whole-school commitment. Normally, this commitment would address many of the issues raised in this report, including:

1. Decisions regarding involvement and expansion of CMIT being discussed at the whole-school level.
2. The allocation of a budget for mathematics each year to ensure adequate release time for teachers to test students and maintain resources.
3. The involvement of executive staff in the coordination of CMIT.
4. The place of textbooks in the classroom in the light of CMIT.
5. The consideration of staff expertise in CMIT when allocating teachers to particular Stages at the start of each year. This may involve varying amounts of support commensurate with a teacher's years of experience.
6. Informing parents of the program and considering ways to increase their involvement in its implementation.

Count Me In Too: Evaluation of Stage 2

Aim and scope of the evaluation

The aim of this project was to evaluate the Stage 2 (Years 3 and 4) implementation of the Count Me In Too program in Department of Education and Training (DET) schools across New South Wales. The investigation was conducted in Term 4, 2002.

Method of inquiry

The evaluation gathered data from two different sources, namely the mathematics consultants and Stage 2 teachers who had been involved in the Count Me In Too program. Information was collected via a teacher survey, interviews and informal discussions with teachers and mathematics consultants. Teacher interviews and informal discussions were conducted as a result of three schools being selected for case study. The purpose of collecting data from both consultants and teachers was to provide a different perspective of the effectiveness of CMIT. A brief description of materials and procedures used to collect and analyse information for the various data gathering methods follows.

The teacher survey

The prime purpose of the teacher survey was to gain information about the perceived effectiveness of Stage 2 CMIT from a range of teachers involved. It was a 3-page document comprising two main parts. Part A contained 8 questions designed to gain information about each respondent's school context and individual teaching background. Part B contained 15 questions designed to elicit individual teacher's reactions to various aspects of the CMIT program for Stage 2. Each question required an open-ended response. See Appendix A for a copy of the survey.

Surveys were distributed to teachers willing to participate in the evaluation by their respective mathematics consultants. An invitation to participate in the evaluation was emailed to all 40 Department of Education and Training mathematics consultants. Twenty-one consultants agreed to assist with the distribution of the surveys to teachers. Teachers were eligible to receive the survey if they (a) agreed to participate in the study by completing & returning a questionnaire, (b) had completed the initial testing of children, and (c) had implemented Count Me In Too lessons for at least five weeks.

Teachers were supplied with a pre-paid, addressed envelope in which they were instructed to return their completed surveys directly to the chief investigator. Data from each survey were transferred to a text file. Each text file was then transported into a qualitative data analysis computer program, QSR NUD*IST (1997), to assist with analysis. Contextual and biographical data from Part A of the survey were collated using text searches. Open-ended responses to items in Part B of the survey were categorised into major themes and then coded for analysis.

Interviews with consultants

An invitation to participate in the interview component of the evaluation was sent via email to the 40 district mathematics consultants. Semi-structured interviews were conducted with 6 consultants and informal discussions in the form of extended telephone conversations (15-20 minutes) were held with 4 others (see Appendix B for a list of interview questions for consultants). To ensure that a broad representation of school districts across NSW were included in the evaluation, 3 of the consultants selected for interview were from non-metropolitan districts. These interviews were conducted by telephone. Interviews were approximately 40 to 60 minutes in duration and were audio-taped for transcription. Analysis of data occurred at two levels. First, significant themes were identified that emerged among two or more consultants and secondly, commonalities or contradictory information to that provided by teachers in the survey or the interview data were noted for closer examination.

Case Studies

Three schools from two different districts were selected for case study. Selection was based on two main criteria. First, at least three teachers from the same school agreed to be interviewed. Secondly, the schools were located in the districts of consultants that were also interviewed as part of the evaluation. The second condition was included to ensure that at least two different perspectives on the effectiveness of CMIT would be obtained for each school context. Twelve teachers were formally interviewed and informal discussions were held with two others (see Appendix C for interview questions). Interviews were audio-taped and transcribed to assist with analysis. Notes were taken after or during informal discussions. The interviews ensured that more detailed information was obtained in regard to the effectiveness of the CMIT implementation and allowed the reasons for teachers' survey responses to be probed. Results of this component of the evaluation will be reported via a composite case study, similar in approach to Clandinin & Connelly's (2000) composite narrative.

Results

Teacher survey

While 100 surveys were distributed, 108 were returned with representations from 20 of the 40 school districts across NSW. The extra surveys were the result of teachers copying and distributing it to colleagues wanting to communicate their impressions of the program. Due to either missing data or the lateness with which a number of the surveys were received, only 95 were included in the final analysis.

Contextual and biographical data from Part A of the survey are reported first and provide a clear indication of the breadth of teachers who responded. Open-ended responses to items in Part B of the survey are reported using the major themes identified for each item.

Contextual and biographical information

Results for Part A of the survey are summarised in Table 1. It will be noted that the sample of teachers is fairly representative of the general teaching population, namely, the majority were female (83%) in the 41 to 50 age range (63%) with more than 21 years teaching experience (59%). Of interest is the number of years teachers have taught Stage 2 students. Seventy-two percent of teachers who responded to the survey had been teaching Stage 2 students for more than 4 years. Thirty-seven percent of these had been teaching Stage 2 for more than 7 years. This indicates that the teachers who completed the survey were an extremely experienced group, and particularly experienced at teaching Stage 2 students.

Table 1. Contextual and biographical details of respondents to teacher survey (n=95)

Category	Details	Percentage
Gender	Female	83.0%
	Male	17.0%
School Size	< 100 students	15.0%
	100-200 students	7.4%
	201-300 students	18.0%
	301-400 students	17.0%
	401 + students	41.0%
Nature of Population	Low socio-economic	52.0%
	Middle Socio-economic	43.0%
	High Socio-economic*	11.0%
Age range (years)	20-30	6.0%
	31-40	12.0%
	41-50	63.0%

	50+	19.0%
Teaching Experience (years)	1-5	8.0%
	6-10	10.0%
	11-15	7.0%
	16-20	14.0%
	21+	59.0%
Years Teaching Stage 2	1-3	31.0%
	4-7	32.0%
	7+	37.0%

*Some schools were rated as low to mid or mid to high socio-economic status.

Open-ended responses

Generally, Stage 2 teachers' responses to Count Me In Too were very positive. Only 2 respondents indicated that, if the decision to implement CMIT were their own, they would select not to continue with it. The majority of teachers (71.6%) who responded to the survey had been implementing CMIT in Stage 2 classrooms for only one year or less. Only 11.6% of teachers had implemented the program for two or three years. Hence, teachers' experience with the program was still very limited. Twenty-eight percent of respondents had previously received Stage 1 training and 20% had actually implemented it at Stage 1. This group of teachers were generally the same ones who indicated strong satisfaction with their initial training and follow-up support for Stage 2.

Reasons for participation

When describing the factors that most influenced their decision to participate in CMIT, 44% indicated it was "a whole school decision". These decisions were made because it was "part of the school management plan to make CMIT a focus", it was considered to assist with "poorer than expected BST results" or simply because there was a "desire to improve the teaching of numeracy in the school". Only 10% of teachers cited reasons for their participation that included reference to updating and improving their profession knowledge in mathematics. A further 25.3% indicated that a major reason for their involvement in the program was the benefits they had witnessed at the Stage 1 level or that the nature of the "whole program" appealed to the way they wanted to teach mathematics. Sixteen percent of teachers indicated that they had no choice in the decision to implement CMIT, that the decision had been made prior to their arrival at the school or that it was an executive decision made with no consultation.

Changes to attitude, knowledge and teaching practices

While commenting on the impact of the program, 69.5% of teachers considered their attitude to mathematics and the teaching of

mathematics had improved as a result of their involvement in CMIT. Many teachers attributed the change to seeing the "children improve their skills" and "understanding the reason behind what we do—I now enjoy numeracy". Others considered their attitudes had changed towards the "use of textbooks", "written algorithms" versus mental computation and "allowing games in the classroom". Nearly every teacher who considered their attitude toward mathematics had not changed as a result of their involvement in CMIT (14.7%) thought that the program merely confirmed their prior beliefs about mathematics and supported methods of teaching that they had always used.

Content knowledge in a variety of areas was considered to have increased by 48.3% of respondents. Some teachers considered that the "deeper understanding of the philosophy" surrounding CMIT gave them greater "ownership" and "understanding" of a broad range of content leading "to a greater interest" in mathematics. However, the majority of teachers highlighted an increased knowledge in specific aspects of mathematic content. For example, teachers mentioned their new knowledge about the importance of "arrays to teach multiplication and division", the "better understanding of place value" and how it "is integral to all number understanding". The most frequently mentioned area of content knowledge to improve related to mental computation. Many teachers considered that "it has affected the way I mentally compute now and I pass this on to the children" or that they were now "aware of the value of mental computation skills" and so emphasised this more in their classrooms. Thirty-eight percent of teachers did not think that CMIT had changed their content knowledge of mathematics. There were two main responses to this item. The most commonly cited reason was that teachers felt "if you follow the syllabus you know what to teach, the content does not change". Other teachers considered that their knowledge "of what to teach had not changed, just how to teach it". A teacher, with less than 3 years teaching experience, commented that her knowledge had not changed because she had been "taught the content in depth" at university.

The majority of teachers considered that their understanding of how children learn mathematics (71.6%) and the way they taught mathematics (77.9%) had changed the most as a result of their involvement in CMIT. One teacher commented that "it's scary what I didn't know" about how children learn mathematics. The majority of responses made reference to a "better understanding of the developmental stages in children's thinking" and knowing "how to move them onto the next stage". This "better understanding" or "insight as to how children learn" and the "different strategies children use" was usually a result of the Schedule for Early Number Assessment 2 (SENA 2) or their understanding of "the learning framework".

Reported changes to the way teachers taught mathematics varied enormously. However, there were 4 aspects that were mentioned

more frequently. Foremost among them was the use of "more hands-on, fun games" that were selected on the basis of children's "strategy development".

> *CMIT has enabled me to provide more learning activities that cater for a range of abilities.*

A second aspect mentioned regularly concerned the emphasis on thinking strategies. In particular, the use of multiple methods for mental computation was highlighted by teachers. For example:

> *I now focus on computational methods in that I offer more than one way … the students now realise that there are more than two roads to Rome!*
>
> *Now I ask them instead of telling them. I give them time to think and we have a very enjoyable and productive environment. (There is) much more sequential development of teaching number with a greater commitment to using a variety of strategies to encourage thinking mathematically.*

A third change to teaching practices that was frequently mentioned by teachers was the "reduced use of the textbook and worksheets". Three teachers referred to their schools decision to either question the use of textbooks in the future or to "work without textbooks" from 2003. The final change to teaching practices that was noted by a number of teachers was the use of ability groups for mathematics.

In addition to these more frequently cited responses, a range of comments relating to a teacher's *whole approach* to teaching mathematics was evident in a small number of surveys. One teacher commented that she was "more flexible in my approach—more diverse. I tackle teaching concepts from many directions". Another teacher thought:

> *My teaching is more structured than before. Once the students know the routine of CMIT, they love it and take it on board. The teacher becomes a partner in learning, not just a teacher. The students seek to learn more.*

Only 9.4% of teachers considered that CMIT had no impact on the way they taught mathematics. The majority of these teachers considered that they "always used a hands-on approach and encouraged students to discuss their methods and strategies, so therefore, no real change".

Effectiveness of training

Despite the majority of teachers indicating that they considered CMIT to be "worthwhile" and therefore willing to continue with the program, only 25.3% of teachers were entirely satisfied with either their initial training or the follow-up support they received to implement the program. Fifteen percent of teachers considered their training ineffective with the remaining respondents indicating that they were only partially satisfied with the effectiveness of their initial training and support to implement CMIT. Teachers who indicated most satisfaction

with their training and the manner in which they were implementing the program usually came from one of two groups. Namely, teachers who had been involved in the training and/or implementation of Stage 1, or teachers who received considerable in-school support in the form of classroom visits from either a consultant or facilitator.

When asked to comment on the most helpful aspects of their training, teachers identified 5 crucial features—the practical resources and activities, the assessment process, classroom support, the influence of significant people and the opportunity to share ideas. Practical resources and activities were highlighted by 38.9% of respondents as being extremely helpful during the training days "as I could go straight back to my classroom and do them (even though I was still struggling with the conceptual framework). These days boosted my morale…". The second most frequently cited aspect of the training considered helpful by teachers, was the assessment (SENA 2). While a number of respondents thought the main aim of the training day was to introduce the SENA 2, 29.5% indicated that "learning how to assess" was the "most useful" aspect of their training. For example:

> *… to find out how a child thinks and where they are up to. Then to teach to that, and assess again later. This helped me to become very familiar with the learning framework and the range (of abilities) in my classroom.*

A strategy used by a number of consultants to introduce the SENA 2 was to demonstrate its administration with either a real student or a video-tape of a student. It was clear from a number of respondents that this strategy was considered more successful than if they were required to "simply walk through" the questions.

The second most frequently cited aspect of the training considered to be most helpful to teachers was classroom support (22.1%). Classroom-based support in the form of demonstration lessons and class visits by consultants has been an integral component of the Stage 1 CMIT implementation, but it was not an official component of the CMIT training for Stage 2 teachers in 2002. Hence, a small number of teachers received classroom support in the form of classroom visits and demonstration lessons because they taught composite Year 2/3 classes, but not all teachers who responded to the survey were provided with such support. Classroom support was provided to a small number of other Stage 2 teachers for a range of reasons that are discussed later in this report (see Consultant section). Despite the infrequency with which demonstration lessons were provided, they still gained strong support from those who received it. Teachers considered the "school-based training helped me to interpret the results" and "brought the nuts and bolts to life".

The influence of other people was significant for 14.7% of respondents. In particular, consultants were praised for their "excellent presentations and thorough knowledge of theory and practice". In addition, the

opportunity to "talk to excited and positive teachers and just having my ideas and beliefs confirmed" was an extremely rewarding experience for teachers.

Related to the influence of other people, was the opportunity to share ideas and resources. 9.4% of respondents indicated that "sharing at school and district level" was an "enormous benefit" to their understanding and implementation of CMIT.

Aspects of the CMIT training considered ineffective or "least helpful" by teachers included "the overload of information" (13.7%). Teachers referred to the initial training days as "daunting", "crash courses" where they were "bombarded with paper and activities". Many teachers considered their training to be "too much to cope with at once" with "too little follow-up support". While some teachers indicated that they "struggled at first", they "eventually worked it out" but it was "stressful and time consuming" when they "did not know what it looked like to implement". Another aspect of the initial training that received heavy criticism from 27.4% of teachers was the lack of a "systematically organised folder of activities and resources" such as was available to Stage 1 teachers. A large number of respondents lamented the absence of a "DENS book that could have helped with the sequential development of teaching ideas rather than having to find new ways". Related to this issue, was the fact that teachers "felt overwhelmed" by the need and "time required to make so many resources". Two teachers commented that their schools "made games" quickly "and now we don't know how to implement them". While the practical ideas and resources introduced during initial training days were perceived to be a positive aspect of the training by 38.9% of teachers, the initial production and implementation of them was perceived negatively by a large number of respondents.

Other aspects of the training considered ineffective by 9.4% of teachers were the overuse of "technical jargon" to explain results and the "unfriendly nature of the theoretical framework". Twenty-three percent of teachers made comments regarding the "lack of support after the testing". A number of teachers were "confused" because they "didn't know what to teach", "how it fits with the syllabus", "how to program it" or "how to group the children" after the testing.

Challenges to implementation

When considering the challenges or barriers to the implementation of CMIT in their classrooms, 45.3% of teachers referred to issues of "time". This is consistent with previous evaluations of CMIT (Bobis, 1996; 2000a; 2000b), where the problem of not enough time is regularly raised by teachers. In the current evaluation, teachers considered there to be a lack of time "to meet" with other teachers "to gain new ideas", to "complete the testing", "to make the resources", "to think of different ways to utilise the same resources", "to do the grouping", "to teach the games", "to maintain and organise the resources", or "time

to feel comfortable with the program and feel a sense of direction". While *lack of time* was the most commonly cited challenge to the implementation of CMIT, a number of teachers acknowledged that some of their concerns about time, would be reduced in subsequent years of its implementation, particularly once the initial resources were made and they had become more familiar with the testing procedures.

The second most frequently cited challenge related to resources (31.6%). While some of the problems concerned the "time" for making and maintaining them, other issues included: "becoming familiar with all the material available", having a "well-organised, user-friendly resource such as Stage 1 teachers have", "having easy access to resources", "having enough funds to purchase the necessary resources", "having enough games for each teacher to avoid sharing", "having enough games for the children to play" so they "don't get bored with the same ones", and "getting the games organised". There was concern from a number of teachers that they could not see the relevance of the activities to the Syllabus. One teacher, in particular, indicated strong dissatisfaction with the perceived resource requirements for the implementation of the program:

> *The practical activities have not been married to the theoretical framework and the syllabus in a user-friendly way … DET should have done this before expecting us to implement CMIT. Each teacher needs a copy of the acitivities folder. …DET either wants CMIT implemented or it doesn't. If it does—it should provide the dollars for sufficient casual relief, manuals full of activities for every teacher, … a kit of suggested materials with blank dice, popsticks and white number lines to string across rooms and cardboard arrays for each teacher as we do not have access to all these bits and pieces on a daily basis even if DET thinks we do.*

Class management: Class management issues were mentioned by 25.3% of teachers as presenting a challenge to their implementation of CMIT. They included problems associated with "not knowing what it looked like in the classroom", "ensuring that all children are learning from the group activities and not letting others do the thinking for them", the increased "noise" level due to group work and "management of multiple levels/games in the class". In addition, a number of teachers considered the large class sizes and lack of space to do group work a barrier to their implementation of the program.

Behaviour management problems were cited as a challenge by 5.3% of teachers. The "poor social skills of children", "their inability to work independently" and "having a K–6 class with a number of children with behavioural problems" were perceived as barriers to the implementation of group work.

Additional barriers to implementation: A range of other factors considered to be impeding the implementation of CMIT was mentioned by a

small number of teachers. For example, 9.5% of teachers convinced of the program's benefits, considered staff who did not support the program as barriers to its successful implementation. The use of textbooks was mentioned by 8.4% of teachers, mostly because they were considered to "subvert the whole idea of CMIT". However, three teachers indicated that they were in a "state of confusion as to where textbooks now fit", while many others were feeling "that the use of textbooks will need to be fully discussed and if you are using CMIT, textbooks should not be purchased". Two teachers commented that their schools had decided not to use textbooks for Stage 2 students in 2003.

Some teachers (12.6%) considered their own "lack of ideas" for activities a challenge to the implementation of CMIT. Finally, some concern about how CMIT linked with the Mathematics K–6 (1989) Syllabus was mentioned by 4.2% of teachers, but many thought that their concerns would be addressed once the new Mathematics K–6 (2002) Syllabus was implemented.

Relationship of CMIT to the school's mathematics plan

Fifty-seven percent of teachers indicated that their schools were "in the process" of aligning CMIT with their whole-school mathematics plan. However, the degree to which this process of change had already been achieved varied significantly. For some schools the alignment with the school plan was "just beginning to start … It has been a very slow resistant approach. We need to continue with Stage 2 because we have wonderful things happening in stage 1". Ten percent of teachers indicated that CMIT was "part of our school management plan … it is implemented K–6". The majority of these respondents indicated that their schools were committed to implementation for both Stages 1 and 2 because "we are now seeing the benefits of extended CMIT throughout the school", but "Stage 3 need to come on-line".

Twenty-two percent of teachers considered that "CMIT = new Syllabus" and therefore responded that they would be implementing CMIT once the new mathematics syllabus was introduced. Another 4.2% of teachers considered that CMIT would only ever "supplement their number program" or be "additional" to the mathematics they normally taught.

Requests for help

The two most frequently cited requests for help to implement CMIT related to resources (44.2%) and time (21%). This is not surprising, given the number of teachers who considered issues surrounding both these aspects to be barriers or challenges to their implementation of the program. While a number of requests for more time actually related to the making of resources. Further requests for time "to test the children each year" were also frequent. A few teachers light-heartedly requested a "fairy or robot" to make resources for them, but many made rather assertive requests for the resources to be "provided"

since "every school goes through this nightmare". One teacher provided an extensive rationale for the provision of resources:

> *I'd love to see someone make and sell some of the suggested games … and become effective immediately after the learning takes place. It is then, that one is fresh and inspired to use the strategies. After a while, other courses get precedence (e.g. drug ed.). If availability of resources (i.e. kits) is not immediate. I HAVE NO TIME TO MAKE RESOURCES.*

Another frequently cited request regarding resources was the need for a "DENS 2 text that will have all the activities organised and sequenced". It was apparent from comments that "stage 1 teachers have DENS 1" and an equivalent resource for Stage 2 teachers is expected.

Forty percent of teachers requested more help with a variety of implementation problems. These ranged from "how to implement the program", "programming to fit with the syllabus", how to "group the children" and make "the groups work" to "the consultant continuing to visit our school".

General comments and recommendations by teachers

A number of teachers volunteered extra comments regarding their overall opinion of CMIT at the end of the survey. Thirty percent of teachers communicated extremely positive responses toward the program and indicated their intentions to continue with its implementation. The following quotes are representative of those provided:

> *What a change—a program which supports students and teachers at the same time—that's how we create life-long learning.*
>
> *A fabulous program requiring energetic, competent teaching. We enjoy parent support in making games and financial support from the school and district.*
>
> *Gradually, I think people will notice and be glad of improvements in CMIT classrooms and will modify their own expectations.*
>
> *It is taking time for some teachers to change habits and attitudes of 20 years—but they are willing to have-a-go as long as there is support and they can see it benefits their students.*

Nine percent of teachers made comments indicating a level of confusion and caution about CMIT. For example:

> *I have a feeling that CMIT works well for Early Stage 1 and Stage 1, buts it's scope might not be sufficient for Stages 2-3-4.*
>
> *The program could be more beneficial with greater inservicing and appropriate literature.*
>
> *It is a great program, but it needs more funding and further development of games and activities.*

No teachers in my stage 2 collegial felt equipped to explain to parents what we were attempting, this scheme has high useful potential … but requires an on-site expert who is sensitive to the context in which primary school teachers' work. Thus, allow the introduction and development of teachers' skills/understanding at a practical rate and time frame.

Summary of teacher survey results

Survey data indicated that Stage 2 teachers, generally, have a positive view of the future of Count Me In Too. Teachers indicated that they were willing to continue with the program because they consider it would eventually benefit the children. This was despite a high proportion of teachers surveyed indicating that there were problems associated with their initial training and follow-up support for the program.

A significant proportion of teachers reported that their understanding of how children learn mathematics and the way they taught mathematics had changed as a result of their involvement in CMIT. In addition, a significant, but smaller proportion of respondents, indicated that their attitude towards mathematics and their mathematical content knowledge had improved.

A high proportion of teachers identified a number of features as being the most helpful aspects of their training. These included the practical resources and activities, the assessment process, the influence of significant people and the opportunity to share ideas. While not all teachers were provided with in-class support as part of their training, it was also frequently cited as the most helpful aspect of their training.

A number of factors repeatedly emerged as significant barriers to teachers' implementation of Count Me In Too. These factors predominantly related to issues of time, resources and class management.

Consultants

Six consultants were formally interviewed and informal discussions were held with 4 others. The teaching experience of consultants ranged from 5 years to more than 25 years, with 5 consultants originally trained as primary teachers and 5 as secondary mathematics teachers. One consultant had less than 1 year experience as a mathematics consultant, but others ranged from 3 to 5 years experience.

Initial training and follow-up support

During the interview, each consultant described his or her procedures for training teachers and for supporting the implementation of CMIT in schools. These procedures varied from consultant to consultant and were dependent upon individual preferences of consultants and contextual factors of the district, such as the distance between schools. For the initial training, most consultants involved teachers in 1 or 2 days of intensive inservicing. Where a 2-day model was adopted, the

first day normally focused on introducing the learning framework in number and the SENA. The second day was usually used for "games training". These sessions contained 20 to 50 teachers from a variety of schools in the district. Two consultants only brought their teachers together for 1 day and then conducted 2 or 3 follow-up workshops at the individual's respective schools after hours to assist teachers with the analysis, grouping of children and to focus on "what to do in the classroom after the testing". This was the preferred model of training for one consultant due "to the long distances between schools in the district". In districts where schools were separated by great distances, teachers were reluctant to travel long distances to attend inservices very often.

Four consultants used real children to demonstrate the SENA to teachers on their training day. Two others used videos of children being administered the SENA and the rest "ran through the questions and explained it to teachers" as they went. A few consultants combined Stage 1 and Stage 2 teachers in the training day, so SENA 1 and SENA 2 were demonstrated. Other consultants only had Stage 2 teachers present, but SENA 1 was still modelled first because "Stage 2 teachers have to know all of Stage 1 as well".

If teachers were reunited for a second day, consultants normally separated Stage 1 and Stage 2 teachers to introduce different activities. While the day was considered to be more "fun and interesting" for teachers, one consultant indicated that she would not "run a games training day again", because when "I actually got into the classes, they didn't remember how to play any of them". The consultant thought that it would be "more beneficial putting that time into being in the classroom".

While not officially part of the implementation plan for CMIT Stage 2 in 2002, some consultants provided classroom support to the teachers involved in the program. Three consultants provided 2 demonstration lessons to each teacher, while another provided 6 classroom visits. Two consultants provided in-class support because "the teachers expected it" and the consultants felt the teachers would benefit more from the support. One consultant visited each Stage 2 teacher twice because "they'd been promised in-class support before I learnt that we weren't supposed to provide it". Another consultant made numerous classroom visits to some Stage 2 classrooms because "I was visiting the Stage 1 classrooms in the school and there are such huge distances between schools that if I was there for the day I thought that I should make good use of my time". Two consultants indicated that while they had not provided classroom support themselves, teachers they had trained as 'facilitators' provided classroom support to teachers who requested it.

Effectiveness of the training: Consultants' perceptions and recommendations

While all consultants considered that some schools were more successful than others in implementing Count Me In Too, no consultant

was entirely satisfied with either the way teachers received their initial training or the manner in which schools were implementing Stage 2. All the consultants considered the initial training to be very "intensive" and felt that most teachers seemed to be "daunted" by the amount of information and depth of theoretical knowledge required. Consultants agreed that they preferred to support teachers over a longer period of time and that an initial one or two day information session was too overwhelming for the majority of teachers. Most consultants recommended providing teachers with information at a slower rate and providing a great deal more consolidation through follow-up workshops and in-class support. A strategy to help large schools cope with the changes associated with the implementation of CMIT was trialed by one consultant in 2002. She only involved teachers from one grade (Year 3) at the school and intends "to introduce it to Year 4 next year" as the "kids move on". The strategy was thought to "slow down" the amount of change required by a school at any one year. The consultant considered it to "have worked well" compared to other large schools where the implementation seemed "to be too much for them".

Consultants also felt that while teachers were impressed by the variety of activities presented at training days or workshops, the sheer number of activities only served to "scare teachers". Teachers seemed to be "overwhelmed by the number of games, and most were not able to fully grasp "where the games fitted with the framework". Many consultants felt that an "over-emphasis on resource production" increased the stress on teachers to implement the program because of the time needed to make the resources. A number of consultants indicated that they gave less emphasis to resource production and focused more on activities that were less time-intensive to produce such as those that utilised commercially available materials or did not require lamentation.

Despite a number of teachers receiving a small amount of in-class support, it was not considered enough by consultants. Consultants varied on the recommended number of classroom visits that would be sufficient for most teachers. Suggestions ranged from 7 to 10 classroom visits. However, a few consultants suggested that because teachers differ in regard to how much support they may need to effectively implement the program, a definitive number of visits to be applied universally was not possible. They considered that consultants may need to use their own professional judgement as to how many visits and what type of support each teacher needs.

Barriers to successful implementation

Consultants referred to a number of other factors they perceived as barriers to the successful implementation of Count Me In Too Stage 2. Many of these barriers related to the entrenched teaching practices of Stage 2 teachers. For example, the predominance of 'chalk and talk' approaches, whole-class teaching strategies and an over-reliance on a

textbook. Other barriers related to teachers' lack of experience with concrete materials or group work in the Stage 2 classroom. Some consultants considered that Stage 2 teachers seemed to "lack the desire to involve parents in the classroom" and this hindered their ability to effectively use group work.

The lack of time for teachers to conduct the SENA and to make sufficient resources was recognised by all consultants. As discussed previously, many consultants had already devised alternative strategies to alleviate the pressure in regard to resource production. However, a few were still considering ways to reduce the time needed by teachers to assess their students each year. One consultant suggested that "we need to move the training on to showing them ways of using the framework without necessarily having to sit down with the children for 30 minutes every time. They need to re-group their children based on their observational assessment. That's what I'm trying to move in to now …".

Two other barriers to the implementation of CMIT Stage 2 referred to by consultants included the custom of some principals "to move teachers to a different stage each year with little concern for their CMIT experience". Such practices had resulted in some schools being left without any teachers in the same Stage for more than two consecutive years. Consultants felt that such inconsistencies made the implementation of CMIT more difficult. The final barrier to the implementation of CMIT mentioned by many consultants was the lack of links between the program and the (old) syllabus (Mathematics K–6, 1989). It was felt that teachers considered CMIT to be "additional" to the syllabus requirements and they were unsure of how to program it because of this. One consultant suggested that she was going to refer to CMIT as "the implementation of the new syllabus" from 2003 to reduce the likelihood of teachers considering it additional to their normal mathematics program.

Schools considered more successful

Consultants considered CMIT Stage 2 to have "more teething problems" compared to the implementation of Stage 1—mostly due to the barriers outlined above. Three consultants did not feel comfortable with the implementation of Stage 2 in any of their schools. However, "there are individual teachers in quite a few schools doing great work". According to consultants, schools considered to be implementing CMIT Stage 2 more successfully than others seemed to share a number of characteristics. These included:

- A whole-school or K–6 vision for the program with statements to that effect in the school management plan;
- At least one teacher who was a "driving force" in the school to maintain the momentum of the program;
- A supportive executive, where not only funds but emotional and physical support were provided;

- An executive teacher to help with the co-ordination of the program. It was felt that the CMIT coordinator had to make constant and labour-intensive requests from teachers and that it was more appropriate for such requests to come from a member of the executive;
- Well-informed parents who were also involved in the implementation of the program; and
- The provision of a mathematics budget to assist teachers with the assessment of children and the maintenance of resources in the future.

The future of CMIT Stage 2

Despite the perception that the Stage 2 implementation of CMIT had not been as effective as envisaged or hoped for yet, consultants agreed that it was "still early days" and "there was a light at the end of the tunnel". Generally, consultants considered that "things will get better" for Stage 2 implementation in the future. Not only because they perceived most teachers "liked the program", but because many of the impediments to its initial implementation were likely to be addressed once the new syllabus was introduced and in-class support was increased. However, consultants felt that the adoption and effective implementation rate would be much slower than it was for Stage 1 of the program.

Case study schools

While the three school contexts were quite different, the major themes to emerge from the interviews were common to each school. Hence, a composite case study, similar to Connelly and Clandinin's (2000) composite narrative approach was considered the most effective medium to present the major findings from this component of the evaluation. This means that the school and individual teachers described in the case study are fictitious. However, each teacher profiled typifies the biographical background (gender, age and teaching experience) and opinions about the effectiveness of CMIT Stage 2, commonly expressed by teachers in each school.

The background to the school and teachers

Mander Heights Public School has approximately 420 students drawn mainly from a middle socio-economic background. Count Me In Too for Stage 1 has been operating in the school for almost 3 years and was well established in regard to resources. It was now an expectation at the school that Kindergarten to Year 2 teachers would implement CMIT as part of their normal mathematics program.

As part of the school's management plan to improve the numeracy levels of the Stage 2 students, the executive decided to introduce CMIT to Stage 2 with the aim to "move it up the school" over the next few years. Four teachers were involved in the training for CMIT

Stage 2. They ranged from 2 to 28 years of teaching experience and reported a broad spectrum of opinion in regard to the effectiveness of CMIT Stage 2. Comments relating to their overall impression of the program, their initial training, follow-up support and the effectiveness of their implementation are presented for each teacher.

Bettina, Year 4 teacher

Bettina is 23 years of age and in her second year of teaching. In hindsight, she thought CMIT was "really good. It could eventually substitute some parts of my number program". Bettina already used games in her teaching so CMIT was considered to be an "extension of that because it is a lot more involved. You are finding out how the children learn, where they are and where they are going". She considered the SENA testing to be time consuming but extremely worthwhile. However, she lamented that her introduction to the program had been extremely stressful contributing to her struggle for survival as a beginning teacher. She felt isolated from her colleagues, all of whom "are so much older and experienced, but I received no help from the other Year 4 teacher".

Bettina was introduced to CMIT via "one very crammed training day. It was 9 to 3.30 and just go, go, go. Information overload, too much". She considered "the experienced teachers felt just as overwhelmed", but because of their experience seemed to cope better "when we got back to school". Bettina thought the consultant "was pretty good". She considered the use of " real students to demonstrate the SENA in front of us" extremely beneficial and was confident about her ability to test the children. However, she felt like she was "running late from the start, because I didn't get all my testing done on the day we were given and I had to use my RFF time. So it took longer to do all the testing". Bettina did not think it "fair that we all had the same time to assess our children, since I have 32 children and some have fewer".

The aspect Bettina remembered to be most "daunting" during the initial training, was the work involved to prepare the resources. She left the training day "feeling overwhelmed that so many resources needed to be made to even start the program". After the testing was complete, she again admitted to feeling "anxious about trying to translate the children's responses to put them in the correct group and match the group to the appropriate activity". Bettina considered the time immediately after the testing to have been a "huge period of stress and anxiety because of the work load" associated with the initial implementation of CMIT. She felt that the initial implementation time was when she most desperately needed "assistance in the selection and sequencing of the most appropriate activities". Communicating this need to her consultant resulted in the consultant visit Bettina's classroom on two occasions. The demonstration lessons were considered by Bettina to be the most valuable part of the training.

Prior to the consultant visiting my room, I didn't know what CMIT 'looked like' or what I should be doing with the whole class. It was good to see how she introduced a broad topic and then let them go off to their groups. I watched how she walked around the room and when the kids would say 'I'm finished' or 'I'm bored with this game', the type of things she actually said. I learnt so much from those two lessons, but I think I need more, at least two more.

Bettina felt that besides more demonstration lessons, she would have benefited from "lesson plans like they have with the measurement program". It was felt that lesson plans produced by a more experienced user of CMIT would not only provide a model of how the lessons were to operate, but would assist with the selection of activities for the various groups. In addition, she felt that feedback from the consultant on her own teaching would reinforce whether she was "doing it right or if I could do something better". Being a beginning teacher, Bettina was willing to accept any advice and assistance she could get.

Bettina was now comfortable with group work in her room. She relied heavily on parent helpers and wanted to organise a "thank you morning-tea for them because they were so great". She felt that the biggest barriers to her implementation of the program related to time, resources, the textbook and other staff.

I've spent a lot of time making and organising resources and it should be easier next year. I've spent a lot of my own money because I wanted to have everything at my fingertips and not have to rely on the games being where they are supposed to be when I want to use them. I can't afford too much, but at least if I leave this school I will be able to take it with me.

The textbook was a problem because "there just wasn't enough time to fit it in and do CMIT". Bettina, along with other teachers at the school, found herself struggling to get the "textbook finished by the end of the year". While she preferred not to use one, she "had to use it because the parents bought it" and the other Year 4 class had already completed it. Bettina considered that she could make "compromises" in regard to the textbook now that she was more familiar with CMIT. She still wanted assistance with her "brightest children because many of the activities were too easy for them". However, she felt the most significant barrier to the future of the program in Stage 2 classes was the "more entrenched staff, particularly the Stage 3 teachers". The Year 3 teachers had collaborated in their lesson planning, resource production and grouping of children, but the reluctance of the other Year 4 teacher to participate in CMIT meant that Bettina despite her early career status had been given little support from with in the school.

Ken, Year 4/5 teacher

Ken, aged 51, has 28 years teaching experience. He had taught Stage 3 classes for the past 15 years and only recently started teaching Stage 2

students. He considered himself to be "a bit of a traditionalist in maths and I feel I am a reasonably good maths teacher". Ken was content with the way he had taught mathematics in the past. He referred to his style of teaching mathematics as "the normal way—chalk and talk and using the blackboard" and did not perceive any justifiable reason why he should change the way he taught mathematics. The making of resources was considered an inconvenience that increased his workload and an unnecessary burden. Ken thought "senior grades generally don't use as many concrete materials … by Stage 3 they have the basics". He questioned the rationale of the program and considered CMIT to be another "fad" that will "pass by".

Ken was totally dissatisfied with his initial training. He felt that "25 teachers was too many to inservice at one time" and smaller groups would have given everyone the "opportunity to do more activities and ask more questions. Maybe even understand a bit more theory" behind the program and "become more confident with it". Ken expressed anger towards DET because "they don't realise that we have 1000 and one other things … If they want us to implement new programs then they have to give us further training before it gets thrown at us."

Ken was not convinced that the activities were worth the effort to make and organise, particularly for his brighter students who "just got bored with the games". He felt that Stage 2 and especially Stage 3 children needed a textbook—the games "were just extra". While Ken organised "a few parents for a couple of weeks" he found it an imposition to organise and have them in the room. There were behaviour management problems that also made him reluctant to continue with CMIT.

> *Each class has their own behaviour problems and it's a great theory that you have four or five groups working beautifully but I have one particular chid who is very very difficult. Sometimes you only need two or three children to make it not manageable. Perhaps these consultants come and show us with a class—show us how to do it. That would help convince me of its worth.*

Ken considered CMIT to be a "completely different" approach to teaching mathematics that he "would rather not use, but if I had to I would". He felt that he "did enough" for the school and was not prepared to put the "extra effort required to make CMIT work".

Denise, Year 3 teacher

Denise is 50 years old. She has 21 years teaching experience and is the Stage 2 supervisor. Denise's overall impression of CMIT was very positive, it was particularly "good for the slower kids. However, I had to keep finding other things for the brighter ones to keep them motivated and extend them". Denise intends to continue with CMIT in the future because "now that I have seen what the students can do I see value in the program". She also considers that it will be easier to implement in subsequent years because she has most of

the resources prepared and will be familiar with what the program "looks like in the classroom". For Denise, CMIT is a different way of teaching. Previously, she had taught mathematics predominantly from a textbook. She felt that she and other staff members had to "relearn how we were teaching our maths, to be more activity-based".

As the Stage supervisor, Denise tried to support Jan, the CMIT coordinator for Stage 2. She conveyed information or requests for testing results and the like, because it was felt that it was more appropriate and staff would more readily comply if such requests came from a member of the executive.

Denise attended two CMIT training sessions conducted by the district consultant. The first day was designed to be a general information day for interested schools who were considering starting the program. Denise decided to attend because she knew little about the program except that the K–2 teachers were implementing it at her school. Despite her extra day of training, she still "came away feeling overwhelmed" and uncertain of what to do after the initial testing. Like Bettina, she felt confident about conducting the actual SENA testing, particularly due to the use of "real children to demonstrate the SENA". However, she gained a great deal of assistance from Jan to group the children after the testing. Jan also "came to my classroom and went through a lesson with the children and helped me work out what games to use with each group". Denise felt that if she had not had Jan's support during the initial implementation she "would have been lost". In particular she considered the period directly after the testing to be "extremely busy—making and organising the activities, finishing the testing and grouping the children".

Denise was quite "pleased with the implementation" of CMIT in her classroom towards the end of the term. She used parent helpers to assist with the organisation of group work, but considered "parents can be an advantage and a disadvantage". While parents helped keep the students on task, Denise found that some "just stay with their own children". She also indicated that she often felt "intimidated" having parents in the room. She reported that another teacher had "given-up using parents for maths groups because they could never get enough volunteers or they forgot to turn-up". She felt that some parents were worried that they could not do the mathematics, but considered the timing of mathematics lessons to be a major factor for parents not volunteering to help.

> *Most teachers in Stage 2 schedule reading groups early in the morning and mathematics between morning tea and lunch. This means that parents have to drop their children at school, go home for an hour or two, come back for maths, go home again for another hour or so before coming to pick-up the kids in the afternoon. It means they have to give up their whole day. I actually schedule maths groups in the afternoon. I know it is late, but I get the parents. They just take their kids home after maths.*

Despite feeling more comfortable with the implementation of CMIT, Denise still encountered difficulties. A major problem was the limited "space in the classrooms for group work". Because all available space had to be utilised for groups to "spread out, classes have to be careful not to do CMIT at the same time". She also still felt uncertain about the sequencing of activities and wanted "a book with all the resources organised into levels, and lesson plans so that teachers don't have to struggle so much at the start".

Jan, Year 3/4 teacher

Jan, aged 45, has been teaching for 19 years. She is the CMIT coordinator for Stage 2 and has implemented CMIT for Stage 1 students for 2 years. Being familiar with the program for Stage 1 and convinced of its benefits for the children, she was initially quite happy to coordinate CMIT for Stage 2. However, she had not anticipated "staff resistance to the program" and this had made her role more difficult than she had originally thought.

Jan considered the initial training day a "good introduction" to the SENA 2 testing and "gained some good activities" for her Stage 2 class. Her familiarity with Stage 1 of the program meant that the new Stage 2 content "was quite manageable to digest in one day". However, she was aware that other Stage 2 teachers felt "overwhelmed by the whole thing. It was a lot to take in on just one day for them". She considered the timing of the initial training to be a major reason why teachers were so daunted by the amount of work required to implement CMIT. The training took place towards the end of Term 2 and teachers were in the midst of finalising portfolios that were to be sent home in a week. Parent interviews were also being arranged to coincide with the distribution of portfolios. Jan felt that "no time is a good time to tell teachers that they have to do all this extra work on top of their normal teaching, but it is a particularly stressful time for teachers anyway". In hindsight, she thought that the staff might have been more receptive to the program from the beginning, if it had been introduced more slowly and there was less emphasis on the production of resources.

Offering assistance to all Stage 2 staff was difficult because Jan still had to "grapple with some new content and issues" herself. The other Year 3 teacher specifically requested assistance from her to group the children and Jan had "spent a lot of time helping her". She was rather "annoyed" that some staff complained so much about making resources when within the school management plan a budget had been allocated for new resources and she "had made most of the resources anyway". Jan felt more comfortable about not having the resources "perfect" after the district consultant had told her "it was okay to use it, even if it wasn't laminated—just start. So I did, and it was less stressful". She considered it was going to be "a lot easier next time because they have so much prepared and I'm more relaxed about making resources".

Staff also started "complaining" to Jan personally when she reminded them about finalising SENA results or organising parents for group work. In response, Jan arranged to make such requests via the executive.

> *Denise is an executive teacher and our Stage supervisor. The other staff didn't seem to complain if she asked them to do it. I think it is because she is an executive teacher, whereas I'm just the CMIT coordinator and don't have as much authority.*

Jan considered the follow-up support for Stage 2 to have been less effective than it was when she did CMIT in Stage 1.

> *When it was implemented in Stage 1 here, I would watch the consultant come in and demonstrate lessons. We would have some really good discussions about what to do. We didn't have that this time. I know we were supposed to have it within the school, maybe with the Stage 1 teachers mentoring the Stage 2, but it's practically impossible to do that. I know one Stage 2 teacher who didn't think a Kinder or Stage 1 teacher could do it in a Stage 2 classroom. I think all the teachers wanted an 'expert' from outside to help us in the classroom. I think it took longer for teachers to feel comfortable with it. I was probably the keenest out of everybody because I knew how beneficial it would be.*

Despite her involvement in Stage 1 CMIT, Jan still considered that demonstration lessons at the Stage 2 level would have helped her "get the big picture". Understanding "why we're doing it" and where "it is leading too", was the only barrier Jan felt existed for her in the implementation of CMIT. Jan felt that the "big picture" was "much clearer after this year", but that she "still had more to go in understanding it". Jan felt that she would "probably approach it a bit differently next year" but was thoroughly convinced of the benefits of CMIT. She was hoping that the new Syllabus would be more aligned with CMIT content so that programming would be easier.

Summary of case study data

Overall, findings of the case study component were consistent with the results of the survey, and interviews with consultants. Despite feeling overwhelmed by the initial training and expectations of themselves in regard to resource production, most teachers seemed to recognise the potential benefits of the program in the long-term. They considered many of the barriers they faced would be reduced in subsequent years due to their build-up of resources and deeper understanding of the program. However, pockets of resistance to the program from a small number of staff considered either too entrenched in their ways and unconvinced that the program's benefits outweighed the stress and additional workload associated with its implementation.

Summary of findings

Summary of teacher survey results

1. Final analysis included 95 surveys originating from 20 of the 40 school districts.
2. Generally, Stage 2 teachers' responses towards the overall impact of CMIT were very positive.
3. Respondents indicating that they had previously been trained in Stage 1 CMIT and/or had implemented Stage 1, were generally the same respondents who indicated strongest satisfaction with their initial training and follow-up support for Stage 2 of the program.
4. The majority of teachers participated in the program due to a whole-school decision to extend CMIT from Stage 1 to Stage 2 with the view of eventually involving all grades.
5. High proportions of the sample indicated that their involvement in CMIT resulted in improvements to their attitude towards mathematics and to the teaching of mathematics (69.5%).
6. High proportions of the sample indicated that their understanding of how children learn mathematics (71.6%) and the way they taught mathematics (77.9%) had changed as a result of CMIT.
7. A smaller proportion of teachers indicated an increase or improvement to their mathematical content knowledge (48.3%) as a result of their involvement in CMIT.
8. The most commonly cited changes to the way teachers taught mathematics included: more use of 'hands-on' activities, increased emphasis on thinking strategies, reduced use of textbooks and an increased use of ability groups.
9. Only 25.3% of teachers were entirely satisfied with either their initial training or follow-up support to implement CMIT Stage 2.
10. Commonly cited aspects of the training considered to be most helpful included: the practical resources and activities, the assessment process, classroom support, the influence of significant people, and the opportunity to share ideas.
11. Aspects of the training considered least helpful included: information overload, the lack of an organised system (or folder) to collate activities and resources, associated feelings of stress and anxiety related to the perceived amount of time needed to implement the program.
12. Factors that emerged as significant barriers to the implementation of CMIT related mainly to issues of *time, resources*, and *class management*. For example, teachers commented on:

- The initial stress of feeling overwhelmed.
- The uncertainty of how to implement the program.
- The enormous amount of time needed to assess individual children.
- Time to make resources to start the program and then to keep up with the needs of the children. (However, most teachers agreed that this would not be as big an issue in the future).
- The lack of space in the classroom for group work.
- The lack of organisation and management strategies to successfully use group work.
- The inability to secure reliable parent volunteers to help with group work in the classroom.
- The lack of a comprehensive resource folder.
- Confusion as to where activities fitted with the program or the syllabus.
- The need to finish the textbook.
- The preparation for basic skills tests.

13. The most frequently cited requests for assistance related to aspects of resource production and management, and more time.

Results of interviews with consultants

1. Generally, consultants were not entirely satisfied with either the way teachers received their initial training or the manner in which schools were implementing Stage 2.
2. Consultants referred to a number of factors they perceived as barriers to a more successful implementation of Count Me In Too Stage 2. These included:
   - Overload of information for many teachers.
   - The over-emphasis schools placed on resource production.
   - The need for more in-class support for the implementation stage.
   - Stage 2 teachers' over-reliance on a textbook.
   - Entrenched conservative teaching strategies of many Stage 2 teachers (e.g. chalk and talk, and whole-class teaching strategies).
   - Teachers' lack of familiarity and comfort with group work.
   - Teachers' lack of desire to involve parents in the classroom.
   - The reduced use of concrete materials in many Stage 2 classrooms.

- Lack of time for teachers to conduct the SENA and to make sufficient resources.
- Teacher movement to a different stage each year with little concern for CMIT experience.
- Lack of links with the (old) syllabus.

3. All consultants interviewed had considered these barriers and were planning to, or are already implementing, strategies to help alleviate the problems caused by these factors. These included: focusing more on resources that were less time-intensive to produce and providing teachers with information at a slower rate via follow-up workshops and in-class support over an extended time frame.
4. Schools that were considered by consultants to be more successfully implementing CMIT Stage 2 seemed to share a number of characteristics. These included:
   - A whole-school or K–6 vision for the program with statements to that effect in the school management plan.
   - A supportive executive.
   - Well-informed parents who were also involved in the implementation of the program.
   - The inclusion of a budget to assist teachers with the assessment of children in the future.
   - An executive teacher to help with the co-ordination of the program.

Results of case study

1. Generally, comments from teachers involved in the case study confirmed and elaborated upon those provided by those responding to the survey.
2. In particular, teachers indicated that they were willing to continue with Count Me In Too because they perceive it will ultimately benefit the children.
3. Factors most frequently mentioned as barriers to the implementation of CMIT were consistent with those cited by teachers in the survey. Additional barriers mentioned included: staff members perceived to be opposed to the program, and the need to 'relearn' how to teach mathematics.

Conclusion

There was a high level of consistency in responses among teaches, among consultants, and between teachers and consultants. The picture that emerges from the data is generally very positive, but the evaluation identified a number of significant issues at the implementation phase of CMIT Stage 2. Issues surrounding time, resources, class management and information overload were highlighted as potential barriers to the maintenance and expansion of the program at Stage 2. Despite the concern surrounding these issues, an overwhelming proportion of teachers reported a willingness to continue with its implementation. The factor that seems to emerge as assuming greater significance than concerns surrounding these issues, is teachers' inherent perception of the program's worth for children.

Recommendations

Initial training

1. It is recommended that initial training be followed-up with strong support that constantly revisits and clarifies aspects of the Learning Framework In Number and deals with teacher concerns as early as possible.
2. It is recommended that consultants use (where possible) children or videos of children to introduce teachers to the SENA.
3. It is recommended that an emphasis be placed on *effective* production and maintenance of *purposeful* resources. Resources produced should be effective use of teachers' time, and should clearly link to the Framework and the needs of the children.
4. It is recommended that links between the Framework and the 2002 Syllabus be emphasised wherever possible.

Follow-up support and resource management

1. It is recommended that information provided at initial training days be consolidated over an extended time-frame and in smaller quantities.
2. It is recommended that in-class support be provided early in the implementation of the program.
3. It is recommended that in-class support be provided by a person perceived by teachers to be an "expert" in CMIT.
4. It is recommended that teachers be provided with follow-up support to:
   a) analyse SENA results and place students on the Framework; and
   b) use this information to provide appropriate instruction.

1. It is recommended that networks within and between schools be encouraged to share examples of successful lesson plans.
2. It is recommended that teachers be provided with comprehensive support material comprising the appropriate selection and sequencing of activities for students of various ability levels and that this material be available to teachers during their initial training in subsequent extensions of CMIT (e.g. to Stage 3).

Schools

Recommendations for schools emerging from this evaluation confirm those made in earlier reports of CMIT evaluations (e.g. Bobis, 2002). Many of these recommendations have already been incorporated into the CMIT Professional Development Package (DET, 2002, Section 2, page 11, Strategies for future management). Generally, recommendations state that successful implementation of CMIT, including its expansion, requires a whole-school commitment. Normally, this commitment would address many of the issues raised in this report, including:

1. Decisions regarding involvement and expansion of CMIT being discussed at the whole-school level.
2. The allocation of a budget for mathematics each year to ensure adequate release time for teachers to test students and maintain resources.
3. The involvement of executive staff in the coordination of CMIT.
4. The place of textbooks in the classroom in the light of CMIT.
5. The consideration of staff expertise in CMIT when allocating teachers to particular Stages at the start of each year. This may involve varying amounts of support commensurate with a teacher's years of experience.
6. Informing parents of the program and considering ways to increase their involvement in its implementation.

References

Bobis, J. (1996). *Report of the evaluation of the Count Me In Project.* A report prepared on behalf of the NSW Department of Education and Training: Sydney. **http://www.curriculumsupport.nsw.edu.au/maths/countmein/evaluation.htm**

Bobis, J. (2000a). *The impact of Count Me In Too on the professional knowledge of teachers*. NSW Department of Education and Training: Sydney. **http://www.curriculumsupport.nsw.edu.au/maths/countmein/evaluation.htm**

Bobis, J. (2000b). *Count Me In Too: A case study of implementation*. An unpublished report prepared on behalf of the NSW Department of Education and Training: Sydney.

Clandinin, J. D. & Connelly, F. M. (2000). *Narrative Inquiry: Experience and Story in Qualitative research*. San Francisco, CA: Jossey-Bass.

NSW Board of Studies, (2002). *Mathematics K–6*. Sydney: Author.

NSW Department of School Education, (1989). *Mathematics K–6*, Sydney: Author.

QSR NUD*IST (1997). *Qualitative Data Analysis Solutions Program*, Bundoora: Qualitative Solutions and Research Pty Ltd.

Appendix A

Count me in too stage 2

Evaluation by participating teachers 2002

Thank you for taking the time to complete this survey. This survey is to be completed by teachers who have participated in the Count Me In Too program for Stage 2 teachers. It comprises of two major components:

PART A is intended to collect relevant biographical details about you and your school.

PART B focuses on your perceptions concerning the project's effectiveness in relation to its planning, implementation, its impact on your professional development in mathematics education and its impact on the learning outcomes of the students in your class.

All responses to this survey will be kept confidential. Please do not put your name anywhere on this form unless you wish for further contact to follow-up any issues raised. Information received will be used solely for the purposes of evaluating the effectiveness of CMIT and will have implications for the future development of this program. Your honest perceptions will be of great value.

After completing the form, place it in the pre-paid envelop provided and post to Dr Janette Bobis, Faculty of Education, University of Sydney, NSW, 2006 (9351-4536). Permission to conduct this research has been granted by the Ethics Committee of the University of Sydney and the NSW Department of Education & Training. Your participation in this evaluation is voluntary. You may withdraw your participation at any time. Any person with concerns or complaints about the conduct of this research study can contact the Manager of Ethics, University of Sydney, on (02) 9351-4811.

Thank you for your cooperation.

Part A

The school context

Please provide the necessary information or place a tick (√) in the box which best describes you and your school.

1. The name of the District your school resides in:_____
   _____

2. Approximate number of students in this school

< 100 ☐ 21 100-200 ☐ 22 201-300 ☐ 23
301-400 ☐ 24 401-500 ☐ 25 500 + ☐ 26

3. Distinguishing features of this school. (Tick all that apply and/or give approximate percentages).

   Percentage of NESB _____31 Percentage ATSI _____32

   Low socio-econ. ☐34 Middle socio-econ. ☐35

   High socio-econ. ☐36

Other (please specify) 37 _____

_____

Individual teacher details

4. Your Age 20-30 ☐41 30-40 ☐42 40-50 ☐43

   50 + ☐44

5. Sex/Ethnicity Female ☐51 Male ☐52

   ATSI ☐53 NESB ☐54

6. Years of teaching experience (including this year).

   1-5 ☐61 6-10 ☐62 11-15 ☐63 16-20 ☐64

   21+ ☐65

7. What grade/s are you currently teaching?_____

8. How many years experience do you have teaching this **stage**? (including this year)

   1-3 years ☐81 4-7years ☐82 7+ years ☐83

Part B

Count Me In Too Stage 2. Please reflect upon each of the following questions and write your response in the space provided. The use of dot points to respond is acceptable. If further space is needed, attach more sheets.

9. (a)Is Count Me In Too operating in your school at Stage 1? (Circle best response) Yes No

   (b) If YES, for approximately how long as CMIT Stage 1 been operating:_____

   a) Were you involved in CMIT Stage 1 training?
      Yes No

   b) Have you ever implemented CMIT in a Stage 1 classroom?
      Yes No

   c) How long have you been implementing CMIT in a Stage 2 classroom? _____

   d) What factors most influenced your decision to participate in CMIT?

e) Do you think your **attitude towards maths and the teaching of maths** has changed as a result of your involvement in CMIT? Please explain your response.

f) Has your understanding/knowledge of **mathematics content (what to teach)** changed as a result of your involvement in CMIT Stage 2? Please explain your response.

g) Has your understanding of **how children learn maths** changed as a result of your involvement in CMIT? Please elaborate on your response.

h) Has the **way you teach** mathematics (the strategies you employ to get children to learn) in your classroom changed as a result of CMIT? Please elaborate on your response.

i) Was the **training** you received for CMIT Stage 2 effective for you? Please explain your response.

j) What aspect(s) of CMIT training **helped you most** with the implementation of CMIT? How and Why?

k) What aspects of CMIT were **least helpful** or left you feeling confused? Why?

l) What do you perceive to be the **barriers or challenges** for you in implementing CMIT in your classroom in the future?

m) Describe how this implementation of CMIT fits within your whole-school (long-term &/or short-term) mathematics planning?

n) What would you **most like help** with in implementing CMIT?

o) Any other comments you would like to make concerning CMIT for Stage 2.

Thank you for taking the time to complete this survey. Please use the pre-paid, addressed envelop provided to return this survey to Dr Janette Bobis, University of Sydney, Faculty of Education, Sydney 2006.

Appendix B

Interview schedule for consultants CMIT 2002

Equipment: Tape recorder, audio-tape.

1. Confirm that the consultant:
   - has signed consent form,
   - understands the purpose of this interview and their role as a participant (see below),
   - understands that information they provide will be kept confidential,
   - understands that the interview will be audio-taped but that they can stop the tape any time they wish,
   - understands that they can withdraw from the study anytime they wish with out penalty.

Purpose

The purpose of this interview is to establish your perceptions of the success of CMIT for Stage 2. The information you provide will help consolidate information gathered from teachers via their surveys and interviews.

N.B. *The following questions are a guide only*

Background:

1. Years of teaching experience.
2. What grades have you taught?
3. Teacher Education background - Where? How long?
4. Experience as a math consultant. How many years? What regions? Impressions of being a math consultant.

CMIT involvement

1. What are your perceptions of CMIT generally? Stage 1 and stage 2, in particular.
2. Can you outline the approach you take for introducing and training teachers in CMIT. (e.g. do you approach schools? Do you provide classroom support/out of classroom workshops etc? Has your approach changed over the years? Does your approach differ for Stage 1 and Stage 2 teachers?
3. In regard to CMIT for Stage 1: How successful do you perceive its implementation in schools? What (if anything) can you attribute this to?
4. In regard to CMIT for Stage 2: How successful do you perceive its implementation in schools? What (if anything) can you attribute this to?

5. Are there similarities or differences between Stage 1 & Stage 2 of the program that may cause differences in the successfulness of CMIT? Discuss
6. What obstacles/reservations/challenges to you perceive for CMIT Stage 1 and/or 2? Are there different challenges for the different Stages of the program? Discuss.

Appendix C

Interview schedule for teachers CMIT 2002

Equipment: Tape recorder, audio tape.

Purpose

The purpose of this interview is to establish your perceptions of the success of CMIT for Stage 2. First, I would like to collect some background information about yourself in regard to your general teaching experience and the school in which you are now teaching. The information you provide will help consolidate information gathered from teachers and consultants via their surveys and interviews.

N.B. *The following questions are a guide only*

Section A

Demographic details of school can be sought at this point in the interview or can be obtained via the internet. E.g. Number of students/teachers, percentage of NESB/ESL etc. Socio-econonic status of school etc.

Section B: Biographical Details of teacher

1. How may years of teaching experience do you have?.
2. What grades have you taught?
3. What grade are you teaching now?
4. How long have you taught this grade?
5. How long have you been at this school?
6. Teacher education background - Where? How long?

Section C: Perceptions & expectations of CMIT project

1. Have you been involved in Stage 1 CMIT? Describe
2. How long have you been implementing CMIT for Stage 2?
3. Describe the induction and training you have received for the Stage 2.
4. What are your perceptions of CMIT?
5. What expectations do you have of the project for:
   - you personally?
   - the children in your class?
6. What aspects of the program have been most helpful? Least helpful?
7. What concerns or reservations/challenges do you have about the project?
8. What would you like most help with to enable you to implement CMIT in your classroom?
9. Other comments you would like to make about aspects of CMIT stage 2.