
Chapter Two: Methodology

Overview of the Professional Development Programme

In 2000, the Ministry of Education offered the Count Me In Too (CMIT) pilot project to New Zealand schools as a junior school mathematics professional development project. While the majority of the programme was school and syndicate based, the participating teachers were grouped in clusters for the purposes of the after-school workshop programme. Each facilitator worked with up to 30 teachers, tailoring the series of after-school workshops and in-class visits to meet the needs of individual schools and teachers.

Teachers within each participating school were expected to work co-operatively as a team within their established syndicate groupings. Teachers from small schools were expected to work collaboratively in a cluster group to develop collegial support structures. In all schools, the principal was expected to demonstrate a personal commitment to the project by offering support to the teachers who were involved through appropriate resourcing and through regularly reporting to the board of trustees and community.

The delivery of the pilot programme involved each participating teacher assessing all of their students on two occasions and providing an aligned activities intervention programme of at least fifteen weeks. Acknowledging that change takes time, teachers were required to ensure that sufficient time in the mathematics programme was allocated to focus on and to develop the students' number concepts and skills.

Project Timeline	
December 1999	Facilitator training session 1 (three days).
February 2000	Facilitator training session 2 (two days).
February – May	After-school cluster meetings to introduce the Learning Framework for Number and the SENA diagnostic tool. Familiarisation with the Number Framework.
12 May	Completion of the first SENA assessment.
May – September	Activities based programme in early number.
22 September	Completion of the second SENA assessment.

Aim of the Research Evaluation

The aim of the research evaluation of the CMIT pilot was to examine the impact of the project on the participating facilitators, teachers, and students.

Facilitators

The first component of the evaluation focused on the effectiveness of the facilitators' training programme and on the impact of CMIT on the professional knowledge of the facilitators. The evaluation was designed to address the following questions:

1. Does CMIT have an impact on the facilitators' professional knowledge? If so, what changes?
2. Is the training programme for facilitators effective? If so, in what ways? If not, what should be changed?

Teachers

The second component of the evaluation was focused on the professional knowledge of the participating teachers. In addition to the evaluation of the impact of change to their knowledge and practice, the investigation examined in detail the knowledge of teachers in two case-study schools. More specifically, it was designed to address the following research questions:

1. What experiences and factors do teachers report as influencing these changes?
2. What experiences and factors do teachers report as influencing these changes?
3. Do teachers perceive that changes in their professional knowledge have an impact on their classroom practice?

Students

The third and, arguably, the most important research component examined the impact of CMIT on the numerical development of participating children. More specifically, it was designed to address the following research questions:

1. What progress do the students make on the Learning Framework for Number?
2. Is progress linked to the initial levels of the students' development? If so, in what ways?
3. Does the decile and region of the school or the ethnicity of the students have an impact on the progress made? If so, in what ways?

Research Design

The research methodology that was developed to evaluate the impact of CMIT on participating facilitators, teachers, and students had two approaches. The first approach involved the collection of data from all participants involved in the project. The second was a case-study approach involving the participating teachers in two selected schools. Figures 2.1 and 2.2 provide an overview of the data collected in each approach.

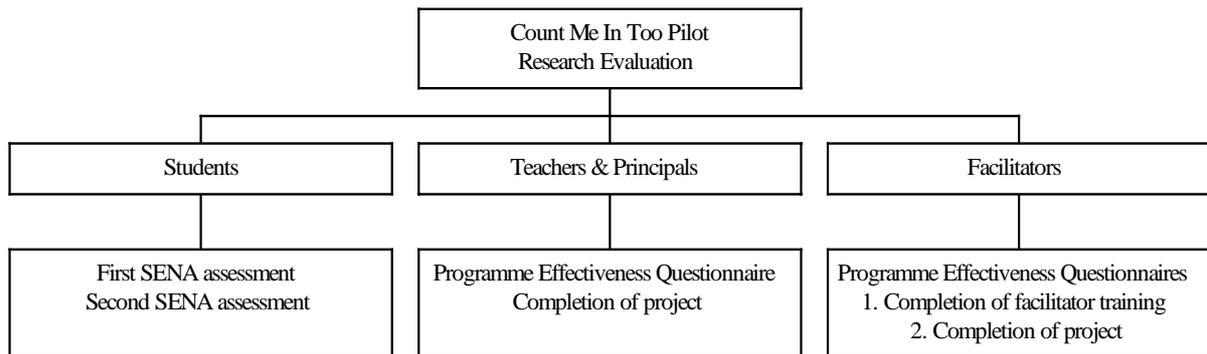


Figure 2.1: Overview of Approach 1 – All Participants

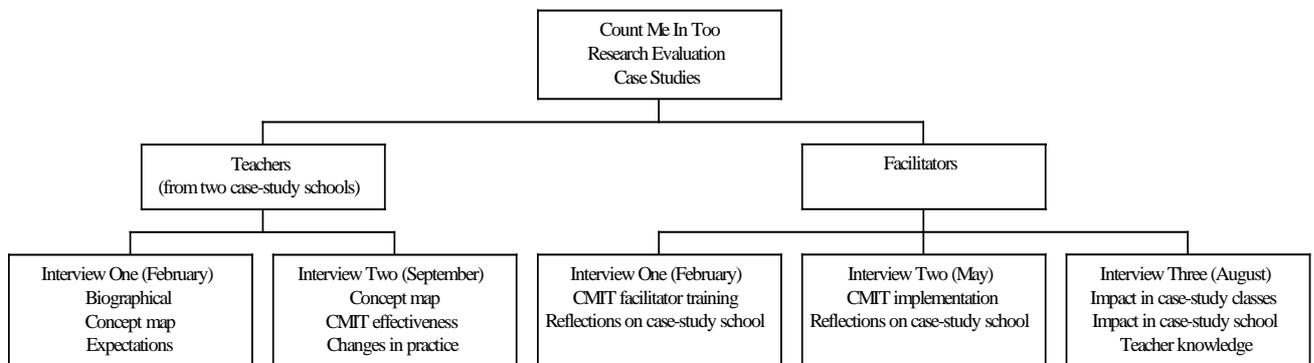


Figure 2.2: Overview of Approach 2 – Case Studies

Approach I – All Participants

The project involved 17 facilitators, 81 schools, 563 teachers and, at the start of the project, 10,298 students. By the end of the project, the number of participating students had fallen to 9309.

Of the 989 students no longer participating, 445 had moved to other schools. Of the remaining 544 students, 228 were withdrawn from the project because they had either moved to a non-participating class within the same school or had been absent from school for an extended period over the duration of the project. No results were submitted for the final assessment for the other 316 students who were classed as missing.

Unless otherwise stated, the results reported in this chapter are for the 9309 students for whom there were full data sets.

Table 2.1 shows the spread of students across the regions of New Zealand. Table 2.2 shows the spread of students according to ethnicity and the decile of the school.

Table 2.1: Frequencies of Students by Region

Region		Female	Male	Total
Auckland	number	1839	1951	3790
	% total	41%	40%	41%
Waikato	number	719	806	1525
	% total	16%	17%	16%
Central North Island	number	451	480	931
	% total	10%	10%	10%
Wellington	number	550	590	1140
	% total	12%	12%	12%
Nelson / Canterbury	number	499	545	1044
	% total	11%	11%	11%
Otago / Southland	number	397	482	879
	% total	9%	10%	9%
Total	number	4455	4854	9309
	% total	100%	100%	100%

Table 2.2: Frequencies of Students by Ethnicity and Decile

Decile Band		Asian	European	Māori	Other	Pacific Islands	Total
Low (1–3)	number	103	1409	923	108	490	3033
	% total	23%	24%	53%	29%	64%	33%
Medium (4–7)	number	220	3001	680	170	241	4312
	% total	49%	50%	39%	45%	31%	46%
High (8–10)	number	125	1573	133	98	35	1964
	% total	28%	26%	8%	26%	5%	21%
Total	number	448	5983	1736	376	766	9309
	% total	100%	100%	100%	100%	100%	100%

Facilitators

The facilitators' training programme included three days of training in early December 1999, two days in February 2000, and two further one-day national workshops during the year. The facilitators completed two questionnaires designed to give feedback on their perceptions of the effectiveness of the training programme and of the project generally. The first questionnaire was distributed at the conclusion of the second training meeting in February. The second questionnaire was sent to the facilitators at the conclusion of the project. Both questionnaires were completed anonymously and returned to the researcher by mail. Demographic data was collected on the age, gender, and professional experience of the facilitators. Their perceptions of the effectiveness of the project and training were obtained from their responses to open-ended questions. Appendix C is a summary of the items in the project questionnaires.

Teachers

The training programme for the participating teachers was based on the CMIT professional development package. Each facilitator worked with approximately 30 teachers as they participated in the school and syndicate-based professional development programme. While the majority of the programme was delivered within the school, the participating teachers were also grouped in clusters for the after-school workshop programme. The focus of the after-school cluster workshops was an exploration of the Learning Framework for Number and the SENA. The teacher training included teachers making videos of themselves using the SENA tool as they assessed a number of children and then sharing the analysis of these videos with other participants.

Questionnaires were sent to all the participating teachers at the end of the project. The questionnaires were designed to collect relevant demographic and biographical details about participants and to elicit perceptions about the programme's effectiveness. One hundred of the returned questionnaires were randomly selected for analysis.

Principals

Questionnaires were sent to the principals of all the participating schools at the end of the project. The questionnaires were designed to collect relevant demographic and biographical details about the participating schools and to elicit principals' perceptions about the programme's effectiveness in terms of its impact on the teachers and students.

Students

All the children in the classes of each participating teacher were assessed twice, using the SENA tool, once at the completion of the teachers' training programme and again after about 15 weeks of the teaching programme that followed the first SENA assessment. The participating teachers were required to submit the results for the first SENA by May 12 2000 and for the second SENA assessment by September 22 2000. The results were submitted electronically using a secure web-site. In addition to the results of the SENA assessments, the following personal information was collected on each child: gender, date of birth, year level, and ethnicity. As the children were linked to teachers and schools, their performance could also be reported with respect to region and decile.

Approach 2 – Case-study Research

Two schools and their respective facilitators were selected for case-study research. Case-study school A is a decile 1 urban school with a high proportion of Māori students. Case-study school B is a decile 2 rural school.

The principals and participating teachers from the two schools were invited to participate in the case-study research by the researcher.

To determine whether changes to teacher knowledge and practice had occurred as a result of their involvement in CMIT, data from two research tools were used: semi-structured interviews and concept mapping. Concept mapping has been shown to be a powerful and sound method for assessing conceptual change, and it allows researchers to see how knowledge is restructured over time (Markham, Mintzes, & Jones, 1994). The concept-mapping approach was used to examine the impact of CMIT on the professional knowledge of teachers in New South Wales (Bobis, 1999).

Two semi-structured interviews were conducted with each of the teachers, one at the start of the project and one at its conclusion. The first interview included the gathering of relevant biographical details and questions relating to each teacher's expectations of CMIT. The second interview focused on the teacher's perceptions of the effectiveness of CMIT and its impact on his or her classroom practice. Concept mapping formed part of both interviews. (See Appendix D for an outline of the concept mapping interview.) The teachers were released from their classrooms for approximately two hours for each of the two interviews. All interviews were audiotaped and subsequently transcribed for analysis.

The facilitators were interviewed on two occasions. The main aim of the interviews was to provide another perspective on the impact of CMIT on the professional knowledge of teachers. The first interview was used to establish the facilitator's perceptions of the knowledge of the participating teachers. The second interview, at the end of the project, allowed the facilitators to ascertain what impact CMIT had made on teachers' knowledge.