

External Evaluation of the Selected National Partnership
on Literacy and Numeracy NSW Programs

Evaluation of TOWN

FINAL REPORT

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urbis

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TABLE OF CONTENTS

Glossary	1
Executive Summary	3
1. This Project.....	3
2. TOWN.....	3
3. Methodology	3
4. Implementation Of TOWN	4
5. Key Findings	4
6. Strengthening The Impact Of TOWN	7
1 Introduction.....	9
1.1 Policy Context.....	9
1.2 TOWN.....	9
1.3 Terms Of Reference For The Evaluation	11
1.4 Methodology	12
1.5 Limitations Of The Methodology.....	15
1.6 Structure Of This Report.....	16
2 The Evidence Base For TOWN.....	17
2.1 Evidence Base For TOWN	17
2.2 Stakeholder Views On The Evidence Base For TOWN	18
3 Implementation Of The Whole-Of-Class Component Of TOWN	19
3.1 Arrangements For Schools To Participate	19
3.2 Overview Of Implementation	20
3.3 Satisfaction With Support Provided To Implement TOWN.....	20
3.4 Sources Of Support Provided By NSW DEC	23
4 Implementation Of The Individual Case Management Component Of TOWN.....	33
4.1 Quantitative Data From The Online Survey	33
4.2 Qualitative Data	37
4.3 Overall Low Level Of Usage.....	39
5 Outcomes For Teachers	41
5.1 Quantitative Data	41
5.2 Qualitative Data	46
5.3 Success Factors	48
6 Outcomes For Students.....	54
6.1 NAPLAN And Data Assessment Data.....	54
6.2 Quantitative Data On Student Outcomes	59
6.3 Qualitative Data	61
6.4 Outcomes For Aboriginal Students	63
6.5 Success Factors	65
7 Impact On Schools And Sustainability	70
7.1 Impacts On Schools	70
7.2 Sustainability	73
8 Strengthening The Impact Of TOWN.....	75
8.1 Factors That May Limit Success	75
8.2 Areas For Improvement.....	78

9	Summary And Conclusion.....	80
9.1	An Assessment Of The Effectiveness Of TOWN	80
9.2	An Assessment Of The Extent To Which TOWN Achieves Its Goals In An Efficient Manner	82
9.3	An Assessment Of The Extent To Which The Program Has Improved The Educational Outcomes Of Aboriginal Students	83
9.4	An Investigation Of The Most Effective Ways For Schools To Be Supported To Participate In The Evaluation And For Reforms To Be Incorporated Into School Practice	84
Appendix A	Discussion Guides	87
Appendix B	Online Survey Instrument	88
Appendix C	Full Findings Of The Online Survey.....	89

FIGURES:

Figure 1 – TOWN (Whole School) NAPLAN Numeracy Gain Scores By Student Comparison Groups	57
Figure 2 – TOWN (Whole School) NPLN Assessment Numeracy Gain Scores By Student Comparison Groups	58

TABLES:

Table 1 – Data Sets For Performance Measurement Of National Partnership On Literacy And Numeracy Outcomes.....	14
Table 2 – Data Collection Timing And Cohorts	15
Table 3 – Data Specifications.....	15
Table 4 – Town Coordinator Average Number Of Days Off Class Per Week.....	21
Table 5 – Main Source Of Funding For Town Coordinator Off Class Time	21
Table 6 – Activities Undertaken As A Town Coordinator.....	22
Table 7 – Satisfaction With The Internal Training Support	22
Table 8 – Satisfaction With Town Workshop.....	24
Table 9 – Satisfaction With The Town Training Workshop By Experience With Similar Numeracy Programs.....	25
Table 10 – Adequacy Of Support From External Sources.....	31
Table 11 – Number Of Students Who Participated In Case Management	34
Table 12 – Number Of Students Who Participated In Case Management Compared To Initial Expectation...	34
Table 13 – Agreement With Statement About Individual Case Management.....	36
Table 14 – Number Of Case Management Interventions Per School.....	37
Table 15 – Impact On Teachers’ Knowledge, Attitudes And Skills	41
Table 16 – Impact On Classroom Teaching Practice	43
Table 17 – Key Changes To Teaching Practice	46
Table 18 – Critical Factors In Improving Numeracy Teaching.....	49
Table 19 – Experience With Similar Numeracy Programs By Role	51
Table 20 – Naplan Cohort 1 Numeracy Scores.....	56
Table 21 – Naplan Cohort 2 Numeracy Scores.....	56
Table 22 – Npln Cohort 1 Numeracy Scores.....	57
Table 23 – Npln Cohort 2 Numeracy Scores.....	57
Table 24 – Npln Cohort 3 Numeracy Scores.....	58
Table 25 – Observed Improvement In Students Numeracy.....	60
Table 26 – Effectiveness Of Town For Different Student Groups.....	61
Table 27 – Effectiveness Of Town Aboriginal Students Compared To Non-Aboriginal Students.....	63
Table 28 – Agreement With Statements About Impact Of Town On The School	71

Glossary

ACRONYM	DESCRIPTION
AECGs	Aboriginal Education Consultative Groups
BST	Basic Skills Test
COAG	Council of Australian Governments
CMIT	Count Me In Too
CO	Counting On
DASA	Data Analysis Skills Assessment
DENS	Developing Efficient Numeracy Strategies
EMSAD	Educational Measurement and School Accountability Directorate
ESL	English as a Second Language
ILPs	Individual Learning Plans
KLA	Key Learning Area
LBOTE	Language Background Other Than English
NAPLAN	National Assessment Program – Literacy and Numeracy
NPLN	National Partnership Agreement on Literacy and Numeracy
NP Low SES	National Partnership Agreement on Low Socio-Economic Status School Communities
NSW DEC	NSW Department of Education and Communities
SENA	Schedule for Early Number Assessment
SES	Socio-Economic Status
TOWN	Taking Off With Numeracy

Executive summary

1. THIS PROJECT

In November 2010, Urbis was contracted by the then Department of Education and Training (now the Department of Education and Communities (NSW DEC)) to conduct an evaluation of Taking Off with Numeracy (TOWN), one of several initiatives being funded under the National Partnership Agreement on Literacy and Numeracy (NPLN).

Specifically the Terms of Reference for the evaluation of TOWN involve:

- An assessment of the effectiveness of TOWN
- An assessment of the extent to which TOWN achieves its goals in an efficient manner and, where applicable, addresses the mandatory reform elements of the National Partnership Agreement on Literacy and Numeracy, which are:
 - effective and evidence-based teaching of numeracy
 - strong school leadership and whole school engagement with numeracy
 - monitoring student and school numeracy performance to identify where support is needed
- An assessment of the extent to which the program has improved the educational outcomes of Aboriginal students
- An investigation of the most effective ways for schools to be supported to participate in the evaluation and for the reforms to be incorporated into school practice.

2. TOWN

TOWN was developed by NSW DEC TOWN staff to assist teachers to identify where students' numeracy solution methods were breaking down, and provide clear guidance to move the students beyond these barriers. It focused on the key concept of place value, and differentiation of students along a continuum. The primary focus was on providing professional development and support for two types of intervention: whole class and an individualised case management component. All schools participating in TOWN signed up for the whole class component, and 28 signed up for the individual case management component.

Under the NPLN, TOWN was implemented in 41 schools around NSW for Years 3-6 students. The schools were selected for participation based on under-performance in numeracy in the 2008 National Assessment Program – Literacy and Numeracy (NAPLAN) testing, the school's suitability and readiness to participate in the program (as advised by regional and diocesan offices), and the school's students' background characteristics. Implementation commenced in Term 3 in 2009 and funding concluded in June 2011.

3. METHODOLOGY

The methodology comprised the following components:

- knowledge review – a review of documentation relating to TOWN
- scoping of data sets to identify data analysis that would be achievable
- development of a Project Plan, setting out the finalised methodology, risk management strategy and timeframes
- visits to ten schools implementing TOWN to interview the school Executive, School Leadership Team, teachers, parents and students

- online survey of staff in the 41 schools implementing TOWN under the NPLN - responses were received from 141 staff across 35 schools
- stakeholder interviews, including with NSW DEC TOWN staff, TOWN case managers, and Regional Facilitators
- analysis of NAPLAN and NPLN assessment data.

The methodology for this evaluation was developed in close consultation with NSW DEC, in particular the Student Engagement and Program Evaluation Bureau. The final project plan containing the methodology was submitted to NSW DEC in November 2010, and approved by the NPLN NSW Programs Program Evaluation Reference Group, which oversaw this evaluation.

4. IMPLEMENTATION OF TOWN

A TOWN Leadership Team was appointed in each school, including a TOWN Coordinator, who led the provision of targeted and regular professional learning focused on numeracy teaching, and 'hands on' assistance with putting the program into practice including providing or developing teaching resources, assistance with development of lesson plans, encouraging reflection and team teaching approaches etc. Other forms of support for the implementation of TOWN included an initial two-day training workshop in Sydney, the TOWN website, the TOWN materials (including assessment tools), NSW DEC TOWN staff and regional maths consultants, and Regional Facilitators.

Teachers conducted initial assessments of students, using the TOWN assessment tools, to identify students in need of the program.

The individual case management component of TOWN involved teachers recording interactions between teachers and individual students, uploading these to the TOWN website, and receiving emailed advice from one of a team of TOWN case managers.

5. KEY FINDINGS

OVERALL EFFECTIVENESS OF TOWN

The evaluation clearly demonstrates that TOWN has had a positive impact on schools and delivered numeracy outcomes for teachers and, in some cases, students.

Overall, the evidence indicates that the whole school component of TOWN has been an effective program which has delivered outcomes for teachers and the NSW schools in which it was implemented. The evidence regarding the impact on student outcomes is more mixed and equivocal, however, depending on the data source(s).

The data gathered for the evaluation raises questions about the extent to which the success of the program was due to the TOWN program itself, or to the implementation of TOWN by schools (which was prompted by TOWN).

The effectiveness of the program was arguably over-reliant on schools expending considerable effort to operationalise the program into practice, through professional development (as intended) and development of their own practical resources such as lesson plans and teaching resources. It is also apparent that school staff under-utilised some of the forms of support available (eg the TOWN website, videoconferences, NSW DEC TOWN staff and the TOWN case managers) because they did not regard them as very useful and/or what they ideally needed.

It is likely that this resulted in a considerable amount of 'reinventing the wheel' and duplication of effort across the schools implementing the program, as they each determined how to best put the program into practice and developed materials and resources of their own. It may therefore be more accurate to view TOWN as a 'process' or a 'catalyst' for a changed approach to numeracy teaching, rather than a 'program' as such. Therefore, TOWN was effective mainly because it was, on the whole, implemented effectively by most schools. However, there was not enough provided as part of the initiative to make it effective as a stand-alone program in itself. In the consultants' view, there was some legitimacy to the

strong view about TOWN by a number of school staff that there 'wasn't enough to it', that it was too thin and high level, and did not provide enough 'value for money'.

This view in turn reflected what NSW DEC TOWN staff perceive as a fundamental misunderstanding by a number of schools about the nature of the program. Many schools were expecting or hoping for a more complete resource package, whereas according to DEC TOWN staff the primary focus of the program was always on it being a professional development and learning program. It is likely that imperfect and limited communication with schools, particularly in the context of a tight timeframe for program rollout in which the program was being developed during the implementation phase, contributed to this misunderstanding.

INDIVIDUAL CASE MANAGEMENT

The evaluation indicates that the individual case management component was the least successful aspect of the TOWN program. It was not used very much at all (only 136 instances over the entire program), and it did not work very effectively as a source of support to schools. This was for a range of reasons including technical difficulties relating to making and uploading the video recordings of students, and the perception that the advice provided by the case managers was not seen as useful (in terms of providing very specific, practical guidance about how to work with the particular student) or as timely as it could have been.

There appeared to be some disjunctions between the perceptions of the quality, usefulness and timeliness of the advice provided between case managers and DEC TOWN staff on the one hand, and school staff and Regional Facilitators on the other. This may reflect the desire by school staff for much more directed and practical advice.

On the other hand, NSW DEC TOWN staff feel that this was one of the most innovative aspects of the program, and it was therefore not entirely surprising that this was an area where more problems were experienced. There was a view that this aspect may have been a bit 'ahead of its time'.

OUTCOMES FOR TEACHERS

Overall, evidence from the evaluation is that the whole-school component of TOWN (or its implementation) has had a positive and marked impact on the numeracy teaching practice of most school staff who participated in the program, and made them better numeracy teachers.

The majority of teachers surveyed reported that TOWN has had an impact on their knowledge, attitudes and skills in all of the areas they were asked about. The three areas with the greatest reported impact were:

- increased belief in teachers' ability to improve numeracy outcomes for all students
- increased understanding of the importance of place value as a key numeracy concept
- increased willingness to participate in shared reflection and discussion of numeracy teaching with other staff.

The program has also had a positive impact on a number of key elements of teaching practice, such as:

- increased use of and capacity to differentiate students and identify students in need of targeted intervention
- greater collaboration and ability to reflect on their teaching practice
- use of more and additional numeracy teaching resources and activities
- greater knowledge about and confidence in teaching numeracy
- greater focus on and understanding of key numeracy concepts such as the place value framework.

There is evidence to indicate the greatest impacts were for teaching staff either at an *early* or at a *late* stage of their careers.

OUTCOMES FOR STUDENTS

The evidence regarding the impact of TOWN on students is more mixed and equivocal. This evaluation analysed the effectiveness of TOWN for students by looking at three data sources, including NAPLAN and NPLN assessment data supplied by NSW DEC, online survey data and qualitative data collected during school visits. The online survey and qualitative data indicates that teachers in particular think TOWN has improved the numeracy skills of students in TOWN schools. However, the NAPLAN and NPLN data is more equivocal on this issue.

Aggregate student data collected from NAPLAN and NPLN assessments was analysed to review the change in student numeracy outcomes over the NPLN period for each student cohort. A range of limitations on the reliability and validity of results observed in these data sets have been outlined in this report; these should be considered when drawing conclusions from the results discussed.

In both data sets (NAPLAN and NPLN assessments), gains in mean numeracy scores were observed for all student cohorts at TOWN schools. However, in both NAPLAN cohorts (students in Year 3 in 2008 and 2009), students at TOWN schools achieved marginally lower numeracy score gains than for students across the State as a whole. In most cohorts, the numeracy growth observed for students at schools implementing both the TOWN whole school and the TOWN individual intervention was slightly higher than that for all schools implementing the TOWN whole school program.

School staff, however, are of the view that TOWN has had a positive impact in improving numeracy outcomes for students. For example, 77% of staff surveyed felt that the program had been either effective or very effective in this way.

The areas where improvements in students were most commonly observed by teachers related to: students' maths skills; use of effective strategies to assist them doing maths; and students' confidence in and enthusiasm for doing maths.

OUTCOMES FOR ABORIGINAL STUDENTS

The evaluation does not indicate differential impacts of TOWN on Aboriginal students. Teachers are mainly of the view that TOWN works equally well with both Aboriginal and non-Aboriginal students.

The analysis of the NAPLAN and NPLN data by Aboriginality did not provide any evidence to counter this view. For the NAPLAN data, the gain scores for Aboriginal students were slightly higher than for non-Aboriginal students, but the reverse was true for the NPLN data. The validity of these results is limited due to the small sample size of Aboriginal students completing these assessments at TOWN schools (180 students or less for both forms of testing).

IMPACT ON SCHOOLS

The quantitative and qualitative consultations indicated that in most schools there have been major changes in school practices around numeracy teaching, including being more explicit and focused, having greater clarity around outcomes, and greater consistency and transparency.

A further positive outcome for schools identified by staff at a number of schools in the qualitative consultations was that TOWN will have a positive impact in future on other aspects of teaching in the school beyond numeracy – for example, due to greater confidence and expertise amongst teachers, and applying key concepts such as differentiation and a continuum approach to other areas of the curriculum.

CRITICAL SUCCESS FACTORS

The critical success factors identified which were associated with greater teacher engagement and improvements in numeracy teaching were:

- changed numeracy teaching practice
- strong school leadership
- an enthusiastic and skilled TOWN Coordinator devoting intensive time to the program

- staff who were more open to new teaching approaches
- experience with similar numeracy programs.

6. STRENGTHENING THE IMPACT OF TOWN

Drawing on the suggestions made by school staff and the findings of the evaluation overall, the following are the greatest priority areas where the impact of the program could be strengthened were it to be offered again in the future:

- Further pre-planning, preparation and testing of the program prior to launching in schools. This includes developing a much more substantial package of resources (hard copy and/or online) which clearly sets out the nature of the program and what to expect from it over the period of implementation, provides much more practical guidance about how to operationalise it in practice (including implementation guides, advice on programming, sample lesson plans and teaching resources and activities), and explains how TOWN fits into the more general maths curriculum. The aim should be to reduce the amount of time required to be spent by each individual school conducting the same kind of activities to sort out how to implement the program.
- Providing an easy online system to allow schools to share resources they have developed (and any tips about how to use them), and to publicise these to other schools.
- Providing funding to cover the off-class time for the TOWN Coordinator, including at least half-time at critical periods of the program's implementation (Note however that if the strategy outlined above were implemented, this would reduce the amount of time required for the TOWN Coordinator). This is because the evaluation findings suggest this is a critical success factor for implementing the program, and it is not viable to implement the program successfully otherwise.
- Investigating further strategies to allow for more face-to-face and hands-on support to schools to implement the program. This could include, for example, giving regional maths consultants a formal role in this, and providing at least two face-to-face training workshops for staff implementing the program (one initially and one part-way through implementation).
- Considering reducing the cost of participation in the program to a level which will be seen as providing 'value for money' by schools.
- Considering other mechanisms to encourage greater information-sharing and support between schools at a regional level.

SUSTAINABILITY

There are some questions over the extent to which the TOWN approach will be sustainable beyond the end of the funding period. While 75% of survey respondents felt there was a clear pathway for this, in the qualitative consultations staff expressed more mixed views about whether this would happen in practice, in the absence of dedicated funding. This may reflect the fact that schools have found that effective implementation of TOWN requires a quite resource-intensive approach, driven by a skilled Coordinator with a fair amount of time off-class.

The evaluation suggests that success factors which will make it more likely that the TOWN approach to teaching numeracy will be sustained in schools include:

- the degree to which the TOWN approach has been embedded into numeracy teaching at the school
- whether schools have developed an effective set of teaching resources associated with the program
- having a training strategy for new and existing staff
- the availability of resourcing through other channels.

1 Introduction

1.1 POLICY CONTEXT

In November 2010, Urbis was contracted by the then NSW Department of Education and Training – now the Department of Education and Communities (DEC) – to conduct an evaluation of the Taking Off with Numeracy (TOWN) program designed to improve numeracy skills. TOWN is one of several programs being funded under the National Partnership Agreement on Literacy and Numeracy (NPLN) agreed to by the Council of Australian Governments (COAG) on 28 November 2008.

The NPLN was the centrepiece of the *National Action Plan for Literacy and Numeracy* (Action Plan), a 2008-09 federal budget initiative, and was allocated \$540 million in funding. Operating for four years from 2009, the NP is designed to facilitate and reward literacy and numeracy models or approaches that clearly demonstrate evidence for accelerating improvement in student results. The NPLN focuses on strong school leadership and whole-of-school engagement with literacy and numeracy, and the monitoring of student and school literacy and numeracy performance to identify where support is needed (DEEWR, 2008). The idea is that effective practice will be disseminated to support system-wide improvements in educational attainment (COAG, 2008).

A total of 147 schools in NSW are participating in a range of programs funded under the NPLN. Some of these programs have been developed internally by NSW DEC, others by the Catholic Education Commission, and others by external developers. The programs target numeracy or literacy at either the individual student levels and/or a whole-of-class level.

Over the first two years of the NPLN, \$41 million was allocated to NSW as ‘facilitation payments’, with the final two years recognised as ‘reward payments’. Reward payments were triggered by the attainment of specific performance targets, including four mandated NAPLAN (National Assessment Program – Literacy and Numeracy) measures and three local measures specific to NSW – the National Partnership Literacy Numeracy (NPLN) assessment for students, the Data Analysis Skills Assessment (DASA) for teachers, and an analytical framework to support school improvement in literacy and numeracy which articulates 25 statements of best practice in literacy and numeracy.

Eight programs funded under the NPLN have been selected for evaluation. Four of these programs are being evaluated by NSW DEC. The remaining four programs are being evaluated by Urbis, including TOWN, the evaluation of which is contained in this report.

1.2 TOWN

The TOWN program commenced operation in Term 3, 2009 and operated until the end of June 2011. (Originally it had been planned to run till the end of the 2010 school year, but it was decided to extend the program until June 2011 at a quite advanced stage of implementation).

The aims and nature of the TOWN program are set out in the *TOWN: Getting Started* booklet and the *NP on Literacy and Numeracy: Information Package for Schools*.

The program aimed to improve numeracy in Stages 2 and 3 and is described as:

Designed to assist teachers to identify where students’ solution methods in mathematics are breaking down, and provide explicit guidance to move the students beyond the identified hurdles.

(State of NSW 2009: 5)

TOWN focused on the key concept of place value, since it underpins the four operations and decimals, and has implications for the development of number sense and teaching algorithms based on place value (State of NSW 2009: 5). The evidence base for the program is described in more detail later in this report.

The program aimed to offer professional learning and support for two types of intervention: whole class and an individualised numeracy intervention process. A total of 41 schools signed up for the whole class intervention component of the program, and 28 schools signed up for the individual intervention.

1.2.1 WHOLE-OF-SCHOOL INTERVENTION

All schools that signed up for TOWN implemented the whole-of-class intervention component of the program. (TOWN was the only whole-of-school numeracy intervention offered under the NPLN.) This component included:

- a diagnostic assessment which provides clear information on students' current understanding of multi-unit (conceptual) place value, and determines the target group for the in-class intervention
- the use of an extended numeracy continuum based on a progression of students' conceptual understanding to assist with monitoring and articulating student progress
- guidance on effective teaching and learning strategies for all students including those already achieving stage outcomes
- the development of whole school planning for effective numeracy learning and program sustainability

(Australian Government, NSW DET and Neals 2009: 19; State of NSW 2009: 7).

The first stage of implementation of TOWN focused on developing an understanding of the number strand, especially place value, and how it applied to operations with whole numbers and decimals. Following on from this, the program then provided support to other strands such as 'measurement' or 'space and geometry', depending on students' needs which have been identified.

Students' progress in both the whole class and individual intervention was monitored via assessment references to the program's numeracy continuum, and to the Stage expectations of the NSW *Mathematics K-6 Syllabus* (Australian Government, NSW DET and Neals 2009: 19).

Each school was expected to identify a TOWN school leader to lead implementation of the program in the school. The school Principal or an Executive member was also required to be part of the team implementing TOWN. Both were expected to attend a two-day TOWN professional development course in Sydney (Australian Government, NSW DET and Neals 2009: 19).

Schools were required to pay the following amounts to participate in the TOWN program:

- for the whole-of-school intervention (only) - \$20,000
- for the whole-of-class and individual intervention - \$42,000 for up to 11 teachers and \$53,000 for more than 11 teachers.

Purchase of the TOWN program entitled schools to use the TOWN program and associated print-based and web-based resources, attend the TOWN professional development course, participate in regular TOWN group teleconferences for TOWN implementation team members organised by DEC, and access the TOWN website (<http://www.takingoffwithnumeracy.com.au>) and other sources of support such as DEC TOWN staff. The TOWN funding did not cover the costs of employing (or providing off-class time) for the TOWN school leader in the school (as discussed later in this report, schools covered these costs through a variety of other funding sources, including other NP funds etc.).

The program had a strong emphasis on site-based ongoing professional development for teachers, which was to be flexible to suit school needs. The aim was that teachers, school teams or school clusters would have opportunities for ongoing professional dialogue, reflection and team-teaching in focused numeracy teaching (Australian Government, NSW DET and Neals 2009: 20).

This professional development was quite resource-intensive. Schools were advised in the *NP on Literacy and Numeracy: Information Package for Schools* (2009: 20) to make provision for five professional

learning days per teacher in 2009 (and 10 days in 2010), and for the school numeracy leader 10 days in 2009 (and 20 days in 2010).

1.2.2 INDIVIDUAL INTERVENTION

The second (optional) component of TOWN was the individual intervention. This component of the program was closely linked to the whole-of-class intervention, with a single set of costs associated with both program components.

The individual intervention aimed to provide support for students at risk of achieving at or below the minimum band in NAPLAN. It involved a team of TOWN case managers who operated remotely to provide advice to teachers about individual students.

Under this program component, teachers were to use small digital cameras (provided to the schools) to video numeracy teaching interactions between teachers and specified students identified as in need of the intervention on a one-on-one basis. These digital case files would then be uploaded onto a secure website, and allocated to a TOWN case manager to provide expert advice via email. This advice was to allow *'teachers to identify the specific points at which students are making errors when solving problems'* (Australian Government, NSW DEC and Neals 2009: 22) and provide suggestions for how to work with the student to address their numeracy learning difficulties. This was to include *'innovative and engaging teaching strategies to address identified student needs'* (Australian Government, NSW DEC and Neals 2009: 22).

The *NP on Literacy and Numeracy: Information Package for Schools* notes that it was intended to also use focused teaching sessions with small groups of students (typically two to four students) as part of the individual intervention, but it did not appear that this happened in practice.

Similarly to the whole class intervention, student progress was to be monitored by assessment linked to the Stage expectations of the *NSW Mathematics K-6 syllabus* (Australian Government, NSW DEC and Neals 2009: 22).

1.3 TERMS OF REFERENCE FOR THE EVALUATION

This evaluation is to assess the efficacy and value of the program in relation to the priority areas for reform and will:

- assess the effectiveness of the program
- assess the extent to which the program achieves its goals in an efficient manner, and where applicable, addresses the mandatory reform elements of the National Partnership Agreement on Literacy and Numeracy, which are:
 - effective and evidence-based teaching of numeracy
 - strong school leadership and whole school engagement with numeracy
 - monitoring student and school numeracy performance to identify where support is needed
- assess the extent to which the program has improved the educational outcomes of Aboriginal students
- investigate the most effective ways for schools to be supported to participate in the evaluation and for the reforms to be incorporated into school practice.

This evaluation was overseen by the NPLN NSW Programs Program Evaluation Reference Group, and managed by the Student Engagement and Program Evaluation Bureau, both within NSW DEC.

1.4 METHODOLOGY

1.4.1 OVERVIEW

This evaluation had a methodology that comprised qualitative and quantitative components. The qualitative components included visits to 10 TOWN schools for consultations with the school Executive, school leadership teams, teachers, parents and students. It also included consultations with the DEC TOWN staff and TOWN case managers. The quantitative components comprised an online survey for staff in schools implementing TOWN, and an analysis of NAPLAN and NPLN assessment data provided by NSW DEC.

The methodology for this evaluation was developed in close consultation with NSW DEC. The final project plan containing the final methodology was submitted to NSW DEC in November 2010, and was approved by the NPLN NSW Programs Program Evaluation Reference Group.

All research instruments, including interview guides and the online survey, were designed following a review of TOWN documentation and key literature on evaluation of literacy programs, as well as consultation with DEC TOWN staff.

Urbis consulted extensively with the Student Engagement and Program Evaluation Bureau within NSW DEC on all aspects of this evaluation, including the approach to qualitative consultations, the development of research instruments, and data analysis. The Bureau approved all research instruments for this evaluation including the discussion guides at Appendix A and the online survey at Appendix B.

1.4.2 QUALITATIVE CONSULTATIONS

CONSULTATIONS WITH DEC TOWN STAFF, TOWN CASE MANAGERS AND REGIONAL FACILITATORS

Small group consultations were conducted in both the initial and final stages of the evaluation with:

- the NSW DEC staff responsible for the implementation of TOWN
- the TOWN case managers.

The consultations in the final stage of the evaluation provided an opportunity to obtain feedback on some of the key findings to emerge from the consultations with other stakeholders and the online survey.

Consultations were also conducted with three Regional Facilitators who were able to comment on the implementation of TOWN and were still in their positions at the time of the consultations.

SCHOOL VISITS

Urbis conducted visits to 10 schools involved in the implementation of TOWN around NSW between May and June 2011. Schools were selected in consultation with NSW DEC to provide a good spread of geographical locations (metropolitan, regional and remote), both Government and Catholic schools, and schools participating in the whole-of-school and individual components of TOWN. Schools selected for visits by NSW DEC for the programs being evaluated by the Department were also excluded.

These schools included:

- St. Brendan's Lake Munmorah
- Bellambi Public School
- Katoomba North Public School
- Lithgow Public School
- Hanwood Public School
- Warilla Public School

- Oxley Vale Public School, Tamworth
- Aldavilla Public School
- Wauchope Public School
- Telarah Public School, Maitland.

The visits to Oxley Vale and Bellambi schools were conducted jointly with an Aboriginal consultant. These were the schools with the highest proportion of Aboriginal students in the sample of schools.

The visits were generally for one day (or the equivalent), plus travel. On the visits Urbis consultants spoke to: school Executive staff (including TOWN Coordinators), other school staff involved in implementing TOWN, students involved in the program, and parents of students involved in the program. At those schools where Aboriginal students and/or parents were consulted, they were either consulted with other non-Aboriginal students/parents, or separately (depending on the advice of the school).

1.4.3 QUANTITATIVE METHODOLOGY

ONLINE SURVEY FOR SCHOOL STAFF

All staff who participated in the implementation of TOWN were invited to participate in an online survey, which was conducted in September 2011. The survey was designed to capture the views and experiences of school staff. It was targeted at classroom teachers as well as Executive staff (eg Principals, Assistant Principals) and staff who provide assistance with teaching numeracy.

The full findings of the survey are presented at Appendix C. The key findings are provided in the body of the report.

A total of 141 school staff completed the survey from 35 out of the 41 TOWN schools (85.4%). The survey questionnaire is at Appendix B.

Data on the characteristics of respondents is provided at Appendix C. In brief:

- Two-thirds of respondents (66%) worked at schools in regional cities or towns, followed by schools in smaller rural/remote areas (29%).
- There was a spread of school size, but over half (55%) were from schools with 200-400 students.
- Three-quarters of the respondents were female (75%), and 70% were aged 40 years or over.
- There was a range of experience levels represented, but close to three-quarters (72%) had been working in primary schools for over 10 years, and 45% had done so for over 20 years.
- There was similarly a range of years' experience at their current school, but more than half (53%) had worked at their current school for more than five years.
- There was a fairly even spread of respondents across TOWN Coordinators (22%), the Executive (21%), Stage 3 teachers (19%) and Stage 2 teachers (18%), and 43% of the respondents reported they were or had been part of the TOWN Leadership Team.
- The large majority of respondents (82%) had previous experience with Count On (CO) and/or the Count Me In Too (CMIT) numeracy programs.

ANALYSIS OF NAPLAN AND NPLN ASSESSMENT DATA

Urbis had a number of meetings and discussions with NSW DEC and the Educational Measurement and School Accountability Directorate (EMSAD) to scope the relevant data sets for the literacy and numeracy program evaluations.

Under the NPLN, a number of national and local data sets are being collected to measure the performance of the National Partnership against the priority areas for reform which, as outlined in the Terms of Reference in Section 1.3, are:

- effective and evidence-based teaching of literacy and numeracy
- strong school leadership and whole school engagement with literacy and numeracy
- monitoring student and school literacy and numeracy performance to identify where support is needed.

(COAG 2008, *National Partnership Agreement on Literacy and Numeracy*)

In NSW, these data sets include the following:

TABLE 1 – DATA SETS FOR PERFORMANCE MEASUREMENT OF NATIONAL PARTNERSHIP ON LITERACY AND NUMERACY OUTCOMES

TYPE	DATA SET	DESCRIPTION
National	NAPLAN results	National standardised assessment in literacy and numeracy
Local	National Partnership on Literacy and Numeracy (NPLN) Assessments	Baseline assessment in literacy and numeracy for NPLN schools based on an abbreviated Basic Skills Test (BST)
	Data Analysis Skills Assessment (DASA)	Teacher and school Executive skills in interpretation of data
	Analytical Framework for Effective Leadership and School Improvement in Literacy and Numeracy	Assessment of school against 25 statements of best practice in literacy and numeracy
	School Plans and Annual Reports	School strategic and improvement planning and reporting. Note that this is a requirement rather than a specific reward measure.

(NSW DET 2010, *National Partnership on Literacy and Numeracy: Data Collection and Analysis Plan*)

The evaluation of the NPLN-funded literacy and numeracy programs specifically addresses the extent to which each program contributes to priority reform element (a), that is, *effective and evidence-based teaching of literacy and numeracy*. The evaluation therefore draws on the specific data sets that are relevant to this reform element, and that are directly influenced by the delivery of the literacy and numeracy interventions

As agreed with DEC, the relevant data sets for the program evaluation are:

- NAPLAN results
- NPLN assessment results.

The other data sets included in Table 1 (DASA, Analytical Framework and School Plans/Reports) have not been used to assess the efficacy and value of the specific literacy and numeracy interventions.

The timeline for NAPLAN and NPLN assessment data included in the evaluation, and the student cohorts tracked in each data set are outlined below.

TABLE 2 – DATA COLLECTION TIMING AND COHORTS

DATA SET	COLLECTION TIMING	COHORTS	
NAPLAN	Tests undertaken by Year 3 and Year 5 students in May each year (all NSW)	1	Year 3 2008, Year 5 2010
		2	Year 3 2009, Year 5 2011
NPLN Assessments	Tests undertaken in April 2009, August 2010 and August 2011 (NPLN schools only)	1	Year 2 2009, Year 3 2010, Year 4 2011
		2	Year 3 2009, Year 4 2010, Year 5 2011
		3	Year 4 2009, Year 5 2010, Year 6 2011

For each cohort and year, EMSAD has provided the following aggregate data sets:

TABLE 3 – DATA SPECIFICATIONS

DATA SET	DATA	PROGRAM COMPARISON GROUPS	STUDENT COMPARISON GROUPS
NAPLAN	<ul style="list-style-type: none"> ▪ Sample size (N) ▪ Mean scale score (reading/numeracy) and standard deviation ▪ Performance bands: % below national minimum standard; % at national minimum standard; % above national minimum standard 	<ul style="list-style-type: none"> ▪ Program schools (aggregated data for all NPLN schools implementing a given literacy or numeracy program) ▪ All NPLN schools (literacy/numeracy) ▪ All NSW 	<ul style="list-style-type: none"> ▪ All students ▪ Boys ▪ Girls ▪ Aboriginal ▪ Non-Aboriginal ▪ Non-LBOTE ▪ LBOTE
NPLN Assessments	<ul style="list-style-type: none"> ▪ Mean scale score (literacy/numeracy) and standard deviation ▪ Performance bands: % band 1 (lowest); % above band 1 	<ul style="list-style-type: none"> ▪ Program schools (aggregated data for all NPLN schools implementing a given literacy or numeracy program) ▪ All NPLN schools (literacy/numeracy) 	<ul style="list-style-type: none"> ▪ All students ▪ Boys ▪ Girls ▪ Aboriginal ▪ Non-Aboriginal ▪ Non-LBOTE ▪ LBOTE

1.5 LIMITATIONS OF THE METHODOLOGY

1.5.1 ABORIGINAL STUDENTS

One of the terms of reference for this evaluation was to look at the impact of TOWN on the educational outcomes for Aboriginal students. However, in most schools visited there was only a very small number of Aboriginal students who had been involved in the program, which somewhat limited what stakeholders could say about the impact of the program for this subgroup. The findings reported in relation to this issue need to be interpreted in this light.

1.5.2 NPLN AND NAPLAN DATA

Caution needs to be exercised in the interpretation of data collected from NAPLAN and NPLN assessments. EMSAD has advised that there are a number of limitations which impact the validity of findings from the analysis including: the variation in the focus of tests each year; the different timeline of pre- and post-intervention measures for NAPLAN cohorts; considerable student mobility in schools; small sample sizes for some comparison groups; the impact of other literacy and numeracy initiatives operating

in NPLN schools; the use of these same programs in other NSW schools (not funded under the NPLN); and the lack of a comparable control group against which to benchmark results for NPLN schools. Further detail on the considerations for interpreting this data is provided with the analysis of the data later in this report.

1.5.3 ATTRIBUTION

It is important to understand the context in which TOWN was used, particularly that the program was in some instances one amongst other programs and strategies targeting numeracy that have been implemented in NSW schools over the past few years. In the context of broad activity in the area of numeracy, it is difficult to establish attribution for any individual program.

1.6 STRUCTURE OF THIS REPORT

This report is structured as follows:

- Section 2 discusses the evidence base for TOWN
- Section 3 addresses the implementation of the whole class component of TOWN
- Section 4 examines the implementation of the individual component of TOWN
- Section 5 examines outcomes for teachers
- Section 6 addresses outcomes for students
- Section 7 examines outcomes at the school-level and sustainability issues
- Section 8 examines areas for strengthening the impact of TOWN
- Section 9 provides a summary and conclusions.



What
is ZooxZoo?

2 The evidence base for TOWN

2.1 EVIDENCE BASE FOR TOWN

As set out in the *NP on Literacy and Numeracy: Information Package for Schools* (Australian Government, NSW DET and Neals 2009: 21, 24), the research base for the effectiveness of the two components of the teaching approach in TOWN is outlined in this Chapter. DEC TOWN staff also reported that the program drew on the research base behind the learning framework used for Count Me In Too (CMIT) and Counting On (CO).

2.1.1 WHOLE-OF-SCHOOL INTERVENTION

The evidence base for the whole school component of TOWN is provided by the following sources:

- *Effective Teachers of Numeracy Study* (Askew, Brown, Rhodes, William and Johnson 1997) conducted in the United Kingdom
- *What's Making a Difference? Achieving Outstanding Numeracy Outcomes in NSW Primary Schools* (Australian Government 2005)
- *Teaching Number: Advancing Skills and Strategies* (Wright, Martland, Stafford and Stanger 2002)
- *Supporting Teachers in the Development of Young Children's Mathematical Thinking* (Bobis, Clarke, Clarke, Thomas, Wright, Young-Loveridge and Gould 2005).

2.1.2 INDIVIDUAL INTERVENTION

The evidence base for the individual intervention component of TOWN is provided by research over the last decade into children's understanding of number, which indicates that there are identifiable progressions in how children develop numeracy concepts (Carpenter et al 1999; Clarke et al 2001; Cobb et al 1997; Fuson et al 1997; Jones et al 1996; Steffe et al 1992; Steffe et al 1983; Wright 1998; Young-Loveridge 1999).

These progressions have led to models – or frameworks of numeracy development – being developed that can be seen as providing useful pedagogical frameworks for teachers. This assumes that teaching should be more effective if teachers can identify where a child is on the framework, and then identify the next step for the student. Once the student is positioned on the framework, the teacher has a better idea of where the student is at, using the growth points.

It was intended that the framework would:

- reflect the findings of relevant Australian and overseas research in mathematics education
- emphasise important ideas in early mathematics understanding in a form and language which is easily understood and retained (in time) by teachers
- reflect the structure of mathematics where possible
- allow the description of mathematical knowledge and understanding of individuals and groups
- form the basis of teaching and planning (Clarke et al 2001).

2.2 STAKEHOLDER VIEWS ON THE EVIDENCE BASE FOR TOWN

There was widespread agreement in the qualitative consultations amongst school staff and other stakeholders that the evidence base for TOWN is sound. Core aspects of this evidence base which were cited in support of this view included:

- The focus on place value:

Place value understanding is critical – students won't progress past Stage 3 without this.

Place value is critical, it is the foundation for everything else. Teachers tend to too quickly focus on addition and subtraction without giving students enough understanding of 10s and 100s.

- The use of a continuum to provide clearer differentiation between students:

The continuum is very good – it provides clear benchmarks, and serves as an ILP [Individual Learning Plan] for the students.

The TOWN numeracy continuum is the building block – it provides an accurate assessment of where students are at, where they need to be moved [to], and how to differentiate the curriculum accordingly.

Differentiation means we can target growth from every student – something for all, and we can target different groups differently.

- The hands on approach with practical activities:

It's much more hands on, lots of activities/games – it encourages interaction, sharing of strategies, reflection, reason, explains the thinking process.

- Better identifying the thought processes required:

Newman's [Error Analysis] and the focus on articulating the thought process for problem solving – rather than rote learning.

Further (indirect) support for some of the above core aspects of the TOWN evidence base is also provided by the fact that 87% of survey respondents rated the use of the numeracy continuums (eg place value framework) as either *important* or *very important* as critical factors in improving their numeracy teaching.

The main limitations to the view that the evidence base for TOWN is sound – cited by a minority of those consulted – was that TOWN draws on, and does not offer too much further that is unique, compared to some previous numeracy programs (in particular Count Me In Too (CMIT) and Counting On (CO)):

[We] support the content and approach of CMIT – we just don't believe that TOWN is anything different.

Although this does not directly go to the soundness of the evidence base for TOWN, some stakeholders did also query whether the in-depth approach taken by TOWN on specific numeracy concepts allowed enough coverage of the broader maths curriculum. As one staff member noted: '[I have] concern over the ability to cover the whole maths curriculum as well as deep dive into areas as part of TOWN'. Another staff member made similar comments and added: 'The foundation is important, but teachers are answerable to the outcomes specified in the NSW curriculum'.

3 Implementation of the whole-of-class component of TOWN

KEY FINDINGS

- A leadership team was established in each TOWN school to oversee the implementation of the program, including a dedicated TOWN Coordinator who drove implementation in the school through a range of activities such as organising and conducting professional development, gathering and/or developing resources, providing assistance with developing lesson plans etc, and facilitating team teaching. Other forms of support provided by DEC included: an initial two-day TOWN workshop, regular teleconferences facilitated by NSW DEC on a regional basis; the TOWN website, TOWN materials, DEC TOWN staff (both in central office and maths consultants), and Regional Facilitators.
- Overall, there were variable levels of satisfaction by school staff with these types of support provided to implement TOWN.
- There was a high level of satisfaction by school staff with the support given by the TOWN Coordinators and regional maths consultants (for those schools which had access to them). This was because these sources provided practical, hands-on assistance and, in the case of the TOWN Coordinators, regular professional development.
- On the other hand, there were much more mixed views amongst school staff about the value and sufficiency of the initial TOWN workshop, videoconferences, TOWN website, TOWN materials, and support from DEC TOWN staff. A key theme here was that while these sources of support were felt to provide a reasonable starting point for implementing the program, they did not go far enough. Many school staff would have liked more practical and directed assistance, advice and materials provided through these sources, to help translate the 'bare bones' of the TOWN program into an approach that could be easily and efficiently implemented in practice, without having to invest a considerable amount of resources at a school level (which they often did).
- This situation may reflect a combination of factors, including:
 - a misperception by school staff about the nature of the TOWN program (ie as a resource package rather than primarily as a professional development package)
 - some technical and other limitations to the way in which some of the support was provided (eg it may have been preferable to have some more face-to-face support provided instead of relying only on videoconferences and telephone support beyond the initial training workshop)
 - the fact that staff did not always use the sources of support as much as they could have (which in turn reflected their perceived usefulness).

3.1 ARRANGEMENTS FOR SCHOOLS TO PARTICIPATE

Schools in the three education sectors in NSW (Government, Independent and Catholic) were identified as eligible to participate in the NP using a range of criteria including:

- the 2008 NAPLAN data: schools where the percentage of all students in Year 3 and 5 at or below minimum standard is above the state percentage in reading and numeracy
- the school's suitability and readiness to participate in this NP, as advised by regional and diocesan offices
- the school's student background characteristics including:
 - enrolment size
 - student language background

student enrolment data, for instance, a large proportion of refugees.

Participating Independent schools were identified using only the 2008 NAPLAN data (Australian Government, NSW DET and Neals 2009: 3, 5).

Eligible schools were invited to participate in regional self-evaluation workshops in order to determine a priority focus on either reading or numeracy (as informed by evidence from student data). Based on the designated focus area and the specific needs of students, schools were required to select one whole school/ classroom program and one individual intervention approach.

In numeracy, TOWN was the only whole school program. Schools could then select either TOWN case management or Quicksmart for the individual numeracy intervention.

Although most schools were positive about being able to provide TOWN – at least once they actually started implementing it – a few schools were critical of the fact that they didn't feel that they had any real choice in implementing the program:

There should have been more options for schools. We were backed into a corner, and didn't get a say in the direction for the school.

3.2 OVERVIEW OF IMPLEMENTATION

In brief, the key activities involved in implementing TOWN were as follows:

- Members of the TOWN leadership team attended the initial TOWN conference in Sydney.
- A TOWN Coordinator was appointed in each school to drive implementation of the program, and conducted a wide range of activities to support and train teachers to implement the program.
- Various other forms of program support were used by schools to greater or lesser degrees eg participating in regular videoconferences with DEC TOWN staff, accessing the website, contacting DEC TOWN staff, and the TOWN case managers for the individual intervention.
- Teachers conducted assessments of students using the TOWN assessment tool. This targeted students in need of the program.
- Teachers implemented the program in their classes (for Years 3-6), through developing lesson plans and teaching resources and activities etc.
- Some schools attempted to engage parents in the program in various ways eg through distributing resource packs to use at home, information sessions.

The first three of these activities are discussed in more detail later in this chapter.

3.3 SATISFACTION WITH SUPPORT PROVIDED TO IMPLEMENT TOWN

3.3.1 TOWN COORDINATOR

Schools participating in TOWN were required to appoint a numeracy leader/TOWN Coordinator for their school.

Overall, both the quantitative and qualitative data indicated that there was a very high level of satisfaction by staff with the support provided by TOWN Coordinators, including the professional development, resources, assistance with lesson planning etc.

Survey respondents who indicated that they were a member of the school Executive (ie the Principal or Deputy Principal) were asked several questions relating to the role of the TOWN Coordinator in their school. The Executive respondents to the survey represented 21 of the schools that implemented TOWN, and the responses have been analysed according to percentage of schools (not percentage of respondents).

These respondents were firstly asked to indicate the *average number of days* per working week that the TOWN Coordinator had spent *off-class* on this role.

TABLE 4 – TOWN COORDINATOR AVERAGE NUMBER OF DAYS OFF CLASS PER WEEK (PERCENTAGE OF SCHOOLS*)

DAYS	TOTAL
< 1 day	9.5
1 – 2 days	66.7
3 – 4 days	9.5
5 days	14.3
TOTAL	100

* Base = 21 schools

As shown in Table 4, in two thirds (67%) of these schools the TOWN Coordinator spent between one and two days each week working off-class on this role. Close to one quarter of these schools (24%) allocated three or more off-class days per week for the role, with the TOWN Coordinator working off-class full-time in 14% of the respondent schools.

School Executives were then asked to nominate the *main source of funding* used to cover the off-class time for the TOWN Coordinator. The large majority of respondent schools reported funding the role through either their *TOWN funding* (52%) or *other National Partnership on Literacy and Numeracy funding* (43%). A small minority of these schools (5%) reported using funding from other *National Partnerships* resourcing, such as *Low Socio-Economic Status*.

TABLE 5 – MAIN SOURCE OF FUNDING FOR TOWN COORDINATOR OFF CLASS TIME (PERCENTAGE OF SCHOOLS*)

SOURCE	TOTAL
TOWN Funding	52.4
Other NPLN Funding	42.9
Other NP Smarter Schools Funding (eg Low SES)	4.7
TOTAL	100

* Base = 21 schools

Survey respondents who reported that they were a TOWN Coordinator were asked to select which of six listed activities they had undertaken in their role as TOWN Coordinator. The responses are provided in Table 6 below.

All of the six activities had been undertaken by the majority of TOWN Coordinators completing the survey. All, or almost all, TOWN Coordinators reported that they had:

- *Provided additional numeracy material relating to professional development and teaching (100%)*
- *Developed or assisted with development of numeracy lesson plans and sequencing (97%)*
- *Organised and led regular staff meetings focused on numeracy teaching (97%).*

TABLE 6 – ACTIVITIES UNDERTAKEN AS A TOWN COORDINATOR (PERCENTAGE OF TOWN COORDINATORS)

ACTIVITY	TOTAL
Provided additional numeracy material relating to professional development and teaching	100.0
Developed or assisted with development of numeracy lesson plans and sequencing	96.8
Organised and led regular staff meetings focused on numeracy teaching	96.8
Developed numeracy games and activities	90.3
Conducted class observation and provided feedback	77.4
Organised class observation amongst other staff	77.4

3.3.2 INTERNAL TRAINING BY THE TOWN COORDINATOR

Respondents other than TOWN Coordinators were asked to indicate their level of *satisfaction* with the internal training support (both informal and formal) provided by their school’s TOWN Coordinator.

As shown in Table 7, the majority of respondents were either *satisfied* or *very satisfied* with the internal training support provided by their TOWN Coordinator. Four-fifths or more of the respondents were satisfied with the *quality of the training* (84%), the *content of the training* (81%) and the *relevance/usefulness of the accompanying resources*.

TABLE 7 – SATISFACTION WITH THE INTERNAL TRAINING SUPPORT (PERCENTAGE OF RESPONDENTS)

ASPECTS OF THE TRAINING SUPPORT	TOTAL SATISFIED	VERY SATISFIED	SATISFIED
The content of the training	80.9	35.5	45.4
The quality of the training	83.6	40.9	42.7
The relevance/ usefulness of the accompanying resources	80.0	37.3	42.7

* Excludes TOWN Coordinators

There was no notable variation in the level of satisfaction by role (Executives, classroom teachers K-6, and specialist/aide/other support).

Similarly to the TOWN workshop (discussed below), respondents who had previous experience with CO and/or CMIT were less likely to be satisfied with the training support provided by the TOWN Coordinator at their school than those who had no experience with these programs. This may reflect the fact that they were coming into the program with a higher level of relevant knowledge.

Numerous examples were given in the consultations of the types of activities carried out by TOWN Coordinators, such as conducting internal training, facilitating regular staff meetings focused on teaching TOWN, assisting with development of lesson plans, facilitating team teaching, and identifying and developing teaching resources.

As discussed later in this report, an enthusiastic and skilled TOWN Coordinator was identified as a key success factor for the program.

As in the online survey, there was a high level of satisfaction with TOWN Coordinators by school staff, particularly the hands-on assistance they provided. This included for example, providing professional development and other training, assistance with developing lesson plans, identification and development of teaching resources, and organising and participating in team teaching. For example, comments included:

It’s been very valuable having time with the Coordinator to assess students, put them on the framework and get guidance on how to target improvement.

[Our TOWN Coordinator] broke it up into all the bits. ... If [they] had thrown [TOWN] at us without all the professional development, we wouldn’t [have been able to implement the

program effectively]. *He was fine to take our criticism too, he took everything we said on board, we all had different needs. He'd go away and think about it.*

Staff got the support they needed to implement the professional change process [from the TOWN Coordinator]. People valued it, and they felt their time was valued.

3.4 SOURCES OF SUPPORT PROVIDED BY NSW DEC

This section describes the satisfaction by school staff with a variety of sources of support provided by NSW DEC. These included:

- the initial TOWN workshop
- the TOWN website
- the TOWN materials, including the assessment tools
- DEC staff, including DEC TOWN staff and regional consultants (and other schools in the region)
- Regional Facilitators.

One of the overarching themes across these forms of support was that they were often regarded as providing a reasonable starting point (only) for implementing the program, but not enough beyond that. Overall there was a common view that there was insufficient direction and support provided to schools to facilitate the most efficient implementation of the program. It was felt by a number of school staff (and Regional Facilitators) that it would have been beneficial to have further hands-on and practical advice about how to implement and operationalise the program, including some further face-to-face support and more practical resources and materials which could be used. This overall finding is consistent with the fact that the highest level of satisfaction by school staff with the various forms of support were with the TOWN Coordinators and NSW DEC regional consultants, because they provided precisely this kind of assistance.

Similar themes are reflected in the largely negative feedback about the individual case management aspect of the program (discussed later in this report).

The comments made by one Regional Facilitator sum up the above view:

At first there was a lack of direction from DEC, and a lack of support personnel and resources. They needed to have people who could mentor the school initially so their needs could be met. ... They didn't have a lot of direction in relation to putting sustainable things in place much earlier. They were waiting for someone to come in and tell them what to do, and no one ever did. There was an expectation [at the beginning of program implementation] that they would have this. I know [my schools] went to a session where the school evaluated itself, they put where they were in the process, what they needed, they sent this information out, they were told they would get a person to come and help them, but they just got a computer printout. When they tried to contact DEC over things, they could only do this on the phone and didn't always feel they had the depth of support they required. Just doing it on the phone just didn't do it for them. It wasn't that the schools couldn't do it – they did it in the end – but they wandered around themselves for months before they realised they had to do it [and they didn't do it as efficiently as they might have otherwise]. If they were given more direction they would have used their personnel and resources much more effectively and much quicker.

Nonetheless, in NSW DEC TOWN staff's view, this may reflect a misperception by schools about what the TOWN program involved and provided (ie a resource package versus a professional learning package) – a recurring theme in the feedback on the various sources of support provided. It may also reflect the fact that some of the supporting resources were possibly not used as much as they might have been (eg the resources on the TOWN website). This issue is discussed in more detail later in this report.

3.4.1 INITIAL TOWN WORKSHOP

The TOWN Coordinator and another member of the school Executive on the TOWN Leadership Team from each school were required to attend a two day TOWN workshop in Sydney at the beginning of program implementation (October 2009).

Overall, the quantitative and qualitative data indicated that there was a reasonable level of satisfaction with the initial training workshop. However these sources indicate that there was higher satisfaction with the content and quality of the workshop than with the guidance the workshop provided to enable implementation of the program in practice. There was a view from the qualitative consultations that the workshop did not go far enough in relation to the latter, particularly considering no other further follow-up face-to-face training was provided.

Just over half (55%) of the teachers surveyed reported that they had attended the initial TOWN training workshop in Sydney. These respondents were asked to indicate their level of *satisfaction* with the content and quality of the workshop, the relevance of the accompanying resources, and the adequacy of the training to enable the delivery of TOWN in their school. Table 8 below shows the respondents' level of satisfaction with these elements of the training workshop. Satisfaction is presented as *total satisfied* which comprises *very satisfied* and *satisfied* responses.

Around three quarters of the respondents were *satisfied* or *very satisfied* with the *content of the workshop* (75%) and the *quality of the workshop* (74%). However, respondents expressed less satisfaction with the *relevance/usefulness of the accompanying resources* (64%) and the *adequacy of the training to enable you to deliver the program* (60%). That is, there was less satisfaction with the guidance provided to enable implementation of the program in practice.

The latter finding is consistent with another finding from the online survey: that less than half (48.2%) of school staff with a regular classroom teaching role rated the *external training workshop* as being either *important* or *very important* in improving their numeracy teaching (and only 16.4% rated it as *very important*). Overall it was ranked ninth of 11 critical factors survey respondents were asked about.

TABLE 8 – SATISFACTION WITH TOWN WORKSHOP (PERCENTAGE OF THOSE WHO ATTENDED THE WORKSHOP)

ASPECTS OF THE WORKSHOP	TOTAL SATISFIED	VERY SATISFIED	SATISFIED
The content of the workshop	75.3	24.7	50.6
The quality of the workshop	74.0	24.7	49.3
The relevance/ usefulness of the accompanying resources	63.6	24.7	38.9
The adequacy of the training to enable you to deliver the program	59.7	20.8	38.9

Of the respondents who attended the training workshop, 84% indicated that they had previous experience with CO and/or CMIT. Table 9 below shows that the respondents who had no previous exposure to these existing programs were more likely than those who had previous experience to be satisfied with the TOWN training workshop (although it should be noted that the group without previous experience was a considerably smaller sample size).

TABLE 9 – SATISFACTION WITH THE TOWN TRAINING WORKSHOP BY EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS (PERCENTAGE OF THOSE WHO ATTENDED THE WORKSHOP)

ASPECTS OF THE WORKSHOP	TOTAL SATISFIED	PREVIOUS EXPERIENCE WITH CO/CMIT	NO PREVIOUS EXPERIENCE WITH CO/CMIT
The content of the workshop	75.3	73.8	83.3
The quality of the workshop	74.0	73.8	75.0
The relevance/ usefulness of the accompanying resources	63.6	63.1	66.7
The adequacy of the training to enable you to deliver the program	59.7	58.5	66.7

The general view from the qualitative consultations with school staff was that the training workshop was quite useful in as far as it went, but that there ‘wasn’t enough to it’ to provide guidance about how to implement the program in practice. For example, those who attended would have liked to see more:

- content that went beyond the previous CO/CMIT programs
- more in-depth professional development to inform hands on implementation of the program
- sharing of expertise by the DEC TOWN staff eg uploading videos of the presentations onto the TOWN website
- practical resources to take away being provided eg materials and lesson plans.

Along similar lines, some felt that the initial training would have been satisfactory if it had been followed up by further face-to-face training at a later point to provide more practical guidance about program implementation. However given that it hadn’t, the course was considered to be in retrospect a bit ‘thin’:

As a starting point the conference was pretty good, but it ended there. We got the impression at the conference that they would produce extra resources... that all these things were coming, but nothing ever came.

One Regional Facilitator commented that ‘they needed at least one more conference part-way through implementation’ in addition to the initial training workshop.

DEC TOWN staff reported that evaluations of the workshop were conducted at the time, and were generally positive. There were some comments similar to those outlined above, in terms of those wanting to see more resources and other practical assistance. However, this was felt to reflect a misperception of the TOWN program

3.4.2 VIDEOCONFERENCES

Staff from the TOWN leadership team participated in the TOWN videoconferences run by DEC TOWN staff. A series of five videoconferences were run on a regular basis, each for a cluster of schools in a region. DEC TOWN staff reported that each videoconference included ‘focused professional learning dialogue’ targeted on a specific topic, and DEC TOWN staff would refer to research related to that topic.

Taken together the quantitative and qualitative data indicated that some staff found these videoconferences useful, but many found them of limited value due to technical problems, and what was perceived as poor organisation, insufficient expert input by the DEC TOWN staff and having participants who had too diverse needs.

School staff with a regular classroom teaching role who responded to the survey were asked how important *participation in the regular TOWN video conferences organised by DEC* had been as a critical factor in improving their numeracy teaching. Only 28.4% reported that these had been either *important* or

very important, and only 8.6% rated this factor as *very important* (37% rated this as either *not very important*, or *not at all important*, and 32.8% said this was *not applicable/hard to say*). A full discussion of all these critical factors is provided later in this report.

Some school staff reported in the qualitative consultations that they found the videoconferences useful in providing useful advice and guidance:

The video conferences were quite useful, they generated a lot of materials for us to use in our reflection sessions.

I got a lot out of the videoconferences [about] what the learning framework means and how to implement [it].... I found most of it highly useful, and learnt something new every time.

However a common view by school staff at a number of schools was that the videoconferences were not very helpful to them, and overall *'not much use'*.

A small number of school staff and two of the three Regional Facilitators interviewed felt that phone support (including videoconferences) was not an ideal mechanism for providing professional support for a program such as this, and that more face-to-face support would have been desirable:

It's hard for the program to be directed from Sydney via videoconference – it needed more local support, and face-to-face visits.

(School staff)

There were significant difficulties with [the videoconferences]. It lacked face-to-face contact, and the ability of our leaders to build a relationship, it's not quite the same as talking to a TV screen. The Focus on Reading [literacy program] people went to Sydney a number of times for training, they started to build a real relationship with State office, but that didn't happen for us with TOWN. They [DEC TOWN staff] were very nice – [one staff member] tried to meet our needs – for example, having all schools in the region in the same teleconference. But there was something lacking in relation to that State-level contact. The idea behind it is great, and it was great that [schools] didn't have to pay travel costs to Sydney. ... The underlying limitation [of the TOWN program overall] was the assumption that schools could deliver this program without face-to-face support.

(Regional Facilitator)

This basic issue may possibly underlie many or all of the other perceived limitations of the videoconferences identified by school staff (including those who found some aspects of the videoconferences useful). These limitations included that:

- There were *'technical glitches'* which limited who could get on and wasted time.
- Participants *'dribbled in'* during the course of the videoconference rather than all joining at the nominated start time, which made it hard to run effectively.
- The facilitators from NSW DEC did not always appear to be well-prepared for the videoconferences from a technical and content point of view, and providing strong direction for them:

Overall, there was a very low level of professionalism. They were poorly run, poorly organised, and a poor use of time. ... I didn't get anything [out of them] from a professional development point of view, or a support point of view.

- There was not enough provision of expert advice from the facilitators, and they did not necessarily take participants beyond what they already knew or could come up with themselves:

During the videoconference we were told to come up with our own activities (to report back to the group), [we] would've liked to have been provided with more example warm-up activities – it was the opposite of being spoon-fed.

[The facilitators'] response was you've got to go off and do it on your own. It would have been good to get more examples of how to do it [from them] – for example, an online interactive thing. So more examples, and exercises and guidance, different technologies [would have been helpful].

- The group of participants was too diverse in their needs:

The videoconferences were a waste of time – trying to cater to so many people at different stages of the journey.

- The videoconferences became a forum for making complaints:

The videoconferences became a bit of whinge session – many schools were isolated and struggling to implement the program.

- The timing was inappropriate (eg 2.30pm, during classes).

NSW DEC TOWN staff reported that in their view, those schools which implemented the program most effectively (and had a good Coordinator) tended to be those who got most out of the videoconferences through, for example, attending the most regularly, making the most contributions (and preparing in advance for them), and organising their staff to participate in the videoconferences most effectively. For example, some Coordinators organised other TOWN professional learning to dovetail in with the teleconferences, so they were a structured part of the learning and ensured everyone logged in on time. Conversely, those schools which got less out of the videoconferences tended to have implemented the program less effectively.

3.4.3 TOWN WEBSITE

All school staff participating in the TOWN program had access to the TOWN website, which was accessible via a password.

Overall the quantitative and qualitative data indicate that some school staff found the website and the resources on it were useful, but others found it less so for reasons including the perception that the content was limited, not updated enough, and not student-focused enough.

School staff with a regular classroom teaching role who responded to the online survey were asked how important *access to the TOWN website* had been as a critical factor in improving their numeracy teaching. Just over half (55.2%) rated it as either *very important* (16.4%) or *important* (38.8%). Some 26.7% rated it as either *not very important* (22.4%) or *not at all important* (4.3%) (a full discussion of the critical factors is provided later in this report).

There were mixed views expressed about the value of the TOWN website in the qualitative consultations.

Some school staff made positive comments about the site, including that:

- They had accessed some useful resources and activities on it (eg some interactive whiteboard activities).
- It was well-structured and set out with links to other maths strands (eg angles).

However the majority of school staff consulted did not find the website very useful. Criticisms of the site included:

- There was limited content, not enough resources on the site, and/or nothing new or innovative on the site.
- The content was not updated or added to frequently enough: *'the website was always behind where we were'*.
- In one instance a request was made to upload materials but this did not occur.

- The resources were ‘*content-focused and not student-focused*’, which then required adjustment to target specific student needs.

There were also some technical difficulties experienced with the website, including:

- Some experienced difficulties accessing the site due to password problems (according to DEC TOWN staff this was generally related to user issues such as having forgotten the correct password, using the wrong one, or the Coordinator having provided an incorrect email address for staff so they didn’t receive the email with their password).
- A number of staff noted that loading student data onto the website was very difficult and time-consuming, and no feedback was provided about what the data was being used for (so at least some schools stopped updating it and used their own internal data systems instead).

Due to limitations such as the above, a number of staff reported that they did not use the website very much or it was ‘*not our first port of call*’. Some reported that they tended to use other sources more to locate useful material, such as the DEC website, resources from other numeracy programs such as Developing Efficient Numeracy Strategies (DENS) (resources from CMIT and CO), general internet searches, and their local maths consultants.

The above views appear somewhat at odds with those of DEC TOWN staff, who reported that they were continually updating the website, and every videoconference they introduced a new set of resources which had been added to the site. They also reported that DEC was able to monitor which schools were accessing the website and how frequently, and that as with the videoconferences, there was a similar theme that those schools which implemented the program well accessed the website more frequently, and those who implemented it less effectively accessed it less.

It may also be that not all – or possibly many – schools and staff were aware of or at least accessed the full range of resources available on the website. As with the individual case managers, it may also have been that if staff had initial negative experiences (eg going onto the website early on in the program implementation phase and not finding much in the way of resources), they did not bother to go back to the site a lot later in the program. At least some staff reported this was the case.

3.4.4 TOWN MATERIALS

The predominant theme from the school staff consultations was that the TOWN program materials provided a sound conceptual framework and a reasonable *starting point* for implementing the program, but there was not nearly enough to them. For those school staff who had positive views about the TOWN materials, when questioned further it often appeared that these views related primarily to the resources developed or gathered at a school level (typically by the TOWN Coordinator), not the resources provided as part of TOWN as such. (However, school staff were not necessarily aware of where the Coordinator obtained resources from .)

Overall many staff felt that the TOWN resources did not by themselves provide an adequate basis for the program to be effectively implemented in practice. Some school staff felt it was therefore misleading to actually describe TOWN as a ‘program’ as such. The clear view was that a considerable amount of effort was required to be expended by school staff (typically the TOWN Coordinator) to determine how this general framework could be effectively translated and operationalised in practice, gather and develop practical teaching resources, develop lesson plans and so on in order to implement the program effectively. This view was expressed by many school staff, although there was variation as to whether this was viewed as a ‘problem’ as such or simply accepted as being the case.

Some school staff also felt that the TOWN materials were not providing anything particularly different or additional to what was provided through the CMIT program (and which some schools had been implementing before TOWN).

The following comments by school staff illustrate the above views:

TOWN is a little booklet with some questions, not much more. We have had to invest considerable time and money to actually develop materials and lesson plans.

The materials provided are not a complete program. The school scope and sequence is based on a five-week cycle, whilst TOWN is based on a two-week cycle. The program doesn't provide advice on how to combine the different numeracy strands (multiplication, area, measurement etc).

I felt that the materials offered by the TOWN Coordinator were already available in CMIT, I didn't feel that TOWN had any content, programming or lesson ideas.

The first [TOWN] book was titled 'Getting Started' – where's the follow-up ones?

School staff were not specifically asked their views about whether they felt the TOWN program represented 'value for money'. However, associated with the above views, a number of school staff (particularly TOWN Coordinators and other Executive school staff) proactively expressed concerns about this during the course of the consultations, and said they felt that they did not get much (or enough) return for what they viewed as the high cost of the program:¹

I have some concerns [about] what the money was actually used for.

We've paid all this money for the program, so I'm not sure why I've then had to spend so much time and effort developing resources and implementing it.

We had to make a lot of the resources ourselves. For \$50,000 we didn't get a lot for it! Two folders. And we've spent lots of money on other resources. ... I don't think we were given any resources we could go to – and go and touch it, copy it – there was nothing there at all. We expected a program, we got a website. It seems [TOWN] is given too much glory for its own good. ... It was a bit of a letdown, we didn't get much for the money. I would have paid no more than \$5,000 for what we got.

Similarly a Regional Facilitator reported that:

Schools found it difficult to distinguish between what they could access for free and what they paid their money for. CO material is available for everyone for free in DEC schools – all the basic concepts are explained – TOWN is not that different to that. The professional learning focused on learning how to use the CO material (which made up the bulk of TOWN) – so people thought 'what are we getting for our money? It wasn't perceived as good value for money.

Similar comments were made by school staff and some Regional Facilitators (reporting feedback from schools) reflecting on the TOWN program as a whole (as discussed later in this report).

However, NSW DEC TOWN staff felt that the view that the program resources were a bit 'thin' reflected the misperception about the nature of the program discussed above:

The printed material was just meant as an introduction. It boils down to those who think the program is the material. We never tried to sell it like that – they were just support materials to give a sense of the program. It was a professional development program delivered through face-to-face and videoconferences. While some may see it as thin, it was never meant to be a print-based resource or package.

They also noted that some of the web resources on the TOWN website complemented the print-based materials. As discussed above, it may be that not all staff (possibly many) were not aware of or at least accessed the full range of resource materials on the website.

¹ \$42,000 for up to 11 teachers involved and \$53,000 for more than 11 teachers involved (for both the whole class and individual intervention), and \$20,000 for the whole class intervention alone.

ASSESSMENT TOOLS

A variety of views were expressed about the usefulness of the assessment tools.

Overall there was general support by school staff for the use of some kind of assessment tool to determine where students were on the continuum. A number of the school staff consulted felt the TOWN assessment tool was valuable in this regard:

The assessment tool has been used the most – it provides a good visual of where the kids are and where they need to move.

I understand the purpose – to determine the thinking process of the students; it does give the right kind of information needed, gives focus and you can go deeper into students' understanding.

Some school staff observed that the TOWN tool was in effect a condensed version of the CMIT/Schedule for Early Number Assessment (SENA) tool. Similar to the views expressed about the TOWN materials, some school staff therefore questioned whether TOWN was providing anything new or different compared to previous programs.

There were also mixed views about whether the TOWN assessment tool had got the balance right between providing the right depth of information while also being time-efficient to administer. On the one hand, some staff who were familiar with the CMIT/SENA tool commented favourably that the TOWN assessment tool was quicker to administer than the CMIT/SENA tool. This made it less time-consuming to administer with a whole class of students (nonetheless, some school staff still felt that the assessment tool was too time-consuming and burdensome to administer). On the other hand, some felt the TOWN assessment tool was not detailed or complete enough to give the depth of information required, and that it needed to be supplemented by use of the CMIT/SENA testing.

The assessment is somewhere to start, but it is all taken from CMIT/CO so [it provided] no real extension. The tool was useful to put students broadly on the framework, but we needed extra methods to really understand student positioning – we conducted written examination (stage-based assessment) and SENA 1 and 2 (CO assessment resources).

The assessment tool is somewhat limited – [it provides a] good starting point, but doesn't go beyond place value 2, no multiplication/division for Stage 2. The structure is good but content could be deeper. We are using other assessment mechanisms to place students on the framework.

3.4.5 NSW DEC STAFF AND OTHER SCHOOLS IN THE REGION

All school staff participating in the TOWN program had access to the DEC TOWN staff in Sydney for assistance and advice. In some regions there were also DEC funded regional numeracy specialists and consultants.

At least some schools networked with other schools in their region.

Overall the quantitative and qualitative data indicate that the support provided by the DEC funded regional numeracy consultants and (where they had done so) networking with other schools in the region was the most likely to be regarded as adequate. A somewhat lower (but still high) proportion rated the support from DEC TOWN staff as adequate, although some issues were reported relating to the perceived usefulness of the assistance provided by this source.

The online survey sought TOWN Coordinators' views on the *adequacy* of the support that they received from external sources and networking. Adequacy is presented in terms of *total adequacy* which comprises *very adequate* and *adequate* responses.

As shown in Table 10, the majority of TOWN Coordinators who responded to the online survey felt that the level of external support had been adequate, identifying *funded regional numeracy specialists/consultants* as the most adequate source of support (77.4% either *adequate* or *very adequate*). There was almost as high a proportion of TOWN Coordinators reporting that they had found *networking with other schools in your region* to be adequate (74.2% either *adequate* or *very adequate*).

A lower but still substantial proportion of respondents (68%) felt that the support from *DEC TOWN staff* had been adequate. However, compared to the DEC funded regional numeracy consultants, there was a markedly higher proportion (close to one quarter - 23%) who reported this support to be *neither adequate nor inadequate*. There was also a lower proportion rating the support from DEC TOWN staff as *very adequate* compared to *adequate*.

TABLE 10 – ADEQUACY OF SUPPORT FROM EXTERNAL SOURCES (PERCENTAGE OF TOWN COORDINATORS)

SOURCE	TOTAL ADEQUACY	VERY ADEQUATE	ADEQUATE	NEITHER ADEQUATE NOR INADEQUATE	INADEQUATE	VERY INADEQUATE	NOT APPLICABLE
DEC funded regional numeracy specialists/ consultants	77.4	48.4	29.0	16.1	-	3.2	3.2
Networking with other schools in your region	74.2	41.9	32.3	9.7	-	9.7	6.5
DEC TOWN staff	67.7	29.0	38.7	22.6	-	9.7	-

Considering the responses by school location, respondents from schools in rural/remote areas were less likely to report receiving adequate support from *DEC funded regional numeracy specialists/consultants* and *networking with other schools* than respondents from metropolitan or regional areas.

DEC staff reported that they were always available to deal with any queries from schools implementing TOWN, and always made an open invitation at the videoconferences for anyone to call or email them. However, not many of the school staff consulted on the fieldwork reported that they had sought advice or assistance from the DEC TOWN staff. Amongst those who had, some had found the advice very useful:

They provided help all the time.

Nonetheless, others were less satisfied with the support provided by the DEC TOWN staff. The most common concern raised was that the advice provided was *'limited'* or *'we didn't get the answers we needed'*. Another staff member commented that they had consulted the DEC TOWN staff at several points but they *'never looked organised, it seemed like they were playing catch up'*. These comments are consistent with the comment by a Regional Facilitator noted above that *'when they tried to contact DEC over things, they could only do this on the phone and didn't always feel they had the depth of support they required'*.

DEC TOWN staff reported that not many school staff requested help from them with anything, including when the TOWN staff rang each school between the videoconferences to ask them this. In the great majority of instances the TOWN staff were told that *'everything is going fine and we don't need any extra assistance'*. In the minority of instances where schools requested help, this generally related to:

- problems accessing the website (as noted earlier in this report, generally due to having forgotten the password or using the wrong one)
- requests for more resources on a specific area, which the TOWN staff attempted to address through discussion or development of a resource, and sharing the response at the next videoconference.

In terms of the DEC-funded regional maths consultants, school staff consistently reported that they had received a lot of useful assistance from this source (and no negative comments were made about these consultants.) The key aspect staff valued was the practical assistance and support provided to operationalise the program on the ground, through providing for example training, lesson plans, programming, modelled lessons, hands on activities, and general encouragement to teachers:

[She] was good – very keen, [she made] frequent visits to the school, providing resources and ideas. It was also useful that she was a teacher with classroom experience.

The DEC district maths consultant was a big support and facilitated the implementation. We had a new teacher start from another region [without this support], and noticed that they were in a completely different place.

The regional consultant has been critical for translating TOWN into practice, looking at how this approach can work in the school.

DEC TOWN staff reported that the level of support provided by regional consultants varied, but it was very successful in some regions and they had close involvement in the program eg attending the videoconferences, planning professional learning days and visiting the schools.

In relation to networking with other schools, staff at those schools which had done so (eg to share training or share ideas and experiences with the program) reported that this had been useful.

In some regions, a number of neighbouring schools were implementing TOWN under the NPLN. These schools were able to network and share knowledge and ideas for implementing TOWN through their Community of Schools. At one school visited, the TOWN Coordinator had delivered joint training sessions for teaching staff across eight neighbouring schools:

We have networked with other schools – three surrounding schools in the area using TOWN. We're lucky to have this support, we're aware other schools are more isolated.

A staff member at one school which had not networked with other schools in their region commented that in retrospect this would have been helpful:

We haven't had a network of schools doing TOWN, so we haven't been able to discuss and share. It would have been useful to get some ideas and direction from other schools.

3.4.6 REGIONAL FACILITATORS

DEC Regional Facilitators had overall responsibility in relation to all the NPLN projects in their regions. As such their role was quite high-level, and it was not expected that these Facilitators would be providing hands-on support to their schools in implementing the programs, including TOWN. Nonetheless, some Facilitators did provide some more specific support to schools in relation to one or more programs.

Amongst staff who responded to the online survey who had a regular classroom teaching role, close to two-thirds (63.8%) reported that *in-school support from the Regional Facilitator* was either *very important* or *important* as a critical factor in improving their numeracy teaching (a full discussion of these critical factors is provided later in this report).

Only a small number of schools provided feedback during the fieldwork about their Regional Facilitators as an external source of support in implementing the program. Amongst these, some positive comments were made about how valuable this support had been:

The support from our Regional Facilitator... was excellent. He's been an ear to listen [to us]. Six months into it, [he was aware] of difficulties [we were experiencing with the program]. It was very timely, to get ideas and strategies. He's used to working outside the system.



Maths 9/6/11

923×705 6451	865×232 1730	773×444 3082
14615 0900 6460	1730 2295 1730	3092 3082 3082

11,076

5,155

9,256



4 Implementation of the individual case management component of TOWN

KEY FINDINGS

- The individual case management component of the TOWN program involved teachers recording interactions between teachers and individual students, uploading these to the TOWN website, and receiving emailed advice from one of a team of TOWN case managers. Case managers were appointed based on having specific skills relating to numeracy teaching.
- The quantitative and qualitative data consistently and strongly indicate that this was the least successful aspect of the TOWN program. It was not used very much at all (only 136 instances over the entire program), and it did not work very effectively as a source of support to schools. This was for a range of reasons including technical difficulties relating to making and uploading the video recordings of students, and the perception that the advice provided by the case managers was not as useful (in terms of providing very specific, practical guidance about how to work with the particular student) or timely as it could have been.
- There appeared to be some disjunctions between the perceptions of the quality and usefulness of the advice provided between case managers and DEC TOWN staff on the one hand, and school staff and Regional Facilitators on the other. This may reflect the desire by school staff for much more directed advice.

This Section discusses implementation of the individual case management component of TOWN. As noted previously, the key activity undertaken for this component of the program involved teachers recording interactions between teachers and individual students, uploading these to the TOWN website, and receiving emailed advice from one of a team of TOWN case managers. The TOWN case managers reported that they were appointed based on having specific skills relating to numeracy teaching (eg experience working as a maths consultant).

In summary, the quantitative and qualitative data consistently and strongly indicate that this was the least successful aspect of the TOWN program, and that it did not work very effectively as a source of support to schools. This was for a range of reasons including technical difficulties relating to making and uploading the video recordings of students, and the perception that the advice provided by the case managers was not as useful or timely as it could have been.

4.1 QUANTITATIVE DATA FROM THE ONLINE SURVEY

4.1.1 SELECTION OF THE CASE MANAGEMENT COMPONENT

TOWN Coordinators were asked whether their school had selected to participate in the *individual case management* component of TOWN. Of the 31 TOWN Coordinators completing the survey, 22 reported that their school had participated in the case management intervention.

Those respondents whose schools did *not* implement the individual case management were asked to specify why this was the case. The most common reasons noted included:

- The preference to access local/regional expertise
'Expert help too far away...having regional people is much more reliable and personal.'
- The preferred selection of Quicksmart
We regarded this program as better prepared, data driven and clearly explainable to the parents and students.
- Concerns about the cost and resourcing requirements
Far too expensive.

Very time-consuming.

- Concerns about the reliability of the technology

Relying on technology/communication doesn't always work.

4.1.2 IMPLEMENTATION IN PRACTICE

Those respondents who had utilised individual case management at their school were then asked a number of questions relating to the implementation and perceived usefulness of the intervention.

TOWN Coordinators were asked to specify how many students at their school had participated in the individual case management component in practice.

As shown in Table 11, close to two-thirds of TOWN Coordinators (64%) reported that their school had had five or less students participate in individual case management. Notably, close to a quarter of respondents (23%) reported that no students at their school had participated in the intervention in practice.

TABLE 11 – NUMBER OF STUDENTS WHO PARTICIPATED IN CASE MANAGEMENT (PERCENTAGE OF RESPONDENTS*)

NUMBER OF STUDENTS	TOTAL
None	22.7
1 – 5 students	40.9
6 – 10 students	27.3
11 – 15 students	4.5
16 – 20 students	4.5
More than 20 students	-
TOTAL	100

* Note this question was answered only by TOWN Coordinators

TOWN Coordinators were then asked to indicate how this participation rate corresponded with their initial expectations for the intervention. As might be expected given the reported participation rate, the majority of respondents (64%) noted that the number of students who participated had been *significantly fewer* than expected. Approximately one-fifth of respondents (18%) reported that the participation rate had been *about what I expected*.

TABLE 12 – NUMBER OF STUDENTS WHO PARTICIPATED IN CASE MANAGEMENT COMPARED TO INITIAL EXPECTATION (PERCENTAGE OF RESPONDENTS*)

PARTICIPATION COMPARED TO EXPECTATION	TOTAL
Significantly more	-
A few more	-
About what I expected	18.2
Slightly fewer	9.1
Significantly fewer	63.6
Not sure/ Hard to say	9.1
TOTAL	100

* Note this question was answered only by TOWN Coordinators

Those respondents who reported lower than expected usage of the case management intervention were asked to specify why this was the case. The most common reasons noted included:

- Issues with technology including background noise and difficulty registering cases and uploading videos (12 mentions)

Difficulty using the flip cameras within a normal classroom setting due to noise.

Technical issues on both the TOWN site and with teacher skills in the uploading of videos was a problem.

Not user-friendly for classroom teachers, lack of technology support.

- More convenient access to high quality local expertise and advice from colleagues, regional consultants and/or Community of Schools members (12 mentions)

We found as a large school, collegial discussion was a better solution, faster, easier to manage within the school.

We had support on hand with the maths consultant in our school on a weekly roster. She would watch and discuss the student and get immediate feedback.

There was no relationship with case managers; no-one visited our school so it all felt very separate and robotic. We had experienced members of staff who were capable of solving any problems and teachers worked together and discussed issues.

- Excessive time required to individually film and manage cases (10 mentions)

The task was put off due to time constraints.

Videoining/ uploading/ learning the technology was too time-consuming.

- Limited value of the advice provided by the case manager (5 mentions)

The feedback from the case manager did not result in any new information and only confirmed what the class teacher already knew and was trying with the student involved.

The response I got was not very user friendly and only referred me to resources such as CMIT and DENS which I was already using.

Staff also felt that the effort it took to actually film, upload and manage a case was not worth the effort when usually the strategies sent back were fairly stock-standard and straight from the DENS books, which we all have.

TOWN Coordinators were then presented with a series of six statements relating to the use of the individual case management intervention and asked to express how strongly they *agreed* or *disagreed* with each. The responses are presented in Table 13, and *total agreement* is provided as the combined set of *strongly agree* and *agree* responses.

Most statements received a fairly low level of agreement, with only one statement – *the TOWN video camera was easy to use* – receiving above 50% *total agreement*. With respect to views on the role of the case manager, a significant proportion of respondents selected *neither agree or disagree* for statements relating to their *level of numeracy teaching expertise* (36%), the *timeliness of advice received* (41%), and the *usefulness of the advice received* (41%). This response profile suggests a degree of ambivalence towards the role of the case manager.

Statements relating to the process of uploading of videos to the case management system had the highest frequency of *total disagreement*, with the largest proportion of these responses expressed as *strongly disagree*. More than half the respondents disagreed that *the technology for uploading and filing the videos was easy to use* (55% *total disagreement*), and that *for all or the majority of students who were videoed, the videos were uploaded to the case management system* (50% *total disagreement*).

TABLE 13 – AGREEMENT WITH STATEMENT ABOUT INDIVIDUAL CASE MANAGEMENT (PERCENTAGE OF RESPONDENTS*)

STATEMENT	TOTAL AGREEMENT	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	HARD TO SAY
The TOWN video camera was easy to use	59.1	13.6	45.5	27.3	9.1	4.5	-
Overall, the TOWN case manager had a high level of numeracy teaching expertise	36.4	9.1	27.3	36.4	4.5	4.5	18.2
The advice received from the TOWN case manager was timely	31.8	13.6	18.2	40.9	-	18.2	9.1
The technology for uploading and filing the videos was easy to use	27.3	9.1	18.2	18.2	9.1	45.5	-
The advice received from the TOWN case manager was useful in informing how to work with the student in the future	22.7	9.1	13.6	40.9	9.1	13.6	13.6
For all or the majority of students who were videoed, the videos were uploaded to the case management system	18.2	-	18.2	27.3	18.2	31.8	4.5

* Note this question was answered only by TOWN Coordinators

4.1.3 QUANTITATIVE DATA ON USE OF THE CASE MANAGEMENT COMPONENT OF THE PROGRAM

The number of case management interventions was provided by the manager of the TOWN case management component. This is set out in Table 14 below.

From this table it can be seen that almost two-thirds (64.3%) of the 28 schools participating in the individual case management aspect of the program only used it for four or less interventions, and 17.9% did not use it for any interventions at all.

Only just over a third (35.6%) used it for seven or more interventions.

In total there were 136 interventions.

Given that five case managers were involved in this aspect of the program over the course of the program (three school terms), this is a very small number of interventions.

TABLE 14 – NUMBER OF CASE MANAGEMENT INTERVENTIONS PER SCHOOL

NUMBER OF INTERVENTIONS	NO OF SCHOOLS	% OF SCHOOLS
0	5	17.9
1-2	9	32.1
3-4	4	14.3
5-6	0	0
7-8	3	10.7
9-10	3	10.7
11	2	7.1
12+	2	7.1
TOTAL	28	100

4.2 QUALITATIVE DATA

There were very consistent themes in the qualitative feedback from school staff, TOWN case managers and Regional Facilitators on the individual case management component of TOWN to that from the online survey.

Overall, the predominant and strong view was that this aspect of the program was not used much, had not provided a useful form of support for schools, and – as one Regional Facilitator put it – ‘lost its credibility’. As the case managers themselves noted, this component had great potential which was not fully realised.

The main three problems identified in the consultations with school staff and Regional Facilitators included:

- technical problems
- advice not being useful
- advice not being timely.

Each of these issues is discussed further below.

4.2.1 TECHNICAL PROBLEMS

It was reported that school staff commonly experienced technical problems with this aspect of the program. Most commonly these problems concerned uploading the videos to the TOWN website– some staff reported that they had tried for hours and then given up. Other technical difficulties included assignment of cases, problems with year-to-year transition (when students entered new classes and changed teachers), and poor quality of the videos due to background noise etc:

The case management was impractical, time-consuming and not teacher friendly. It didn’t seem to account for challenges such as technical issues, classroom noise, and the difficulty to implement this in class with a large target group of students.

Along similar lines, a Regional Facilitator noted:

There was a reluctance to use the video technology – both technical problems and a lack of comfort with doing it.

The TOWN case managers and DEC TOWN staff also reported that they were aware of the technological difficulties experienced by school staff in using this component of the program, particularly related to

uploading videos to the website (which was a slow process). The TOWN case managers also reported that the quality of the videos uploaded was commonly poor (which in a number of instances included a lot of background noise, sometimes to the point where the student was inaudible).

The TOWN case managers also noted that once school staff received their emailed advice from their case manager they could not simply just email back to continue a discussion, interact further or provide feedback about how useful the advice had been – they had to log in separately to the website again. The case managers felt that this may have been one reason why they generally did not hear back from teachers they had emailed advice to.

Much of the technical problems experienced were probably due to teachers' lack of familiarity with using this type of technology. The TOWN case managers noted that it is relevant to bear in mind teachers' very limited time, the fact the website was not very user-friendly, and that many of the school staff involved in the program were '*less technologically savvy*'. DEC TOWN staff likewise observed that where notified of technical problems with the website they addressed these, but '*a lot of it was user errors rather than problems with the website*'. They identified a number of common problems experienced by schools in the early stages of program implementation when they did initial practice sessions with them. For example, some schools tried to upload files in an uncompressed format, so the file size was very large, and this created a backlog in processing so no one else could upload videos at the same time.

In response to the technical difficulties experienced, DEC TOWN staff developed '*little movie snippets*' showing teachers how to upload the videos, and written instructions.

DEC TOWN staff also noted that:

The main problem was the technical challenge around it. People become easily frustrated by technology. If it doesn't work you don't tend to go back again. That would relate to the low usage. ... In terms of the innovative process, it was the first time it was done. You'd expect there would be some challenges in relation to the use of recording devices to get targeted advice for the student – it's never been done before as far as we know. People are now getting more used to uploading material to [computers]. This was probably a year or so ahead of its time. People are now getting more used to this technology. When something is more innovative you probably get more challenges in implementing it. In another year or two, it might be the norm.

4.2.2 ADVICE NOT BEING USEFUL

Another commonly reported problem with the case management component was that the advice received often wasn't useful in providing practical advice about how to work further with the student, and assisting school staff to move beyond what they had or could have worked out for themselves. This also created the perception amongst some school staff that the case manager did not demonstrate the level of expertise in numeracy teaching they would have expected:

We have referred students that are well below the benchmark to our case manager for ideas, but a lot of what comes back has already been used – collaboration with the staff group means often these ideas have already been shared anyway.

The case manager didn't know as much as we thought they should – the advice was not classroom practical.

[We] received 'cut and paste' style responses from the 'experts'. Early on we realised this wasn't valuable, ... and [we] withdrew from the program and returned the funding.

[The feedback] was not useful in any of the few instances [we tried it]. We didn't follow up [with the case manager again, after receiving the initial advice for each student] because no answers were provided the first time. Providing online [advice] would be OK, but only if they were providing useful advice. The experts didn't seem very expert, our [TOWN Coordinator] knew more.

Case managers reported that the main problems they provided advice to teachers about concerned:

- placement of the student on the Framework (generally pointing teachers back to DEC documents and the TOWN website, which had *'good stuff they often weren't accessing'*)
- directing teachers to resources on the website
- basic strategies in relation to addition and subtraction
- explaining what the Framework was.

Case managers also reported that generally they did not get feedback from teachers about how useful or otherwise their advice had been, and therefore it was difficult for them to assess this themselves (they did however do some 'consistency exercises' between the case managers which confirmed they were all giving similar advice). Nonetheless, one case manager identified the *'excellent... quality of the advice'* provided to teachers (since the mentors had expertise in numeracy teaching) and *'giving isolated schools the opportunity to talk to someone who knew something'* as aspects of the program which worked well. DEC TOWN staff also reported that they reviewed the advice provided by case managers (since they had access to it), and felt that the advice provided was 'of high quality' and the criticisms of it were not justified. There therefore appeared to be a major divergence in the perceptions by case managers and DEC TOWN staff versus teachers of how useful the advice was.

One possible explanation for this may be that the case managers were more focused on providing quite general advice (eg referral back to the Framework and website), whereas the consultations indicated that teachers wanted and were expecting to receive very specific and practical advice about how to work with the individual student. As one Regional Facilitator reported:

[The case management component was] *not necessarily giving particularly useful feedback* [to school staff]. *What you were seeing is the difference between theoreticians and practice.*

4.2.3 ADVICE NOT ALWAYS TIMELY

Another problem identified in the consultations was that the advice received was not always timely enough to be useful: *'it took too long'*. Some school staff reported that due to delays in receiving advice they went ahead and came up with solutions from consulting with other school staff, including the TOWN Coordinator. One Regional Facilitator reported that:

The cycle of advice was too slow to get feedback. How long [this was] varied, but some schools said it took too long to get feedback. I don't know how long, but I assume that means more than a week.

Again there was some divergence in the feedback provided by school staff and Regional Facilitators on one hand, and TOWN case managers and DEC TOWN staff on the other. It is not clear how the above feedback fits with the feedback from case managers that they generally aimed to provide feedback within 24 hours or as close to that timeframe as possible, and *'for the great bulk of responses... it was generally within one to two days'*. DEC TOWN staff likewise reported (from their review of the advice provided) that facilitators provided responses within 24 hours in the majority of cases.

4.2.4 OTHER ISSUES

Other problems noted included turnover in the assigned case manager (one staff member reported that their case manager changed three times), and that it wasn't practical to implement in schools where a large number of students fell into the target group for the case management component.

4.3 OVERALL LOW LEVEL OF USAGE

Reflecting the various perceived problems noted above, a number of schools who had signed up for this component of the program reported that they had either not even got to the stage of uploading any videos of students, or had only done so with a small number of students. Negative experiences in the initial stages of the program put some schools off trying again, either at all or with many students, or having repeat contact with the case manager about an individual student (contrary to the assumptions when the program began). This is consistent with the low numbers of students for whom the individual case management component of the program was used, set out above. Overall, schools participating in this

aspect of the program reported that they had used it much less than they had envisaged at the beginning of the program. The case managers themselves likewise reported that it was used less than they had initially anticipated, and that in the great majority of instances schools only sought advice once in relation to each individual student (rather than multiple times for some students as had been envisaged originally).

In retrospect, given that the case managers received minimal feedback from the teachers they provided feedback to, there could have been value in conducting a simple mid-point evaluation of teachers who had received advice (eg via an online survey). This may have identified the perceived problems with this component of the program at an earlier stage, and allowed for some changes in strategy by the case managers to address these. This may have increased the number of teachers accessing the case management component.

5 Outcomes for teachers

KEY FINDINGS

- Overall, TOWN (or its implementation) has had a positive and marked impact on numeracy teaching amongst most school staff who participated in the program.
- The majority of teachers surveyed reported that TOWN had had an impact on their knowledge, attitudes and skills in all of the areas they were asked about. The three areas with the greatest reported impact were: increased belief in teachers' ability to improve numeracy outcomes for all students; increased understanding of the importance of place value as a key numeracy concept; and increased willingness to participate in shared reflection and discussion of numeracy teaching with other staff.
- The program has also had a positive impact on a number of key elements of teaching practice, such as increased use of and capacity to differentiate students and identify students in need of targeted intervention; greater collaboration and ability to reflect on their teaching practice; use of more and additional numeracy teaching resources and activities; greater knowledge about and confidence in teaching numeracy; and greater focus on and understanding of key numeracy concepts such as the place value framework.
- The greatest impacts reported in the online survey were for teaching staff at an early or late stage of their careers.
- Five key success factors were identified which were associated with greater teacher engagement and improvements in numeracy teaching, including: changed numeracy teaching practice; strong school leadership; an enthusiastic and skilled TOWN Coordinator devoting intensive time to the program; staff who were more open to new teaching approaches; and experience with similar numeracy programs.

5.1 QUANTITATIVE DATA

5.1.1 IMPACT ON KNOWLEDGE, ATTITUDES AND SKILLS

All teachers were provided with a series of outcome statements relating to the *impact* of TOWN on their knowledge, attitudes and skills, and were asked to indicate the extent to which TOWN had had an impact on each. These responses are presented in Table 15 below, including a calculation of *total impact*, which comprises the combined set of *major extent* and *moderate extent* responses.

TABLE 15 –IMPACT ON TEACHERS' KNOWLEDGE, ATTITUDES AND SKILLS (PERCENTAGE OF RESPONDENTS)

IMPACT	TOTAL IMPACT	MAJOR EXTENT	MODERATE EXTENT	MINOR EXTENT	NOT AT ALL	HARD TO SAY
Increased your belief in teachers' ability to improve numeracy outcomes of all students	85.1	52.5	32.6	7.8	5.0	2.1
Increased your understanding of the importance of place value as a key numeracy concept	83.7	63.1	20.6	8.5	4.3	3.5
Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff	81.6	50.4	31.2	11.3	4.3	2.8
Increased your belief in teachers' ability to improve numeracy outcomes of low achieving students	80.1	47.5	32.6	12.8	5.0	2.1

IMPACT	TOTAL IMPACT	MAJOR EXTENT	MODERATE EXTENT	MINOR EXTENT	NOT AT ALL	HARD TO SAY
Increased your skills in using diagnostic tools and data to assess students' numeracy learning needs	78.8	43.3	35.5	14.9	4.3	2.1
Deepened your understanding of the nature and needs of numeracy learners in Years 3-6	78.7	53.9	24.8	12.1	5.7	3.5
Increased your knowledge about how students learn numeracy	77.4	42.6	34.8	16.3	4.3	2.1
Deepened your understanding of effective numeracy teaching	76.6	53.2	23.4	12.1	9.2	2.1
Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom	75.9	43.3	32.6	14.2	7.8	2.1
Increased your ability to translate numeracy theory into practice	72.3	45.4	27.0	19.1	6.4	2.1

As shown in Table 15, for all outcome statements the majority of teachers reported that TOWN had had an impact on their knowledge, attitudes and/or skills. The areas that had the greatest impact for respondents were:

- *Increased your belief in teachers' ability to improve numeracy outcomes of all students (85%)*
- *Increased your understanding of the importance of place value as a key numeracy concept (84%)*
- *Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff (82%).*

For each outcome statement, there was only a small minority of teachers who reported no impact on their knowledge, attitudes and/or skills as a result of implementing TOWN.

Considering the responses according to the teachers' level of experience reveals notable variation in the extent of the reported impact on attitudes, knowledge and skills. Respondents who were at an early or late stage in their careers were more likely to report a greater degree of positive impact resulting from their participation in TOWN than those respondents in the middle of their career. In particular, a higher proportion of teachers with five or less years' experience, or over 20 years' experience, reported impacts in the following areas:

- *Increased your ability to translate numeracy theory into practice*
- *Deepened your understanding of effective numeracy teaching*
- *Increased your knowledge about how students learn numeracy*
- *Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom.*

The extent of reported impact was also found to vary somewhat by role. In general, a greater proportion of TOWN Coordinators and specialist teachers/aides/other support staff reported that TOWN had

impacted on their knowledge, attitudes and skills in numeracy. Conversely, classroom teachers and members of the school Executive were slightly less likely to report a positive impact. In particular, TOWN Coordinators were considerably more likely than respondents in other roles to report that TOWN had:

- *Increased your knowledge about how students learn numeracy*
- *Increased your ability to translate numeracy into practice.*

Considering the results according to whether respondents indicated having experience with CO or CMIT revealed no significant variation in the extent of impact reported. Those respondents who had no experience with these similar numeracy programs were slightly more likely to report a greater degree of impact on their *skills in using diagnostic tools and data to assess students’ numeracy learning needs*, their *understanding of the nature and needs of numeracy learners in Years 3-6*, and their *belief in teachers’ ability to improve numeracy outcomes of all students*.

5.1.2 IMPACT ON CLASSROOM TEACHING PRACTICE

IMPACT ON KEY ELEMENTS OF NUMERACY TEACHING PRACTICE

The survey questionnaire asked respondents to indicate whether they had a role in teaching numeracy in the classroom on a regular basis. Of the 141 teachers completing the survey, 116 (82%) indicated that they regularly undertook classroom teaching. Those respondents who reported having a classroom teaching role were then asked a number of questions relating to the *impact* of TOWN on their numeracy teaching practice.

Firstly, teachers were provided with a series of outcome statements relating to the impact of TOWN on elements of their classroom teaching practice, and were asked to indicate the extent to which TOWN had had an impact on each. As shown in Table 16, for all outcome statements the majority of teachers reported that TOWN had had an impact on their classroom teaching practice. The areas that had been impacted for the highest proportion of respondents were:

- *Increased your ability to identify which students are in need of targeted intervention (86%)*
- *Enhanced your ability to reflect on and critique your numeracy teaching practice (84%)*
- *Increased your confidence in teaching numeracy (81%)*
- *Improved your ability to teach numeracy effectively in the classroom (81%).*

For each outcome statement, there was only a small minority of teachers who reported no impact on their classroom teaching practice as a result of implementing TOWN.

TABLE 16 – IMPACT ON CLASSROOM TEACHING PRACTICE (PERCENTAGE OF RESPONDENTS)

IMPACT	TOTAL IMPACT	MAJOR EXTENT	MODERATE EXTENT	MINOR EXTENT	NOT AT ALL	HARD TO SAY
Increased your ability to identify which students are in need of targeted intervention	86.2	53.4	32.8	8.6	5.2	-
Enhanced your ability to reflect on and critique your numeracy teaching practice	83.6	47.4	36.2	9.5	6.9	-
Increased your confidence in teaching numeracy	81.0	49.1	31.9	11.2	7.8	-
Improved your ability to teach numeracy effectively in the classroom	81.0	49.1	31.9	12.1	6.9	-

IMPACT	TOTAL IMPACT	MAJOR EXTENT	MODERATE EXTENT	MINOR EXTENT	NOT AT ALL	HARD TO SAY
Improved your ability to teach numeracy effectively to individual students	80.2	46.6	33.6	13.8	6.0	-
Increased your knowledge of how to cater to all numeracy learning needs in the classroom	77.6	45.7	31.9	15.5	6.9	-
Increased your willingness to seek feedback on your numeracy teaching from colleagues (eg through teacher observation)	69.0	37.1	31.9	20.7	9.5	0.9

* Note this question was answered only by respondents with a regular classroom teaching role

Similar to the findings for reported impact on attitudes, knowledge and skills, comparing the responses according to the teachers' level of experience reveals notable variation in the extent of the reported impact on classroom teaching practices. Respondents who were at an early or late stage in their careers were more likely to report a greater degree of positive impact on their teaching practices resulting from their participation in TOWN than those respondents in the middle of their career. In particular, a considerably higher proportion teachers with five or less years' experience, or over 20 years' experience, reported impacts in the following areas:

- *Increased your confidence in teaching numeracy*
- *Increased your willingness to seek feedback on your numeracy teaching from colleagues.*

IMPACT ON OVERALL NUMERACY TEACHING PRACTICE

Teachers with a regular classroom teaching role were then asked to select from a list of statements to describe the *overall impact* of TOWN on their numeracy teaching practice.

Overall, the large majority of teachers (87%) reported that TOWN had had a *positive impact* on their numeracy teaching practice, including close to half (49%) identifying a *significant positive impact*. TOWN Coordinators were most likely to identify a *significant positive impact* (72%), and Infants teachers (K-2) were most likely to report an overall *positive impact* (100%). The large majority of Stage 2 and 3 classroom teachers reported an overall *positive impact* on their teaching practice (81% and 85% respectively). However, close to one fifth of Stage 2 teachers noted that TOWN had had *little if any positive impact* on their numeracy teaching practice. Members of the school Executive (with a regular classroom teaching role) were least likely to report a positive impact resulting from TOWN, with only 15% of respondents noting a *significant positive impact*, and close to one third (31%) noting *little if any positive impact* on their teaching practice.

In line with earlier findings on the impact of TOWN on key elements of numeracy teaching, respondents who were at an early or late stage in their careers were more likely to report a greater degree of positive impact on their teaching practice resulting from their participation in TOWN than those respondents in the middle of their career.

Considering the responses according to whether respondents had indicated that they had previous experience with either CO and/or CMIT revealed some variation in the overall impact reported. Teachers who had no prior experience with these similar numeracy programs were more likely to report *significant positive impact* on their teaching experience (60% of respondents) compared to those teachers with prior experience in these programs (46% of respondents).

Respondents were also asked to specify why they felt the program had had this impact on their numeracy teaching practice. The most common responses provided by those respondents reporting a *significant positive impact* or *some positive impact* on their numeracy teaching practice included:

- The numeracy framework and assessment tasks have enhanced the teachers' ability to identify students' learning needs and differentiate teaching accordingly (66 mentions):

Continual assessment of students has assisted in my knowledge of the students and where they are and need to go in their numeracy.

The framework in TOWN has given me guidelines to assess student learning and progress. An in depth knowledge of this framework is imperative. In numeracy I have programmed, explicitly taught, assessed and reflected on student progress and my teaching based on this framework.

Although I have been teaching numeracy for a long time, I had gaps in my understanding of all the developmental steps children needed to fully develop concepts and understandings. TOWN showed me how to fully assess children's levels and then what to do to move them on.

- The program implementation has encouraged a greater whole school focus on quality numeracy teaching (30 mentions):

TOWN was the catalyst for moving us all to the same page with our teaching.

TOWN provided an opportunity and financial support to improve teaching practices and theory of teaching numeracy.

Prioritised maths in the classrooms as a large part of the teaching day.

As a beginning teacher, TOWN has helped my understanding of how and why we teach certain aspects of numeracy. It has started off my career in a positive way in terms of addressing numeracy in my classroom.

- The funding and resources provided have facilitated increased professional dialogue, reflection and collaborative planning amongst staff (27 mentions):

It has opened doors for better communication between teachers about quality numeracy teaching and given us the language to describe the issues and the solutions.

It also provided opportunities for staff to collaborate, team teach and discuss teaching practice.

- TOWN has provided new strategies and resources for classroom teaching (20 mentions):

Opened up a whole new range of strategies and resources with which I'd been unfamiliar.

There were so many great strategies to learn about eg the empty number line.

- TOWN has emphasised the importance of place value in mathematics (17 mentions):

It has deepened my understanding of how important place value is in numeracy and how quality teaching of it lays the base foundation for all other mathematic strands.

A limited number of respondents noted reasons why they felt the program had had *little if any positive impact* on their numeracy teaching practice. The most common reasons included:

- Insufficient training, guidance and/or support (7 mentions):

Very little training prior to its implementation. I don't feel teachers have a good enough understanding of what TOWN is to implement it effectively. The program was a revamped version of Count Me In Too and came with very little support for effective implementation.

Poor support... jargonistic language, frameworks ambiguous and unclear.

- Limited resources provided for lesson delivery (5 mentions):

I would have liked to have seen more variety of activities to assist my programming.

- No change to existing teaching approach (4 mentions):

I am not really doing anything all that differently than I was before. I have been using many of the strategies put forward for years in the classroom effectively.

- Limited area of focus/ unclear links to syllabus (3 mentions):

It does not assist with the implementation of other areas of the numeracy syllabus, and is somewhat time consuming.

KEY CHANGES TO TEACHING PRACTICE SINCE IMPLEMENTING TOWN

Teachers with a regular classroom teaching role who reported a *significant positive impact* or *some positive impact* on their numeracy teaching practice were then asked in an open-ended question to nominate *three key changes* to their teaching practice that had occurred since implementing TOWN. These responses are summarised in Table 17 below.

The most commonly mentioned change to teaching practice was the *use of differentiation to target students/ explicit teaching according to needs*.

TABLE 17 – KEY CHANGES TO TEACHING PRACTICE

CHANGE	TOTAL MENTIONS	% OF TOTAL MENTIONS
Use of differentiation to target student needs/ explicit teaching	71	21.1
Use of regular assessment to monitor student needs and progress	45	13.4
Greater use of practical/ hands-on activities and games	39	11.6
Focus on place value/ use of the place value framework	35	10.4
Improved planning/ programming/ lesson structure (balanced numeracy teaching)	30	8.9
Greater use of group work	25	7.4
Greater collaboration/ professional dialogue/ reflection with colleagues	24	7.1
Improved communication with students (verbalisation of strategies, open-questioning etc)	17	5.1
Use of Newman's error analysis	8	2.4
Use of data to drive programming	6	1.8
Greater school focus on numeracy	5	1.5
Other**	31	9.2
TOTAL	336	100

* Note this question was answered only by respondents with a regular classroom teaching role

** Examples of *Other* changes include: use of NAPLAN questions in lessons, improved confidence in teaching, greater focus on mental computation strategies, access to a wider set of teaching resources and deeper knowledge of the syllabus

5.2 QUALITATIVE DATA

Consistent with the findings of the online survey, the qualitative feedback from Executive school staff, TOWN Coordinators, teaching staff and Regional Facilitators was that, where successfully implemented, TOWN had a very positive effect on teachers' knowledge, attitudes and skills. The most significant impacts on teaching practice identified included:

- A greater understanding of the importance of place value as a key numeracy concept.
- A much more in-depth understanding of how students learn numeracy:

[We] value the insights into the ways that students develop numeracy skills.

As a teacher, TOWN provides a deeper understanding of how the students learn numeracy – they can explain the way things are done.

- A much clearer understanding of the numeracy continuum, differentiation of students, where students are placed along the numeracy continuum, and how to help them to the next stage:

[We] previously had benchmarks for literacy, now have this for numeracy; we have an understanding of how to move the kids to the next benchmark.

Staff previously had poor numeracy teaching skills – they didn't use grouping or differentiation of students.

Teachers value the framework, the understanding of placing students.

- Increasing teachers' confidence in teaching numeracy:

It helps knowing that everyone is doing the same thing, confidence in following a consistent approach to numeracy.

It's a positive experience when seeing our students improving, it's especially a good confidence boost for new teachers.

Similarly parents at one school commented that they have observed that the teachers enjoy what they are doing, and are more confident in their teaching, which is positive for the students who pick up on this.

- Making teachers much more open to learning from other staff, including through shared reflection and discussion of numeracy teaching with other staff (including team teaching approaches). At a number of schools it was observed that this was not part of the school culture previously, and if this was suggested it might have been perceived defensively, as indicating some problem with or criticism of the teacher's teaching approach. As school Executive staff at a couple of schools commented:

Two years ago teachers wouldn't have been happy to have people coming into their classroom to observe – now this is accepted and seen as valuable, everyone is in the same boat.

It's had a good impact on teachers, improved their teaching practice – encouraged consistency, sharing of best practice, 'de-privatising the classroom'.

TOWN has provided a framework to have group discussions, identify areas for improvement, collegiate sharing of ideas, [providing an] understanding of where to focus.

Similarly a teacher observed:

The collegial teaching approach allows teachers to learn new ideas, validate their approach and build up self-confidence.

Another key issue identified in the qualitative consultations was that those school staff that were most open to the new teaching approach in TOWN tended to be those who were at an earlier stage of their careers, and that those in the later years of their careers tended to be most resistant. This may appear to contradict the findings of the online survey reported above, that staff at both an early (5 years or less) or later (11-20 years) stage of their careers were more likely to report both a greater degree of positive impact resulting from participation in TOWN and on their overall numeracy teaching practice than those teachers in the middle of their career (6-10 years).

However, this may possibly be explained by the fact that older staff may have been less convinced of the value of the program initially, but that this changed over time as they saw how it was benefitting students and teaching practice, and they overcame their own resistance to doing things differently. As one more experienced teacher reflected:

The more experienced teachers felt valued for what we were doing already, and recognised our role in supporting junior teachers on how to deliver lessons.

5.3 SUCCESS FACTORS

5.3.1 OVERVIEW

A number of success factors were identified which were associated with greater teacher engagement and improvements in numeracy teaching.

The five most critical factors identified were:

- changed numeracy teaching practice
- strong school leadership
- an enthusiastic and skilled TOWN Coordinator devoting intensive time to the program
- staff who were more open to new teaching approaches
- experience with similar numeracy programs.

After presentation of the findings from the online survey in relation to key success factors, the above issues are discussed in more detail below.

Respondents with a regular classroom teaching role were presented with a set of different elements of the TOWN program and were asked to rate how *important* each of the elements had been in improving their teaching of numeracy. These responses are presented in Table 18 below, including a calculation of *total importance*, which comprises the combined set of *very important* and *important* responses.

As Table 18 shows, the factors deemed important in improving numeracy teaching by the highest proportion of teachers were (in terms of *total importance*):

- *Ability to reflect on and critique your numeracy teaching practice (88%)*
- *Use of the numeracy continuums (eg place value framework) (87%)*
- *In-school support from the school TOWN Coordinator/Leader (86%).*

The support from the TOWN Coordinator was also nominated as *very important* by the highest proportion of respondents (57%).

The elements *least* frequently nominated as an important factor in improving numeracy teaching were (in terms of *total importance*):

- *Participation in the regular TOWN videoconferences organised by DEC (28%)*
- *Access to case managers for expert advice on individual learning needs (39%)*
- *The external training workshop (48%)*
- *Access to the TOWN website (55%).*

It should be noted, however, that not all respondents participated in the first three of these particular elements of TOWN, corresponding to the high frequency of *not applicable/hard to say* responses.

TABLE 18 – CRITICAL FACTORS IN IMPROVING NUMERACY TEACHING (PERCENTAGE OF RESPONDENTS*)

FACTOR	TOTAL IMPORTANCE	VERY IMPORTANT	IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT	NO IMPROVEMENT IN MY TEACHING OF NUMERACY	NOT APPLICABLE/HARD TO SAY
Ability to reflect on and critique your numeracy teaching practice	87.9	43.1	44.8	6.0	0.9	2.6	2.6
Use of the numeracy continuums (eg place value framework)	87.0	53.4	33.6	7.8	-	3.4	1.7
In-school support from the school TOWN Coordinator/Leader	86.2	56.9	29.3	4.3	1.7	5.2	2.6
Observing others modelling lessons/strategies	79.3	43.1	36.2	9.5	-	4.3	6.9
Access to useful teaching resources (eg recommended articles, numeracy lessons and activities)	77.6	41.4	36.2	7.8	1.7	9.5	3.4
Ability to obtain feedback on your numeracy teaching practice through teacher observation	70.7	25.9	44.8	10.3	0.9	6.0	12.1
In-school support from the Regional Facilitator	63.8	37.1	26.7	18.1	1.7	5.2	11.2
Access to the TOWN website	55.2	16.4	38.8	22.4	4.3	11.2	6.9
The external training workshop	48.3	15.5	32.8	13.8	2.6	2.6	32.8
Access to case managers for expert advice on individual learning needs	38.8	11.2	27.6	23.3	8.6	14.7	14.7
Participation in the regular TOWN videoconferences organised by DEC	28.4	8.6	19.8	31.0	6.0	6.0	28.4

* Note this question was answered only by respondents with a regular classroom teaching role

5.3.2 CHANGED TEACHING PRACTICE

Changed teaching practice was a central success factor in the successful implementation of the program. This has been discussed in more detail earlier in this chapter. It is also demonstrated by the fact that the top two critical factors by school staff with regular classroom teaching roles who responded to the online survey responsible for improving their numeracy teaching were *'ability to reflect on and critique your numeracy teaching practice'* and *'use of the numeracy continuums (eg place value framework)'*.

5.3.3 STRONG SCHOOL LEADERSHIP

A critical success factor in the successful implementation of TOWN was strong leadership from the school Executive level. This was important in gaining support and enthusiasm from teaching staff to implement the program, which often represented a quite different numeracy approach to that being used previously.

This factor was identified in feedback provided by all levels of school staff (school Executive, TOWN Coordinators and teaching staff). It was also apparent from a comparison of schools where TOWN had been more and less successfully implemented.

On the one hand, schools where TOWN was most successfully implemented had strong leadership support for the program. For example teachers at two different schools noted that:

We've been well resourced and supported – support and leadership has been critical. We're aware of other schools that have had disengaged teachers and a lack of central support.

Leadership has been critical to driving the change.

On the other hand, schools where the program was less successfully implemented were characterised by a lack of leadership support for the program. For example in one school where an Executive staff member described the program as a 'waste of money', there was a lack of leadership support for the TOWN Coordinator, and consequently limited support for TOWN amongst the teaching staff.

5.3.4 AN ENTHUSIASTIC AND SKILLED TOWN COORDINATOR DEVOTING INTENSIVE TIME TO THE PROGRAM

As noted above, *in-school support from the school TOWN Coordinator/Leader* was identified by a great majority of school staff with a regular teaching role who responded to the online survey (86.2%) as either *very important* or *important* as a critical factor in contributing to their improved numeracy teaching. This was the third most commonly identified critical factor.

Consistently, the qualitative feedback from both executive and teaching staff confirmed that having an enthusiastic and skilled TOWN Coordinator working fairly intensively on the program (for example at least half time off-class at key periods) was one of the most important factors in the success of the program.

Comments by Executive staff included:

Implementing TOWN is resource-heavy, successful implementation has required significant commitment (essentially a full-time role – dedicated off-class resource) to drive the program and get staff working together.

The role of a skilled numeracy leader is critical – it provides deeper understanding and insight and someone to drive the school's focus on numeracy.

The off-class role for the Coordinator has been critical, particularly with staff turnover.

Comments by classroom teachers included:

We have seen benefits because we were pushed by the Coordinator to focus on numeracy, place value and the number strand.

The success [of the program] has been based on the skills of the numeracy leader – we wouldn't have achieved what we did if we had just relied on the TOWN materials/website.

I don't think it would work very well without someone enthusiastic and skilled like [our Coordinator].

Feedback from those parents who could comment on this issue, DEC TOWN staff and Regional Facilitators also confirmed the importance of this factor:

We're aware of the significant effort dedicated by the Coordinator to take time out from teaching to implement and embed the program – commitment to improving student outcomes.

Several skillsets were identified from the consultations for effective TOWN Coordinators:

- expertise in numeracy teaching
- the ability to 'translate the TOWN concept into practice' in a very practical, hands-on way for teachers (eg through training, provision of resources and lesson plans)

- leadership skills which enabled the Coordinator to lead, inspire and engage school staff in the implementation of the program.

5.3.5 STAFF WHO WERE MORE OPEN TO NEW TEACHING APPROACHES

Another critical factor for the success of the program was having staff that were more open to new teaching approaches:

Success has been driven by staff working together with an open mind, a positive approach to embrace something new.

On the other hand, there tended to be less successful implementation of TOWN with schools and/or teaching staff that were less open to a new teaching approach. This could have been for a variety of reasons, such as ‘fatigue’ due to a perception that the school had had too many new programs in the past, or a view that the staff didn’t need to learn anything else. As one Coordinator stated:

Our staff are very experienced, they already know all this.

This finding also connects with that of the online survey noted above, that amongst teachers who responded to the online survey, those who were at an early (5 years or less) or later (11-20 years) stage of their career were more likely to report a greater degree of positive impact resulting from participation in TOWN than those teachers in the middle of their career (6-10 years) (see further discussion in that section).

5.3.6 EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS

Online survey respondents were asked to indicate whether they had previously used other numeracy programs similar to TOWN, including CO and CMIT. As shown in Table 19 below, the large majority of respondents (82%) had previous experience with CO, CMIT, or both programs. Previous experience with CMIT was particularly prevalent, with 79% of respondents indicating that they had used this program.

TOWN Coordinators were most likely to have prior experience in both CO and CMIT (61%), whilst Stage 2 and 3 teachers were least likely to have previously worked with either of these programs (27% and 30% respectively). Previous experience with CMIT was most prevalent amongst school Executives (93%) and K-2 teachers (92%).

TABLE 19 – EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS BY ROLE (PERCENTAGE OF RESPONDENTS)

PROGRAM	TOTAL	EXECUTIVE	TOWN COORDINATOR	TEACHER K-2	TEACHER STAGE 2	TEACHER STAGE 3	SPECIALIST/AIDE/OTHER SUPPORT
CO	45.4	51.7	64.5	16.7	42.3	40.7	31.3
CMIT	78.7	93.1	80.6	91.7	69.2	66.7	75.0
Both CO and CMIT	42.6	48.3	61.3	16.7	38.5	37.0	31.3
Either CO and/or CMIT	81.6	96.6	83.9	91.7	73.1	70.4	75.0
Neither CO or CMIT	18.4	3.4	16.1	8.3	26.9	29.6	25.0

The qualitative data indicated that prior experience with similar numeracy programs such as CMIT and CO assisted some schools to implement TOWN effectively. This was because those prior programs gave them ‘an important head start’ (as one TOWN Coordinator put it), and some familiarity with (for example) the general concepts underlying TOWN, the CMIT/SENA assessment, and numeracy games and activities.

We had experience with CMIT/CO, but hadn't had the time/resources to train all the teachers in this. However, we felt that we had a better starting position than other schools with no previous experience in these programs.

Prior experience in these programs also assisted in garnering support for TOWN at the executive level in some schools:

The principal had experience with CMIT/CO, and therefore knew that this was a good approach – supportive of the program.

However, prior experience with similar numeracy programs could also have a *negative* impact on teacher engagement and implementation of the program. This is discussed further later in this report.

5.3.7 FUNDING TO ALLOW ADEQUATE STAFF RELEASE

A further important success factor identified was funding to allow sufficient staff release time. The *NP on Literacy and Numeracy: Information Package for Schools* recommended (but did not mandate) that schools make provision for five professional learning days per teacher in 2009 (and 10 days in 2010), and for the school numeracy leader 10 days in 2009 (and 20 days in 2010).

Executive and teaching staff reported that release time allowed staff time to participate in a number of other activities, in particular:

- Allowing the TOWN Coordinator to spend focused time driving implementation of the program (a more detailed discussion of the type of activities conducted by TOWN Coordinators is provided earlier in this report).
- Regular staff meetings and other professional development focused on reflection and sharing in relation to their numeracy teaching:

The weekly staff reflection meeting has been critical to making it work – which has only been possible due to NP funds. We meet for one and a half hours per week, to discuss progress, suggestions for improvement; the entire focus is on maths, it ensures everybody is engaged and committed to TOWN. A lot of the resourcing is being dedicated to this meeting.

The most value for teachers is the ongoing time committed to training, professional learning and professional dialogue.

- Developing lesson plans and teaching resources:

[Having the] resources and time/focus to prepare solid lessons, develop consistent resources, programming, and to conduct lesson observations have been critical.

- Dialogue, reflection and team teaching with the TOWN Coordinator and other colleagues:

It's valuable having the time to sit with the Coordinator and get guidance for assessing students and putting them on the framework.

Time for sharing and discussion in school hours has been critical.

It's not necessarily TOWN that has made the difference – it has been the funding to implement structures to better support numeracy, including smaller classes, the off-class numeracy leader role, time to conduct lesson studies, team teaching, and time for sharing and discussion on numeracy.

A three hour session off class per week to observe lessons, discuss with colleagues, and plan lessons.

It was also observed that the amount of time devoted to professional development under TOWN is far greater than would have been the case otherwise (or previously). For example one executive staff member observed:

Without NP funding to get staff off-class to work collectively this wouldn't have worked... the PD/PL budgets have been massively expanded - \$12k per term instead of \$12k per year.



I LOVE MATH!!
 $5 \times 7 = 35$

6 Outcomes for students

KEY FINDINGS

- Overall, school staff felt that TOWN has had a positive impact in improving numeracy outcomes for students: 77% of staff surveyed felt that the program had been either effective or very effective in this way.
- Both the quantitative and qualitative data consistently indicated that the areas where improvements in students were most commonly observed related to: students' maths skills; use of effective strategies to assist them doing maths; students' confidence in doing maths; and students' enthusiasm for doing maths.
- The key factors identified underpinning successful implementation of TOWN were: making maths fun and practical; differentiation and grouping of students by level of ability; and using a range of different numeracy strategies.
- The predominant view amongst those consulted in both the quantitative and qualitative consultations was that TOWN is just as effective for Aboriginal and non-Aboriginal students, although a sizeable minority in both were unsure about this issue. This may reflect the small number of Aboriginal students in the program at many schools.

6.1 NAPLAN AND DATA ASSESSMENT DATA

6.1.1 DATA SETS AND LIMITATIONS

NAPLAN

The NAPLAN tests are conducted in May each year for all students across Australia in Years 3, 5, 7 and 9. All students in the same year level are assessed on the same test items in the assessment domains of Reading, Writing, Language Conventions (Spelling, Grammar and Punctuation) and Numeracy.

Each year, over one million students nationally sit the NAPLAN tests, providing students, parents, teachers, schools, and school systems with important information about the literacy and numeracy results of students. NAPLAN tests have been conducted since 2008. Data includes reading and numeracy capability broken down to specific areas to determine overall assessment of literacy and numeracy.

EMSAD has noted a number of limitations to using this data for evaluation of the NPLN literacy and numeracy programs, including TOWN:

- The first NAPLAN in 2008 was criticised for its lack of visual literacy and student engagement may have been much lower than it was for subsequent tests when the quality of the reading tests was improved.
- NAPLAN is a bi-annual test so growth in NAPLAN scores can only be assessed across one out of the two cohorts in any one year, that is, at Year 5 in 2010 and 2011.
- Assessing growth for the first cohort from Year 3 2008 to Year 5 2010 includes data for one year before the intervention commenced, and an end-point only mid-way through the NPLN period; the second cohort, from Year 3 2009 to Year 5 2011 has a different start and end-point with respect to involvement with the NPLN programs and therefore different results would be expected.
- The youngest cohort did not do a NAPLAN test until they were in Year 3 in 2010 and so growth in NAPLAN scores will not be able to be assessed until they are in Year 5 in 2012.
- As NAPLAN and the NPLN tests are on different scales the results of these two assessments cannot be compared.
- Data comparing the proportion of students in a given performance band (relative to the National Minimum Standard - NMS) is of limited value for the evaluation of the program's impact at this point in time. Given the relatively high proportion of students below the NMS at schools participating in the

NPLN, the meaningfulness of a small shift for a specific cohort over the specified testing period is not certain (particularly given other limiting factors such as student mobility over the period and uncertainty of the band measure). Further sequential testing over the extended timeframe will be required to monitor the longer term trend in results; consequently this data has not been analysed for the program evaluations.

NPLN ASSESSMENTS

The NPLN baseline assessment is developed from the BST - Basic Skills Test and was first administered at the beginning of TOWN (pre-test 2009 - Years 2, 3 and 4), administered again in August 2010 (midway test - Years 3, 4 and 5), and a final test was administered in August 2011 (end - Years 4, 5 and 6).

EMSAD has noted a number of limitations to using this data for evaluation of the literacy and numeracy programs, including TOWN:

- The NPLN tests are adequate for whole cohort assessment but are too brief to use for diagnostic assessment of individual students.
- As the NPLN tests are half the length of the BST, they cannot be used to compare with State-wide performance on the former BSTs.
- There was a lot of student mobility in the schools and students were not matched when mean scores and percentages in bands were calculated so the cohorts will not contain the same students.

OTHER LIMITATIONS AND COMMENTS

Advice from EMSAD suggests that English as a Second Language (ESL) and Language Background other than English (LBOTE) comparisons are not appropriate for the program evaluation (and therefore these variables have been excluded from the analysis):

- ESL information is not reported in NAPLAN and no jurisdictions provide any ESL information to the Australian Curriculum, Assessment and Reporting Authority. Although ESL data in NSW is collected separately, accurate figures have only been collected in all schools in 2011; therefore it is not possible to conduct a year on year comparison of results for ESL students.
- ESL levels were not collected in the data for the short local measure NPLN assessments of reading and numeracy. LBOTE was recorded but that only indicates that someone in the immediate family speaks a language other than English. That information has serious limitations as it does not reflect the students' proficiency in English language usage which is often high but could be low.

Comparisons across different groupings of schools (ie TOWN schools – whole-of-school intervention, TOWN schools – individual intervention, all State schools) should be interpreted with caution due to limitations with attribution and consistency. For NPLN schools implementing a particular numeracy intervention, the numeracy outcomes will be influenced by how well different schools implement the program, and whether the school has concurrently implemented other programs targeting numeracy. For example, some NPLN schools implementing TOWN as a whole school numeracy intervention will also have been providing additional numeracy support for target students through Quicksmart, whilst others have implemented the TOWN individual intervention (case management). In addition, the aggregate numeracy scores provided by EMSAD for the schools using TOWN case management include data for *all students* at the school (not just the individual students who have participated in case management). Given the noted variation in the extent to which TOWN case management has been used in schools, the extent to which aggregate numeracy gains can be attributed to the individual intervention is somewhat limited.

Likewise, whilst comparison with the State as a whole (for NAPLAN data) provides a reference point for interpretation of NPLN program results, the State is not a valid control group due to the broad range of numeracy programs used across the State (including in some cases, the same programs as those funded through the NPLN).

Given these limitations, EMSAD has advised that considerable caution should be taken in the analysis and interpretation of these data sets. Based on this advice, Urbis has included the key data aggregations provided by EMSAD, and provided only descriptive commentary on the student outcomes observed.

6.1.2 NAPLAN RESULTS

NAPLAN mean numeracy scores are presented for the two different NAPLAN cohorts in the tables below. The standard deviation in numeracy scores is also included to indicate the magnitude of spread in the scores. The gain score is calculated as the change in the mean numeracy score over the two year period.

TABLE 20 – NAPLAN COHORT 1 NUMERACY SCORES

COMPARISON GROUP	YEAR 3 2008		YEAR 5 2010		GAIN SCORE
	MEAN	STD DEV	MEAN	STD DEV	
TOWN Schools (Whole School)*	374.3	69.0	463.1	67.5	88.9
TOWN Schools (Whole School + Individual Intervention)**	375.1	70.8	465.4	67.5	90.3
All State schools	409.5	77.1	499.5	79.7	90.0

* All NPLN numeracy focus schools implemented TOWN as the whole school numeracy intervention

** Schools using TOWN whole-of-school and the TOWN individual intervention (case management)

TABLE 21 – NAPLAN COHORT 2 NUMERACY SCORES

COMPARISON GROUP	YEAR 3 2009		YEAR 5 2011		GAIN SCORE
	MEAN	STD DEV	MEAN	STD DEV	
TOWN Schools (Whole School)*	374.9	75.7	466.6	65.5	91.7
TOWN Schools (Whole School + Individual Intervention)**	380.1	75.5	472.9	65.5	92.9
All State schools	405.9	81.6	500.6	78.8	94.7

* All NPLN numeracy focus schools implemented TOWN as the whole school numeracy intervention

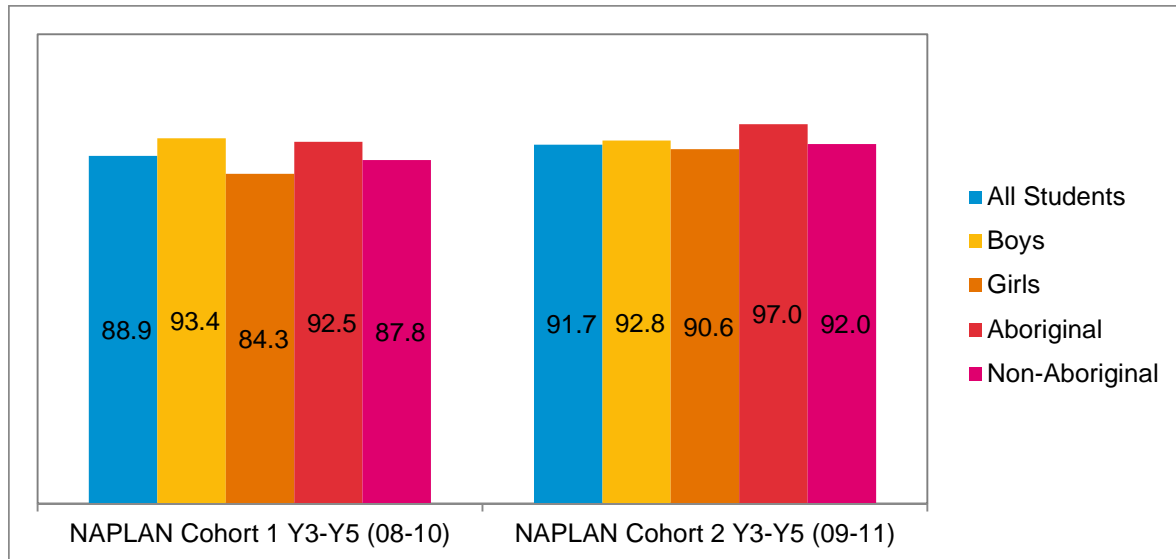
** Schools using TOWN whole-of-school and the TOWN individual intervention (case management)

This data shows that NPLN schools participating in TOWN have achieved gains in the NAPLAN mean numeracy score for both student cohorts. In both NAPLAN cohorts, the gain score for students at schools implementing both the TOWN whole-of-school and TOWN individual intervention was marginally higher than that for all schools implementing the TOWN whole-of-school program.

In both NAPLAN cohorts, the numeracy gain score for students at TOWN schools was slightly lower than that for all State schools. Accordingly, the mean numeracy score at TOWN schools over the NPLN period was still notably lower than the State average.

The NAPLAN numeracy gain scores for TOWN schools were also compared for key student comparison groups (gender and Aboriginality). This data is presented in Figure 1 below.

FIGURE 1 – TOWN (WHOLE SCHOOL) NAPLAN NUMERACY GAIN SCORES BY STUDENT COMPARISON GROUPS



The comparison of gain scores shows minor variance in numeracy growth according to gender, with growth for male students slightly exceeding that for female students in both cohorts (most notably in the first cohort). The gain scores for Aboriginal students were higher than those for non-Aboriginal students in both cohorts; however, the sample size of Aboriginal students completing the NAPLAN tests in TOWN schools was small (≤ 180 students) and therefore the ability to draw any reliable conclusions from this data is limited.

6.1.3 NPLN ASSESSMENT RESULTS

NPLN assessment mean numeracy scores are presented for the three different NPLN cohorts in the tables below. The standard deviation in numeracy scores is also included to indicate the magnitude of spread in the scores. The gain score is calculated as the change in the mean numeracy score over the two year testing period.

TABLE 22 – NPLN COHORT 1 NUMERACY SCORES

COMPARISON GROUP	YEAR 2 2009		YEAR 3 2010		YEAR 4 2011		GAIN SCORE
	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	
TOWN Schools (Whole School)*	40.1	9.5	51.2	8.8	57.4	10.4	17.3
TOWN Schools (Whole School + Individual Intervention)**	39.9	9.9	52.0	8.8	58.5	10.6	18.5

* All NPLN numeracy focus schools implemented TOWN as the whole school numeracy intervention

** Schools using TOWN whole-of-school and the TOWN individual intervention (case management)

TABLE 23 – NPLN COHORT 2 NUMERACY SCORES

COMPARISON GROUP	YEAR 3 2009		YEAR 4 2010		YEAR 5 2011		GAIN SCORE
	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	
TOWN Schools (Whole School)*	47.9	9.6	56.4	9.9	57.6	7.9	9.7
TOWN Schools (Whole School + Individual Intervention)**	48.6	9.6	57.3	9.9	58.3	8.0	9.7

* All NPLN numeracy focus schools implemented TOWN as the whole school numeracy intervention

** Schools using TOWN whole-of-school and the TOWN individual intervention (case management)

TABLE 24 – NPLN COHORT 3 NUMERACY SCORES

COMPARISON GROUP	YEAR 4 2009		YEAR 5 2010		YEAR 6 2011		GAIN SCORE
	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	
TOWN Schools (Whole School)*	53.5	10.0	58.0	8.1	61.1	8.6	7.6
TOWN Schools (Whole School + Individual Intervention)**	53.8	10.5	58.1	8.1	61.5	8.5	7.7

* All NPLN numeracy focus schools implemented TOWN as the whole school numeracy intervention

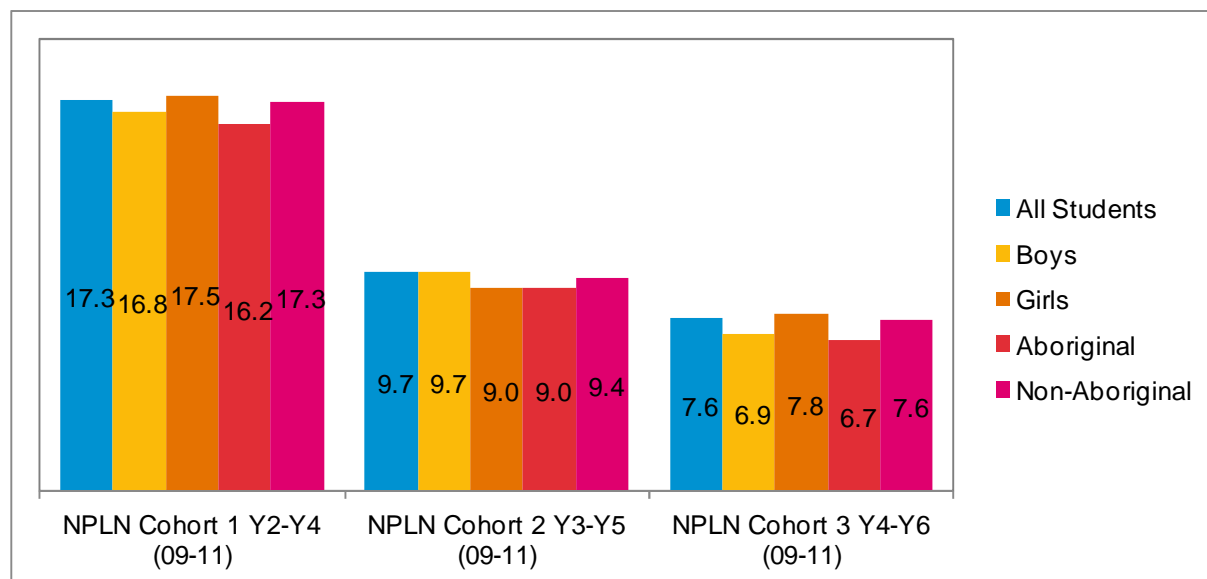
** Schools using TOWN whole-of-school and the TOWN individual intervention (case management)

This data shows that TOWN schools have achieved gains in the NPLN assessment mean numeracy score for all three student cohorts; however, the extent of this gain varied across the cohorts. The largest magnitude of change over the testing period was observed in the youngest cohort (students in Year 2 in 2009), whilst the oldest cohort (students in Year 4 in 2009) achieved the least growth.

In all three cohorts, the gain scores for students at schools implementing both the TOWN whole-of-school and TOWN individual intervention were in line with those for all schools implementing the TOWN whole-of-school program.

The NPLN assessment numeracy gain scores for TOWN schools were also compared for key student comparison groups (gender and Aboriginality). This data is presented in Figure 2 below.

FIGURE 2 – TOWN (WHOLE SCHOOL) NPLN ASSESSMENT NUMERACY GAIN SCORES BY STUDENT COMPARISON GROUPS



The comparison of gain scores shows no notable variance in numeracy growth according to gender; in two cohorts, female students achieved slightly higher numeracy growth over the testing period than that achieved by male students.

In all three cohorts, the gain scores for Aboriginal students were marginally lower than those for non-Aboriginal students. Again, the validity of this result is limited due to the small sample size of Aboriginal students completing the NPLN assessments at TOWN schools (≤ 180 students).

Interestingly, the trends observed for gender and Aboriginality in the NPLN assessment data are inverse to those found in the NAPLAN data. However, given the noted limitations of both data sets (and therefore the potential scope of measurement error), this difference cannot be described as meaningful.

6.2 QUANTITATIVE DATA ON STUDENT OUTCOMES

6.2.1 OVERALL EFFECTIVENESS

The survey questionnaire sought respondents' views on the impact of TOWN on students at their school. Teachers were asked to rate the *overall effectiveness* of TOWN in improving numeracy outcomes for students.

Overall, more than three quarters of respondents (77%) reported that TOWN had been *effective* or *very effective* in improving numeracy outcomes for students. Respondents working as a TOWN Coordinator or specialist teacher/aide/other support were most likely to report that the program had been effective (90% and 88% respectively). Whilst only a small minority of respondents reported that the program had been *not at all effective* (7%), this view was more common amongst Stage 3 teachers (19%) and K-2 teachers (17%).

Considering the variation in views on the *overall effectiveness* of TOWN according to respondents' level of teaching experience demonstrated that those respondents either at an early or late stage of their teaching career (ie five or less years' or over 20 years' experience) were more likely to report that the program had been effective.

Considering the responses according to the location and size of the school at which respondents worked showed that respondents from schools in rural/remote areas were more likely to report finding TOWN effective in improving student numeracy outcomes (85%) than respondents from regional (75%) or metropolitan (57%) schools. Likewise, a higher proportion of teachers working in small schools (96%) reported that TOWN had been effective for students compared to teachers in medium-size (73%) and large (71%) schools.

Consistently with the data from the online survey, most teachers at most schools consulted on the fieldwork felt that overall TOWN had been effective in improving numeracy outcomes for students beyond what would have occurred otherwise. For example one TOWN Coordinator reported that:

Some have made very significant progress – from target level to Level 4; very few are not making any progress.

Those schools and staff who disagreed with the view that most students had improved under TOWN tended to be those where either the program had been less successfully implemented, or who queried whether what had been done with students was 'TOWN' as such or simply the approach to numeracy teaching which had been *prompted* by TOWN (but relied on the work done by the school). This issue has been discussed further above.

6.2.2 OBSERVED IMPROVEMENTS

Both the quantitative and qualitative data consistently indicated that the areas where improvements were most commonly observed for students related to: students' maths skills, use of effective strategies to assist them doing maths, students' confidence in doing maths, and students' enthusiasm for doing maths.

Teachers were asked to indicate the extent of *improvement* observed in seven areas relating to students' engagement with and capability in numeracy since the introduction of TOWN. These responses are presented in Table 25 below, including a calculation of *total improvement* which comprises the combined set of *significant improvement* and *some improvement* responses.

In all seven areas, the majority of respondents reported having observed *some improvement* or *significant improvement* in the students since the introduction of TOWN. The top three observed improvements were (in terms of *total improvement*):

- students' use of effective strategies to assist them doing maths (91%)
- students' maths skills (90%)
- students' confidence in doing maths (89%).

Areas with the highest proportion of *significant improvement* observed in students related to students' engagement with maths, including *students' enthusiasm for maths* (53% *significant improvement*) and *students' confidence in doing maths* (50% *significant improvement*).

TABLE 25 – OBSERVED IMPROVEMENT IN STUDENTS NUMERACY (PERCENTAGE OF RESPONDENTS)

AREA	TOTAL IMPROVEMENT	SIGNIFICANT IMPROVEMENT	SOME IMPROVEMENT	A LITTLE IMPROVEMENT	NO IMPROVEMENT	HARD TO SAY
Students' use of effective strategies to assist them doing maths	90.8	47.5	43.3	3.5	2.8	2.8
Students' maths skills	90.1	44.0	46.1	4.3	2.8	2.8
Students' confidence in doing maths	89.4	50.4	39.0	5.0	2.8	2.8
Students' enthusiasm for maths	85.8	52.5	33.3	7.8	2.8	3.5
Students' understanding of what is expected of them	85.8	41.8	44.0	7.8	3.5	2.8
Students' understanding and use of multi-unit place value	85.1	40.4	44.7	7.8	3.5	3.5
Students' enthusiasm for their other schoolwork (beyond numeracy)	65.2	27.7	37.6	15.6	9.2	9.9

Considering the responses according to role, TOWN Coordinators were most likely to report observed improvement in students' numeracy across the majority of areas. Infants teachers (K-2) also more commonly reported observed improvements to students' capability and engagement with numeracy. Whilst the large majority of Stage 2 teachers reported observed improved in most areas, the proportion of this teaching group reporting improvement in students' numeracy was slightly lower than classroom teachers at other levels. For example, 81% of Stage 2 teachers noted improvement in *students' maths skills*, compared to 100% of K-2 teachers and 89% of Stage 3 teachers.

Teachers were asked to rate the effectiveness of TOWN in improving the educational outcomes for a number of different student groups. These responses are presented in Table 26 below, including a calculation of *total effectiveness*, which comprises the combined set of *very effective* and *somewhat effective* responses.

TABLE 26 – EFFECTIVENESS OF TOWN FOR DIFFERENT STUDENT GROUPS (PERCENTAGE OF RESPONDENTS)

STUDENT GROUP	TOTAL EFFECTIVENESS	VERY EFFECTIVE	SOMEWHAT EFFECTIVE	NOT VERY EFFECTIVE	NOT AT ALL EFFECTIVE	NOT APPLICABLE/HARD TO SAY
All students	89.4	44.7	44.7	2.8	3.5	4.3
Students below NAPLAN benchmarks	83.7	45.4	38.3	4.3	2.8	9.2
Students above NAPLAN benchmarks	75.9	28.4	47.5	7.8	6.4	9.9
Aboriginal students	73.8	31.2	42.6	2.8	2.8	20.6
Students with a learning disability	71.6	22.7	48.9	7.1	3.5	17.7
ESL/LBOTE students	53.9	24.8	29.1	3.5	2.8	39.7

Taking into consideration the proportion of responses reported as *not applicable/hard to say*, respondents did not highlight any particular student group for which TOWN had been notably ineffective. The student groups with the highest proportion of *not very effective* or *not at all effective* responses were *students above NAPLAN benchmarks* (14%) and *students with a learning disability* (11%), compared to 6% of responses for *all students*.

6.3 QUALITATIVE DATA

As with the quantitative data from the online survey, the qualitative data from the consultations with school staff, students and parents indicated that the top areas where improvements were observed for at least many (if not all) students as a result of TOWN (or its implementation) related to:

- students' maths skills, and use of effective strategies to assist them doing maths
- students' confidence in doing maths
- students' enthusiasm for doing maths.

Each of these is discussed in more detail below.

6.3.1 STUDENTS' MATHS SKILLS AND USE OF EFFECTIVE STRATEGIES TO ASSIST THEM DOING MATHS

School staff, students and parents at most schools reported that there had been marked improvements in many students' maths skills and use of effective strategies to assist them doing maths as a result of participation in TOWN. Areas where maths skills were reported to have improved included, for example, students being more able to reason and explain their strategies, being able to group numbers, being able to count on by decades, and multiplication. As two parents reported:

I have observed quite a dramatic improvement, for example baking cakes and doubling the mixture and using fractions – they would previously struggle with something like this, now they can do it comfortably.

I have noticed an outstanding improvement. Previously they struggled, it just wasn't sinking in – now they find it easier to comprehend, and know how to problem solve, and work out other ways to solve the problem (eg number lines). Previously there would have been a blank response and/or stress relating to maths, now they can break it down and do it.

Some school Executive and teaching staff did however caution that while there have been improvements in maths results, these had not necessarily translated to improvements (or enough improvements) in NAPLAN results. As one TOWN Coordinator observed:

Students are moving up the continuum, but it's small movements. I was expecting huge jumps. The NAPLAN results have not improved so far, it will be interesting to see the latest results (2011).

Similarly school Executive staff members at a couple of schools reported that:

We can see real growth in the kids at school, but they're still not necessarily stage-level appropriate; NAPLAN is a bit of a kick in the guts.

It takes longer than a year to see results in the data. Last year we didn't meet the NAPLAN targets, but we're hoping to see improvements this year. NAPLAN is limited in testing the skills that TOWN tries to develop eg working out, showing strategies (mostly multi-choice instead).

6.3.2 STUDENTS' CONFIDENCE IN DOING MATHS

School staff, students and parents all observed that increased confidence in doing maths was a key outcome of the program, especially to take on more difficult numeracy activities, and to ask for assistance.

It makes you feel like you've achieved something when you get it right.

(Student)

I don't avoid doing the hard problems, now I want to have a go.

(Student)

[There's been] a huge improvement in confidence, she's happy to put her hand up and have a try.

(Parent)

She's got a much better attitude now, she'll have a go at harder things and surprise herself that she can actually do it.

(Parent)

Once things start to click, they are more confident to give it a go.

(Parent)

The main impact for the low ability students has been their confidence and enthusiasm to participate in maths. They can communicate and explain what they did.

(School staff)

6.3.3 STUDENTS' ENTHUSIASM FOR DOING MATHS

Another strong outcome reported by school staff, students and parents was much greater enthusiasm for doing maths. This included being more willing and interested to do maths, and to spend more time doing it:

Maths is fun, we spend much more time doing maths now.

(Student)

[They're] excited and inquisitive, [and there's] a willingness to learn.

(Parent)

A number of students, parents and school staff contrasted the much more positive attitudes many students exhibited towards maths now, with the negative attitudes demonstrated previously:

My child used to hate maths, just wasn't interested – now she is much more engaged.

(Parent)

Talking about maths, there's excitement; previously there would be dead silence if asked a question.

(School staff)

Previously the student mentality was 'it's maths, I'm shutting down'. Now they are much more positive, even if in the lowest capability group.

(School staff)

Now we do maths first thing for two hours every day – there's no way that they would've been able to do this before.

(School staff)

6.4 OUTCOMES FOR ABORIGINAL STUDENTS

Both the quantitative and qualitative data indicate that the predominant view by those consulted is that TOWN is just as effective for Aboriginal and non-Aboriginal students. A sizeable minority in both the quantitative and qualitative consultations were also unsure about this issue (ie couldn't say one way or the other).

Teachers were asked in the survey to report their view on the relative effectiveness of TOWN in improving numeracy outcomes for *Aboriginal* students compared to *non-Aboriginal* students. Table 27 below shows the results. The large majority of respondents indicated either that the program is as effective for Aboriginal students as for non-Aboriginal students (55%) or that they were *not sure* of the relative effectiveness (38%). A small minority reported that TOWN had been *more effective* for Aboriginal students than for non-Aboriginal students (5%).

TABLE 27 – EFFECTIVENESS OF TOWN ABORIGINAL STUDENTS COMPARED TO NON-ABORIGINAL STUDENTS (PERCENTAGE OF RESPONDENTS)

EFFECTIVENESS	TOTAL
More effective than for non-Aboriginal students	5.0
As effective as for non-Aboriginal students (ie no difference)	55.3
Less effective than for non-Aboriginal students	-
Not sure/ hard to say	37.6
Not applicable as there are no Aboriginal students participating in TOWN at my school	2.1
TOTAL	100

Teachers were asked to specify why they believed this relative effectiveness had been the case. The most common reasons noted by respondents included:

- Teaching caters for the needs of all students through differentiation/ similar profile of results for both groups (70 mentions):

Aboriginal students are able to complete the same assessments and then as a teacher I am able to place them on the appropriate place value level and then work on moving them to the next level. They enjoy the games and lessons as much as other children. They demonstrate the same levels of diversity in terms of ability. It is about providing quality teaching and learning for everyone.

All students were on the framework and all students were on an individual learning program. All students were targeted.

Results for both have shown improvement, neither group is better or worse off.

Both Aboriginal and non-Aboriginal students moved along the framework and both Aboriginal and non-Aboriginal students failed to move along the framework.

- Students' positive response to hands-on, practical learning activities and group-work (18 mentions):

Much of the learning involved group work where the Aboriginal students enjoyed the hands-on activities and the opportunity to talk about learning.

The practical and engaging learning activities, differentiated activities and use of group work are practices that are necessary to improve results for all students.

- A small cohort of high-performing Aboriginal students (9 mentions):

Both Aboriginal students in my class have been consistently high achievers.

Aboriginal students in my class are bright students.

- Students' positive response to explicit lesson direction and clear expectations (5 mentions):

They are also aware of what is expected of them during the activity which reduced anxiety in their lessons.

Knowledge of the framework helped them understand what was expected. I feel this gave them more self-direction and control of their learning.

- A small cohort of Aboriginal students – unable to comment on relative effectiveness (32 mentions).

Respondents were also asked to specify any other impacts or outcomes (positive or negative) that had been observed in Aboriginal students participating in TOWN. Of the 141 teachers completing the survey, 49 respondents provided a specific response to this question. The most common additional impacts or outcomes for Aboriginal students noted by respondents included:

- Increased student enthusiasm/engagement with maths (30 mentions):

Aboriginal students have been more enthusiastic about their maths this year and keen to improve.

Students do enjoy maths lessons now, and as we are able to provide instruction at the level of achievement they are feeling a sense of achievement when they learn something new and improve their understandings.

- Increased student confidence (13 mentions):

An increase in the confidence of Aboriginal students and their willingness to contribute to class discussions.

- Improved family/community engagement with numeracy/the school (5 mentions):

Gaining insight into preferred learning strategies through family and incorporating cultural concepts into maths games with family input has led to a stronger relationship between the school and the Aboriginal community.

- Improved attendance (3 mentions).

Consistently with the quantitative data, the majority of school staff felt that the TOWN program is just as effective for Aboriginal students as it is for non-Aboriginal students. This included staff at both the two schools with the highest proportions of Aboriginal students at the school (and in the TOWN program) visited on the fieldwork, and the majority of schools visited (where Aboriginal students constituted only a tiny proportion of those in TOWN).

Comments from the schools with a higher Aboriginal population noted:

There have been positive student outcomes, the engagement has been the same for both Aboriginal and non-Aboriginal students.

The engagement of the Aboriginal students is the same as the non-Aboriginal students, but many have started significantly behind – there are big gaps to be filled.

The consultations with students and parents at the two schools with the highest Aboriginal population suggested that the latter comment was true in the two schools concerned ie that Aboriginal students were more likely to be further behind in numeracy compared to their non-Aboriginal peers. For example, the Aboriginal students at both schools appeared less engaged in maths, were more likely to report that they didn't like maths or found it boring or hard. The Aboriginal parents at one of these schools were less likely to believe their children enjoyed maths, or were making progress in maths.

On the other hand, at the other schools where Aboriginal students only constituted a tiny number of students, the general view was that they were generally at or in some cases ahead of their non-Aboriginal peers in terms of maths.

Most of those consulted did not feel there was anything in the program that was either more or less suitable for Aboriginal students. However, a few did mention that aspects of the program such as a greater focus on more visual and practical activities, where students could see the connection between what they were learning about numeracy and its practical application to day-to-day life, were particularly well-suited to Aboriginal students.

As with the online survey feedback, a sizeable minority of school staff consulted were unsure about this issue and did not feel they could comment on it. This was particularly true at the majority of schools visited where Aboriginal students constituted only a very small proportion of those in the TOWN program.

6.5 SUCCESS FACTORS

Three key factors underpinning successful implementation of TOWN were identified from the qualitative consultations with school staff, students and parents. These were:

- making maths fun and practical
- differentiation and grouping students by level of ability
- using a range of different numeracy strategies.

Each of these is discussed in more detail below.

6.5.1 MAKING MATHS FUN AND PRACTICAL

The success factor most commonly mentioned, particularly by school staff and students, was that the approaches used to implement TOWN – particularly the various numeracy games – had made numeracy:

- Much more fun, enjoyable and 'hands on' for students. This has encouraged interaction, sharing of strategies between students, and working together:

Maths has changed, we now do more games and activities instead of tests and textbooks – I prefer this. I like using the interactive whiteboards – people want to be involved and use it.

(Student)

We like learning with fun activities and games – drawing and shading fractions on the whiteboard, warm up activities – counting on, the number line with fractions on a string.

(Student)

We like playing maths games like bingo and 100s chart, using the smartboard, mad minute, songs and chanting.

(Student)

Lots of the activities are fun, it exercises your brain.

(Student)

The kids mostly seem to enjoy the games and the objects – they like that it's tactile and interactive.

(Parent)

We focus on activities and group work in class, which encourages cooperative learning and keeps the students engaged.

(School staff)

We don't have the discipline problems that we used to have – instead of dishing out worksheets, we deliver engaging lessons and the kids are more settled in class.

(School staff)

Parents at a couple of schools reported that they had been provided with resources by the school, including information sheets and games, so that 'we can now play these maths games at home too'. This helped to reinforce what students were learning in class.

- Seem much more 'real' and useful to students ie they could see its practical application and usefulness in day-to-day life:

Making maths fun and embedding maths within real world activities has been critical to developing understanding.

(School staff)

Games are important – it is about applying strategies to real life maths.

(School staff)

The students see maths differently – they understand that maths is real and embedded in the every day.

(School staff)

[My child] calculates numbers at the supermarket, ... [and] commented 'you need numbers for everything'.

(Parent)

The children talk about maths at home, go on the website to play maths games, get the dice out at home – they are starting to put maths into everyday living.

(Parent)

You need maths everywhere, and for every job.

(Student)

6.5.2 DIFFERENTIATION AND GROUPING STUDENTS BY LEVEL OF ABILITY

Another key success strategy identified for the successful implementation of TOWN was differentiation and grouping of students according to their ability level for teaching purposes. School staff, students and parents identified this as an effective strategy which:

- Results in students being taught in a more tailored way depending on their level of achievement and need:

The focus is on the students – differentiation and allowing them to achieve at their level; this means we can support all levels appropriately.

(School staff)

It encourages engagement by differentiating the level for each group, as if it's too hard or too easy, the students disengage.

(School staff)

- Encourages students to learn from each other:

We like working in groups, getting help from our friends. It's better in a group – we all have different strategies and can put them together.

(Student)

I like working things out on the whiteboard; listening to other students' strategies helps, you can find faster ways of solving the problems.

(Student)

- Builds confidence in students, and avoids children feeling stigmatised for under-performing:

It doesn't make you feel dumb – you're all at the same level.

(Student)

I support the idea of putting students in groups according to ability, as if kids are around much stronger students, it has a very poor impact on their confidence.

(Parent)

By differentiating into groups and playing appropriate level games, it gives students the confidence to participate, and it also builds social skills.

(School staff)

Ability groups mean students can answer the questions (as appropriately targeted), and have increased confidence as not the slowest kid in the group.

(School staff)

6.5.3 USING A RANGE OF DIFFERENT NUMERACY STRATEGIES

A third success factor identified was the use of a variety of different numeracy strategies. This 'toolbox' approach meant that students learn a range of methods to get to the answer to the same problem, which has a number of advantages:

- It increases the likelihood students will find a method that works best for them:

There is recognition that there are lots of different strategies that are valid. We look at three different strategies for solving the problem and get students to explain them – it provides validation that it is OK to do things in different ways.

(School staff)

We are using as many different strategies as possible and teaching students that there are different ways to get to the right answer; we focus on the most efficient strategies.

(School staff)

The main thing that helps is learning different strategies – jump strategy, friends of 10, other algorithms.

(Student)

My child now can show different ways of solving the problem – I like that this encourages children to work their own way.

(Parent)

- It provides a way for students to check their own work is correct:

It's OK to work out the questions differently; when you do word problems you show the working out. It's most helpful to learn different strategies for how to solve the problem – we do the problem one way, and then check it with another strategy.

(Student)

- It increases students' understanding of the core underlying processes involved:

Previously we've had students who can do the algorithm but can't explain or comprehend why or how they solved the problem – now the focus is on the definition of concepts and strategies.

(School staff)

Things have changed a lot, they solve things differently – my child told me 'you can't just get the answer, you need to show how you worked it out'.

(Parent)

The focus is on strategies and a step-by-step process – they understand what they are doing and why.

(Parent)

The students understand that thinking is more important than the answer.

(School staff)

- It provides teachers and students with appropriate language to refer to the approaches used:

Vocabulary and topic language – we have the language to describe what they're doing and why; the strategies have a name.

(School staff)

It seems the focus is on understanding the what and why – now they have the words to explain what they're doing and they can understand what the words mean.

(Parent)

7 Impact on schools and sustainability

KEY FINDINGS

- The TOWN program has had an impact on school practices in a number of ways, including making numeracy teaching more explicit and focused, providing greater clarity about the school's goals and expectations in relation to numeracy outcomes, and resulting in most teachers embedding numeracy teaching into everyday classroom teaching.
- Differing views were expressed in the quantitative and qualitative consultations regarding whether the TOWN approach will be sustainable beyond the end of the funding period. On the one hand, some 75% of survey respondents felt there was a clear pathway for this. In the qualitative consultations on the other hand, while there was strong support for the value of this occurring, staff expressed more mixed views about whether this would happen in practice, in the absence of dedicated funding.
- A further positive benefit of the TOWN approach identified of relevance to sustainability is that it will have a positive impact in future on other aspects of teaching in the school beyond numeracy.

7.1 IMPACTS ON SCHOOLS

Teachers were presented with a series of statements in the survey relating to the impact of TOWN on school numeracy practices, the level of support and guidance for implementing TOWN in the school, and the sustainability of the program beyond the funding period. Respondents were asked to express how strongly they *agreed* or *disagreed* with each statement. The responses are presented in With respect to the impact of TOWN on school numeracy practices, there was a high level of agreement with all statements. The statement with which teachers agreed most (in terms of both *total agreement* and proportion of *strongly agree* responses) was that *through participating in TOWN, teaching of numeracy in my school is now more explicit and focused* (53% *strongly agree*, 86% *total agreement*).

In terms of the level of support and guidance for implementing TOWN in the school, the majority of respondents agreed with statements relating to support received from the TOWN Coordinator and the school leadership. The highest level of agreement expressed for any statement was that *the TOWN Coordinator had strong numeracy teaching skills* (60% *strongly agree*, 87% *total agreement*). Conversely, significantly fewer respondents agreed with the statement that *TOWN was well planned and implemented by NSW DEC* (20% *strongly agree*, 50% *total agreement*).

There was a fairly high level of agreement on the sustainability of the TOWN approach, with three-quarters (75%) of respondents agreeing that *there is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period*. Likewise, the majority of teachers (70%) agreed that they would *recommend the use of TOWN in other schools*.

When the responses were analysed by the location and school size of respondents, respondents from rural/remote schools, and small schools (with less than 200 students) were slightly more positive about the impact of TOWN on their school, expressing greater agreement with statements such as:

- *Through participating in TOWN, teaching of numeracy in my school is now more explicit and focused*
- *The TOWN Coordinator/Leader effectively engaged staff participating in TOWN*
- *Support for TOWN at my school has grown over time*
- *I would recommend the use of TOWN in other schools.*

Respondents from metropolitan schools expressed the lowest level of agreement with many statements; however, it should be noted that the validity of this result is limited by the small sample size of metropolitan teachers completing the survey.

Table 28 below.

With respect to the impact of TOWN on school numeracy practices, there was a high level of agreement with all statements. The statement with which teachers agreed most (in terms of both *total agreement* and proportion of *strongly agree* responses) was that *through participating in TOWN, teaching of numeracy in my school is now more explicit and focused* (53% strongly agree, 86% total agreement).

In terms of the level of support and guidance for implementing TOWN in the school, the majority of respondents agreed with statements relating to support received from the TOWN Coordinator and the school leadership. The highest level of agreement expressed for any statement was that *the TOWN Coordinator had strong numeracy teaching skills* (60% strongly agree, 87% total agreement). Conversely, significantly fewer respondents agreed with the statement that *TOWN was well planned and implemented by NSW DEC* (20% strongly agree, 50% total agreement).

There was a fairly high level of agreement on the sustainability of the TOWN approach, with three-quarters (75%) of respondents agreeing that *there is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period*. Likewise, the majority of teachers (70%) agreed that they would *recommend the use of TOWN in other schools*.

When the responses were analysed by the location and school size of respondents, respondents from rural/remote schools, and small schools (with less than 200 students) were slightly more positive about the impact of TOWN on their school, expressing greater agreement with statements such as:

- *Through participating in TOWN, teaching of numeracy in my school is now more explicit and focused*
- *The TOWN Coordinator/Leader effectively engaged staff participating in TOWN*
- *Support for TOWN at my school has grown over time*
- *I would recommend the use of TOWN in other schools.*

Respondents from metropolitan schools expressed the lowest level of agreement with many statements; however, it should be noted that the validity of this result is limited by the small sample size of metropolitan teachers completing the survey.

TABLE 28 – AGREEMENT WITH STATEMENTS ABOUT IMPACT OF TOWN ON THE SCHOOL (PERCENTAGE OF RESPONDENTS)

STATEMENT	TOTAL AGREEMENT	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	HARD TO SAY
SCHOOL PRACTICES							
Through participating in TOWN, teaching of numeracy in my school is now more explicit and focused	85.8	53.2	32.6	7.1	2.1	3.5	1.4
Since the introduction of TOWN there is now more clarity about my school's goals and expectations re numeracy outcomes	83.0	47.5	35.5	10.6	2.1	2.8	1.4
Most teachers in my school are embedding numeracy teaching into everyday classroom teaching	81.6	42.6	39.0	9.2	3.5	1.4	4.3
TOWN has resulted in greater transparency and consistency in the way numeracy is taught in my school	79.4	45.4	34.0	8.5	7.1	3.5	1.4

STATEMENT	TOTAL AGREEMENT	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	HARD TO SAY
SUPPORT AND GUIDANCE							
The school TOWN Coordinator/Leader had strong numeracy teaching skills	86.5	59.6	27.0	8.5	1.4	0.7	2.8
The TOWN Coordinator/Leader effectively engaged staff participating in TOWN	83.7	52.5	31.2	12.8	0.7	0.7	2.1
There is strong leadership support for TOWN in my school	80.1	53.2	27.0	13.5	2.8	0.7	2.8
Overall, I received good support and guidance on how to implement TOWN in my class/school	80.1	42.6	37.6	8.5	7.1	2.8	1.4
Support for TOWN at my school has grown over time	73.0	34.8	38.3	14.9	4.3	4.3	3.5
TOWN was well-planned and implemented by NSW DEC	49.6	19.9	29.8	24.1	7.1	15.6	3.5
SUSTAINABILITY AND VALUE							
There is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period	74.5	27.7	46.8	11.3	4.3	5.0	5.0
I would recommend the use of TOWN in other schools	69.5	36.2	33.3	18.4	5.0	5.7	1.4

The qualitative data from the consultations was largely consistent with the quantitative survey findings. In summary this included that:

- In most schools (especially those where the program had been more successfully implemented) there have been major changes in school practices around teaching numeracy, including being more explicit and focused, having greater clarity around outcomes, and greater consistency and transparency. The exception was in the minority of schools visited where the program had been less successfully implemented.
- In most schools staff felt that there was good guidance provided by the TOWN Coordinator and school leadership for implementing the program.

The qualitative findings in relation to sustainability were more mixed than in the online survey, as discussed further below.

Staff at a number of schools also identified a further positive outcome of the TOWN approach for the school – that is, that it will have a positive impact in future on other aspects of teaching in the school, beyond numeracy. This included:

- It has given staff greater confidence and shared focus, which will contribute to teaching other areas of the curriculum:

The confidence, growth and expertise of teachers is contributing to teaching of other curriculum.

The feeling of success and shared focus has helped the focus of the school.

The strategies and continuum approach can be applied to other subjects.

We can see that this concept works, and now we want to apply it to other areas of the curriculum. We'll also look to flow this back to K-2 – understand that differentiation is key – all students have different abilities and make different rates of progress.

- The engagement of students and use of groupwork and other strategies, which can again be adopted for teaching of other subjects:

Student engagement – this flows onto other subjects.

Students become accustomed to group work and independent learning – that is, without requiring constant teacher supervision and direction. This is useful for other subjects.

7.2 SUSTAINABILITY

In terms of the sustainability of the program, staff at most schools (again, particularly those where the program had been most successfully implemented) expressed support for the *value* of sustaining the TOWN approach to teaching numeracy beyond the funding period, as in the online survey.

It was generally recognised that sustaining the TOWN approach would require maintaining the momentum developed through the program:

Sustainability [relies on] ensuring that we've all learnt together and that all the teachers were upskilled. We need to keep this focus and momentum on numeracy in the school.

However, somewhat more mixed views were expressed about whether this will happen *in practice*, in the absence of dedicated funding.

On the one hand, staff at some schools reported that the approach had become so well-embedded in their numeracy teaching that they felt confident that it would be sustainable beyond the end of the funding period. On the other hand, both Executive and teaching staff also commonly expressed a more cautious view, that they would have to see in practice whether it was sustainable, in the absence of the major focus and resourcing given to numeracy facilitated by TOWN – in particular the TOWN Coordinator to drive implementation. Some at least were unsure whether this would be the case:

It will be a test to see what happens after the program funding ceases.

The resource-intensive role of the Coordinator can only be supported with funding: teachers don't have the capacity to do this on top of a full load ie monitoring and assessment of students – this will fall away when the funding stops.

There were four success factors for sustainability identified during the qualitative consultations. These were:

- The degree to which the TOWN approach has been embedded in numeracy teaching at the school.

We're sticking with numeracy and dedicating our focus and effort to this. It's embedded in the school, and it will be sustainable due to outstanding teacher commitment.

This is the standard practice, this is how we teach maths – there's an embedded understanding. We integrate this into the stage meetings – we share warm ups, games, and problem solving activities.

- Whether schools have developed an effective set of teaching resources associated with the program.

We're archiving the lesson plans and resources for later use.

The resources are now all available, all the materials are prepared and organised, we have the scope and sequence – we can just continue to follow the lesson plans.

We can utilise the videos of the lessons as training materials and lesson plans.

- Having a training strategy for new staff:

We will embed the program in the orientation of new teachers, we intend to find the time to upskill them.

We will continue to put money aside for professional learning and professional development in numeracy, and build this into our standard training practices, although with a smaller scale. We will continue to encourage collaborative planning, sharing and reflection – an academic conversation about numeracy.

- The availability of additional resourcing through other channels:

Our school has NP Low SES funding, we will use this ongoing funding to support continued numeracy work, including reflection work, having a numeracy leader – this will evolve to a quality teaching leader.

Our school will continue to support the program going forward using NP Low SES funding, to fund time off class for the Coordinator to continue lesson observations and in-class support for other teachers.

8 Strengthening the impact of TOWN

KEY FINDINGS

- On the whole, TOWN has been successfully implemented. However, four key barriers to the successful implementation of TOWN and areas for improvement were identified.
- Firstly, there was a fundamental misunderstanding by many schools about the nature of the TOWN program (compared to that intended by DEC TOWN staff). Staff at a number of schools were expecting, or hoping for, a more complete ready-made resource package to implement. However, according to DEC TOWN staff the program was always presented to schools as being primarily about providing professional learning. It is likely that limited and imperfect communication with schools, particularly in the context of a rushed program rollout where the program was still being developed as it was being rolled out and implemented, contributed to this.
- The other barriers to successful implementation all flowed out of this misunderstanding. These were: a perception that there was not enough provided with the program in the way of resources and other forms of support; some schools lacked the considerable skills, resources and motivation required for successful implementation; and running competing programs which in some cases led to scepticism about whether TOWN was offering anything different to those other programs, and schools actually wanting to implement those other programs instead of TOWN.
- A number of areas were identified for improvement to the program. Those most commonly identified included providing more resources; greater regional/in-school support and networking; clearer links to the syllabus and improved guidance for programming and lesson plans; reduced cost and improved value for money; and more extensive planning, preparation and testing of the program prior to launch. These reflect similar themes identified in the barriers.

8.1 FACTORS THAT MAY LIMIT SUCCESS

On the whole, the TOWN program has been fairly successfully implemented. However, this chapter discusses the four key factors that may limit the success of TOWN identified in the qualitative and quantitative consultations:

- a misunderstanding by many schools about the nature of the TOWN program
- a perception that there was not enough provided with the program
- some schools lacking the considerable skills, resources and motivation required to successfully implement the program
- a program cost which was not perceived as providing value for money.

8.1.1 MISUNDERSTANDING BY MANY SCHOOLS ABOUT THE NATURE OF THE TOWN PROGRAM

The first barrier to the successful implementation of TOWN was what DEC TOWN staff view as an apparent fundamental misunderstanding by many schools about the nature of the TOWN program itself.

According to these staff the TOWN program was always presented to schools as being primarily about providing professional learning, rather than a ready-made program to be implemented. However, they also noted that there was quite a common misperception by schools that TOWN would provide the latter:

In some places what they seemed to be looking for was something to take care of the problem with minimal input from the school – to buy in a solution. ... Some of the schools just wanted to buy a package rather than a program trying to optimise the impact on students.

Comments made by staff at a number of schools during the qualitative consultations conducted for the evaluation confirmed that they were indeed expecting – or hoping for – a more complete resource package to implement:

We would have liked more exercises [provided with TOWN]. We were hoping for an explicit program, but that was never going to happen.

This in turn was a common theme underlying the dissatisfaction expressed with a number of aspects of TOWN in this evaluation, as described throughout this report (eg the TOWN materials and website, the initial training conference etc).

Two aspects of imperfect or limited communication may have contributed to this key misunderstanding, including:

- The tight timeframe in which the program was rolled out, with a number of aspects still being developed in the initial stages of program implementation. As DEC TOWN staff noted:

The Agreement was signed well after the program started. Having clear expectations and clear communication wasn't possible – the timeline for implementation made it very difficult. ... The expectations etc in relation to the schools – it was all shaped during it, not in advance. Part of the program was being developed on an ongoing basis.

This may explain why at least some school staff saw the program as being developed 'on the run', with insufficient clarity and organisation in the program rollout, and some inconsistencies in the messages communicated. (For example, some school staff had the impression in the initial stages of program implementation that more resources and support would be provided externally than actually were, and one of the Regional Facilitators confirmed this perception. This therefore delayed some schools proactively undertaking their own activities.)

On the other hand, DEC TOWN staff saw this aspect in a different light, as the program developing organically in response to needs as they were identified (eg developing new resources as a result of needs identified in the videoconferences).

- Some miscommunication by School Education Directors with schools. DEC TOWN staff commented that:

It's not simple to come up with one thing [to explain the misperception by schools], but the initial communication with the school was often through the School Education Directors, who contacted principals [about the TOWN program]. They were sometimes keen to get schools to take part. They would indicate the reason the school was selected was not so much because they had poor performing kids in the lower [end of the spectrum], but because they were under-represented in the upper levels.

Related to this issue of the misperception of the nature of the program, DEC TOWN staff also noted that the perception by some that TOWN did not offer anything new (beyond that provided in CMIT and CO) was inaccurate as well:

The TOWN program did draw on the same framework and research about how kids progress in relation to numeracy, but the professional development aspect is quite different to CMIT and CO. I heard a similar comment about TOWN being very similar to CMIT and CO, and my response was that there were aspects that were similar but the professional learning was far more rich and extensive in TOWN than in CMIT and CO – it brought in a lot more elements in relation to identifying teaching for a range of students, providing models for teaching students with learning difficulties, and a greater emphasis on assessment – this might have been touched on in other programs but there was a great emphasis in TOWN – they weren't key components [in those other programs].

8.1.2 A PERCEPTION THAT THERE WAS NOT ENOUGH PROVIDED WITH THE PROGRAM

Flowing on from the above misperception about the nature of TOWN, there was a common perception by school staff that not enough was provided with the TOWN program. Staff at some schools felt that the program depended too much on schools expending considerable time and resources themselves to translate the 'bare bones' of TOWN into practice, develop their own lesson plans and resources etc. (This

also connects to the variable satisfaction with the various sources of support for schools provided through the TOWN program, discussed earlier in this report.) A number of schools therefore also tended to see the success of the program as being due to the way the school had implemented it, rather than necessarily being the result of the TOWN program as such:

I'm not sure how much credit I'd give to actual TOWN; if you just bought TOWN, you wouldn't see what you see here.

We wouldn't have achieved what we did if we had just relied on TOWN materials and the website; our success has been in spite of TOWN.

TOWN misses the link to actual teaching practices – you only really get an assessment tool, not a program. It's provided the knowledge and tools to assess the students, but not an approach of how to move them. You need lesson plans, scope and sequence, and links to the syllabus.

A lot of what we did was... flowing on from TOWN, [not TOWN itself].

Some school staff also expressed concern that it was not very efficient for individual schools to be often expending considerable time and effort into developing resources such as lesson plans, numeracy games etc. They suspected that there was probably a considerable amount of duplication of effort – a view which was supported by the fieldwork consultations – and felt that it would have been helpful to have a central method for storing and distributing these to all schools (eg on the TOWN website).

8.1.3 SOME SCHOOLS LACKING THE SKILLS, RESOURCES AND MOTIVATION REQUIRED FOR SUCCESSFUL IMPLEMENTATION

A further barrier to successful implementation was that some schools did not have the quite high level of skills, resources and motivation required to implement TOWN successfully. For example, some schools did not have an appropriately skilled and enthusiastic TOWN Coordinator (which was a critical success factor for the program).

8.1.4 A PROGRAM COST WHICH WAS NOT PERCEIVED AS PROVIDING VALUE FOR MONEY

Although school staff were not asked whether they regarded the TOWN program as representing value for money, there was clearly a common perception that it did not – based on what schools actually 'got' for their money expended on the program cost. This in turn relates to the issue of the misperception about the nature of the program and the fact that a number of school staff felt that the other sources of support provided as part of the program were of limited usefulness and/or did not use them as much as they might have (eg the website, case managers).

8.1.5 RUNNING COMPETING PROGRAMS

As discussed earlier in this report, previously running other numeracy programs was in some instances a factor associated with greater teacher engagement and improvements in numeracy teaching.

However this prior experience with other programs could also have a *negative* impact on TOWN implementation and teacher engagement as well, for a couple of reasons:

- *'Scepticism of what TOWN was offering compared to existing programs'* and thinking *'there was nothing new here'*. This in turn relates back to comments made by some school staff that the TOWN materials did not offer anything new compared to other existing numeracy programs.
- Schools actually wanting to implement those other programs instead of TOWN with the TOWN funding, which decreased their motivation for implementation of TOWN itself.

8.2 AREAS FOR IMPROVEMENT

Teachers were asked whether they could think of any improvements to the TOWN program or its implementation. Of the 141 teachers completing the survey, 70 respondents put forward suggestions for improving the program.

The most common suggestions for improving TOWN included:

- Provision of more resources (27 mentions):

Once on the framework we had to source everything else ourselves. The resources provided were not easy to understand or implement.

To have a ready-made resource kit would be very beneficial.

Less teacher time spent making resources/games, more time on learning the 'system'.

- Greater regional/ in-school support and networking (22 mentions):

I think it would have more impact if it were implemented across a Community of Schools (COS) with a Coordinator from the COS (eg practicing classroom teacher who has experience with TOWN) to assist all COS schools to implement TOWN.

A local TOWN supervisor was needed - visits from DEC support staff were infrequent.

Less of the video conferences and the website tracking and more time and money spent on providing the support in schools. We gained a lot more from the visits to our school where planning and strategies were appropriate to where our school was at.

- Clearer links to the syllabus/ improved guidance for programming and lesson plans (13 mentions):

More guidance in the form of programming. It was very unclear and left up to individual schools to implement their own strategies.

TOWN gave us the framework to assess our students - beyond that, there was nothing else. It would have been great to have a whole school program or even lesson sequence to ensure quality teaching... Thank goodness, our school leader for TOWN was driven by TOWN to then look elsewhere to gain greater resources for our school. Unfortunately TOWN did not do this for us.

TOWN should be more prescriptive like CMIT. I have learnt so much more assessing my students through CMIT. TOWN programming and activity planning could be better presented and much more user friendly if it was in a package like CMIT.

Clearer pathways for integration with other KLAs, cross matched with maths syllabus.

Access to a consistent delivery focus such as the North Coast Scope and Sequence and the Lesson Study approach have provided a stronger focus on the teaching of numeracy across the school.

- Reduced cost/ improved value for money (12 mentions):

The program itself and the resources provided should have cost far far less than what was actually charged. Our school paid \$55,000. We received one facilitator's book, a couple of guides, one conference, a handful of fairly simple videoconferences, an average website, a clunky online database. No program manuals for teachers, no minefield of new teaching strategies, no teacher release or training, very little expertise that was helpful or timely. I would have valued the material we received through TOWN at around \$6,000. I feel very let down.

TOWN only provided us with the framework and assessment. It did not offer value for money.

I was extremely disappointed with the return we received on the \$53,000 we had to pay to be part of the program. This money could have been better utilised to improve the learning outcomes of our students in numeracy.

- More extensive preparation/planning/testing of the program prior to launching to schools (11 mentions):

It would have been great to have had the website and resources ready before the program began and not being developed as we went.

It appeared that the program was being developed as it was being implemented across schools.

The TOWN project from the outset came across in a very confusing light. At the initial conference in Sydney, the information provided was vague and unclear with many participants ending the first day still not really aware of what TOWN actually was. The project (from an outsider's perspective) seemed to be being developed 'on the go' with a lack of resources and leadership. The video conference component at times felt more as though it were the schools involved developing the project rather than the designated staff.

I don't think the TOWN program gave all that was needed to effectively drive, develop and deliver a numeracy program in our school. TOWN is a theory and a continuum to place students along as a starting point. The buck stopped with the school Coordinator to develop TPL resources, lead planning and programming, develop assessment structures etc. TOWN group were too slow to get these organised earlier enough to be utilised in the initial six months of the program. By the time the video conferences got around to dealing with multiplication/division we were well past this stage.

- More release time for professional development, planning and collaboration/reflection (10 mentions):

More time spent on observations and evaluations of lessons. This was really good when it happened, but more feedback would increase my confidence further.

More in-depth training on frameworks, more professional learning on assessment strategies and how to program for the data teachers have collected.

Ongoing funding support which is gradually reduced over time to allow professional development through regular discussion sessions, mentoring and collaboration to continue.

- Extending the focus of the program beyond place value (7 mentions):

By focusing only on Place Value, other areas of need were not able to be addressed. Numeracy and Mathematics is more than Place Value.

- Extending the funding period (3 mentions):

Allow the funding, support and the project to run for a longer time. In many ways our journey has just begun... It runs the risk of falling apart because teachers and team leaders simply will not have the time to implement a very worthwhile project that delivers results for students.

Similar comments to the above were made in the qualitative consultations concerning ways to improve the program.

9 Summary and conclusion

This section draws together the findings from the qualitative and quantitative research to assess the effectiveness and efficiency of TOWN in line with the Terms of Reference for this evaluation.

TOWN was developed by NSW DEC TOWN staff to assist teachers to identify where students' numeracy solution methods were breaking down, and provide clear guidance to move the students beyond these barriers. It focused on the key concept of place value, and differentiation of students along a continuum. The primary focus was on providing professional development and support, for two types of intervention: whole class and an individualised case management component.

The qualitative and quantitative research demonstrate that TOWN has had a positive impact on schools and delivered numeracy outcomes for teachers and some students.

9.1 AN ASSESSMENT OF THE EFFECTIVENESS OF TOWN

9.1.1 WHOLE-OF-SCHOOL COMPONENT

The evaluation clearly demonstrates that TOWN has had a positive impact on schools and delivered numeracy outcomes for teachers and, in some cases, students.

Overall, the evidence indicates that the whole-of-school component of TOWN has been an effective program which has delivered outcomes for teachers and the NSW schools in which it was implemented. The evidence regarding the impact on student outcomes is more mixed and equivocal, however, depending on the data source(s).

The data gathered for the evaluation raises questions about the extent to which the success of the program was due to the TOWN program itself, or to the implementation of TOWN by schools (which was prompted by TOWN).

The effectiveness of the program was arguably over-reliant on schools expending considerable effort to operationalise the program into practice, through professional development (as intended) and development of their own practical resources such as lesson plans and teaching resources. It is also apparent that school staff under-utilised some of the forms of support available (eg the TOWN website, videoconferences, NSW DEC TOWN staff and the TOWN case managers) because they did not regard them as very useful and/or what they ideally needed.

It is likely that this resulted in a considerable amount of 'reinventing the wheel' and duplication of effort across the schools implementing the program, as they each determined how to best put the program into practice and developed materials and resources of their own. It may therefore be more accurate to view TOWN as a 'process' or a 'catalyst' for a changed approach to numeracy teaching, rather than a 'program' as such. Therefore TOWN was effective mainly because it was, on the whole, implemented effectively by most schools. However, there was not enough provided as part of the initiative to make it effective as a stand-alone program in itself. In the consultants' view, there was some legitimacy to the strong view about TOWN by a number of school staff that there 'wasn't enough to it', that it was too thin and high level, and did not provide enough 'value for money'.

This view in turn reflected what NSW DEC TOWN staff perceive as a fundamental misunderstanding by a number of schools about the nature of the program. Many schools were expecting or hoping for a more complete resource package, whereas according to DEC TOWN staff the primary focus of the program was always on it being a professional development and learning program. It is likely that imperfect and limited communication with schools, particularly in the context of a tight timeframe for program rollout in which the program was being developed during the implementation phase, contributed to this misunderstanding.

9.1.2 INDIVIDUAL CASE MANAGEMENT

The evaluation indicates that the individual case management component was the least successful aspect of the TOWN program. It was not used very much at all (only 136 instances over the entire program), and it did not work very effectively as a source of support to schools. This was for a range of reasons including technical difficulties relating to making and uploading the video recordings of students, and the perception that the advice provided by the case managers was not seen as useful (in terms of providing very specific, practical guidance about how to work with the particular student) or as timely as it could have been.

There appeared to be some disjunctions between the perceptions of the quality, usefulness and timeliness of the advice provided between case managers and DEC TOWN staff on the one hand, and school staff and Regional Facilitators on the other. This may reflect the desire by school staff for much more directed and practical advice.

On the other hand, NSW DEC TOWN staff feel that this was one of the most innovative aspects of the program, and it was therefore not entirely surprising that this was an area where more problems were experienced. There was a view that this aspect may have been a bit 'ahead of its time'.

9.1.3 EFFECTIVENESS OF TOWN FOR TEACHERS

Overall, the whole school component of TOWN (or its implementation) has had a positive and marked impact on the numeracy teaching practice of most school staff that participated in the program, and made them better numeracy teachers.

The majority of teachers surveyed reported that TOWN had had an impact on their knowledge, attitudes and skills in all of the areas they were asked about. The three areas with the greatest reported impact were: increased belief in teachers' ability to improve numeracy outcomes for all students; increased understanding of the importance of place value as a key numeracy concept; and increased willingness to participate in shared reflection and discussion of numeracy teaching with other staff.

The program has also had a positive impact on a number of key elements of teaching practice, such as increased use of and capacity to differentiate students and identify students in need of targeted intervention; greater collaboration and ability to reflect on their teaching practice; use of more and additional numeracy teaching resources and activities; greater knowledge about and confidence in teaching numeracy; and greater focus on and understanding of key numeracy concepts such as the place value framework.

The greatest impacts reported in the online survey were for teaching staff at an early or late stage of their careers.

Five key success factors were identified which were associated with greater teacher engagement and improvements in numeracy teaching, including: changed numeracy teaching practice; strong school leadership; an enthusiastic and skilled TOWN Coordinator devoting intensive time to the program; staff who were more open to new teaching approaches; and experience with similar numeracy programs.

9.1.4 EFFECTIVENESS OF TOWN FOR STUDENTS

This evaluation analysed the effectiveness of TOWN for students by looking at three data sources, including NAPLAN and NPLN assessment data supplied by NSW DEC, online survey data and qualitative data collected during school visits. The online survey and qualitative data indicates that school staff and others believe that TOWN has improved the numeracy skills of students in TOWN schools. The evidence from the NAPLAN and NPLN data is more equivocal, however.

Aggregate student data collected from NAPLAN and NPLN assessments was analysed to review the change in student numeracy outcomes over the NPLN period for each student cohort. A range of limitations on the reliability and validity of results observed in these data sets have been outlined in this report; these should be considered when drawing conclusions from the results discussed.

In both data sets (NAPLAN and NPLN assessments), gains in mean numeracy scores were observed for all student cohorts at TOWN schools. However, in both NAPLAN cohorts (students in Year 3 in 2008 and 2009), students at TOWN schools achieved marginally lower numeracy score gains than for students

across the State as a whole. In most cohorts, the numeracy growth observed for students at schools implementing both the TOWN whole school and the TOWN individual intervention was slightly higher than that for all schools implementing the TOWN whole school program.

No demonstrable variation in results was observed in the key student comparison groups (gender and Aboriginality). The numeracy gains for Aboriginal students slightly exceeded those for non-Aboriginal students in the NAPLAN measures; however, the inverse was observed in the NPLN assessment data. The small sample size of test data for Aboriginal students in TOWN schools means that the validity and reliability of this result is limited.

In the survey of school staff, however, there was a strong view that TOWN has had a positive impact in improving numeracy outcomes for students. For example, 77% of staff surveyed felt that the program had been either effective or very effective in this way.

Both the quantitative and qualitative data consistently indicated that the areas where improvements in students were most commonly observed related to: students' maths skills; use of effective strategies to assist them doing maths; students' confidence in doing maths; and students' enthusiasm for doing maths.

9.2 AN ASSESSMENT OF THE EXTENT TO WHICH TOWN ACHIEVES ITS GOALS IN AN EFFICIENT MANNER

The second Term of Reference for this evaluation relates to whether TOWN achieves its goals in an efficient manner, and where applicable, address the mandatory reform elements of the NPLN which include:

- effective and evidence-based teaching of literacy
- strong school leadership and whole school engagement with literacy
- monitoring student and school literacy performance to identify where support is needed.

9.2.1 EFFECTIVE AND EVIDENCE-BASED TEACHING OF NUMERACY

TOWN draws on the *evidence base* behind the learning framework used for other numeracy programs (CMIT and CO) in relation to key numeracy concepts such as place value, how children learn numeracy, and placement of children on the numeracy framework continuum.

There was widespread agreement in the qualitative consultations amongst school staff and other stakeholders that the evidence base for TOWN is sound. Core aspects of this evidence base which were cited in support of this view included: the focus on place value; the use of a continuum to provide clearer differentiation between students; the hands-on approach with practical activities; and better identifying the student thought processes required.

9.2.2 STRONG SCHOOL LEADERSHIP AND WHOLE-OF-SCHOOL ENGAGEMENT WITH NUMERACY

In schools where TOWN was successfully implemented, there *was strong school leadership for the program*, including support from Executive school staff and a skilled and enthusiastic TOWN Coordinator to drive implementation of the program. Both of these were key factors contributing to the effective implementation of the program.

In some schools where there was less successful implementation of the program, one or both of these factors tended to be absent.

In terms of *whole-of-school engagement*, TOWN focused on students in Years 3-6, although some schools implemented it (at least informally) for all school grades from Kindergarten.

The findings from the evaluation indicate that TOWN has encouraged a whole-of-school engagement with numeracy. When school staff with a regular classroom teaching role that responded to the online survey and reported that the program had had either a *significant positive impact* or *some positive impact* were

asked why this was, the second most commonly mentioned response was that the program implementation has encouraged a greater whole school focus on quality numeracy teaching.

In addition, around four-fifths or more of staff reported that TOWN had had various impacts on their school practices, including numeracy teaching now being more explicit and focused (85.8%), more clarity about my school's goals and expectations in relation to numeracy outcomes (83%), most teachers in my schools are embedding numeracy teaching into everyday classroom teaching (81.6%), and TOWN has resulted in greater transparency and consistency in the way numeracy is taught in my school (79.4%).

Other findings of the evaluation also indicated that TOWN has been a catalyst for whole school engagement with numeracy. Strong themes in the findings included a strong emphasis on shared professional development activities focused on numeracy (led by the TOWN Coordinator), and a much greater openness to reflection and discussion of teaching approaches with other staff.

9.2.3 MONITORING STUDENT AND SCHOOL NUMERACY PERFORMANCE TO IDENTIFY WHERE SUPPORT IS NEEDED

A key aspect of the TOWN program was the use of differentiation along a numeracy continuum to distinguish between individual students' numeracy abilities, both to determine which students were in need of the program and to monitor their progress.

The data gathered for the evaluation indicates that putting this differentiation into practice was one of the strongest areas of impact of the program.

Teachers with a regular classroom teaching role who reported a *significant positive impact* or *some positive impact* on their numeracy teaching practice were asked in an open-ended question to nominate *three key changes* to their teaching practice that had occurred since implementing TOWN. The most commonly mentioned change to teaching practice was the *use of differentiation to target students/ explicit teaching according to needs*. Consistently, school staff reported in the qualitative consultations that one of the most significant changes to their teaching practice included a much clearer understanding of the numeracy continuum, differentiation of students, where students are placed along the numeracy continuum, and how to help them to the next stage. Similarly, differentiation and grouping of students by level of ability, using a range of different numeracy strategies, was one of the key success factors identified for successful implementation of TOWN.

9.3 AN ASSESSMENT OF THE EXTENT TO WHICH THE PROGRAM HAS IMPROVED THE EDUCATIONAL OUTCOMES OF ABORIGINAL STUDENTS

The predominant view amongst those consulted in both the quantitative and qualitative consultations was that TOWN is just as effective for Aboriginal and non-Aboriginal students, although a sizeable minority in both were unsure about this issue. This may reflect the small number of Aboriginal students in the program at many schools implementing TOWN.

The analysis of the NAPLAN and NPLN data by Aboriginality did not provide any evidence to counter this view. For the NAPLAN data the gain scores for Aboriginal students were slightly higher than for non-Aboriginal students, but the reverse was true for the NPLN data. The validity of these results is limited due to the small sample size of Aboriginal students completing these assessments at TOWN schools (180 students or less for both forms of testing).

9.4 AN INVESTIGATION OF THE MOST EFFECTIVE WAYS FOR SCHOOLS TO BE SUPPORTED TO PARTICIPATE IN THE EVALUATION AND FOR REFORMS TO BE INCORPORATED INTO SCHOOL PRACTICE

Urbis consulted widely for this evaluation, which involved both qualitative and quantitative components. The qualitative components included fieldwork to 10 schools where TOWN was being implemented (to consult with school staff, students and parents), and consultations with Regional Facilitators, DEC TOWN staff and TOWN case managers.

With respect to the school visits, Urbis worked with schools to identify a schedule of meetings that best fit with the school's other commitments, and gave them ample notice of the visits to allow adequate time for scheduling and arrangements to be made. Most meetings took the form of focus groups or small group discussions with each of the stakeholder groups.

The quantitative components of this evaluation included:

- an online survey for school staff – a total of 141 staff completed the survey from 35 out of the 41 schools implementing TOWN
- an analysis of NAPLAN and NPLN assessment data provided by NSW DEC.

Urbis worked collaboratively with NSW DEC and stakeholders within schools to ensure schools were given every opportunity to participate in the evaluation.

In terms of incorporating the reforms into school practice, the TOWN program has had an impact on school practices in a number of ways, including making numeracy teaching more explicit and focused, providing greater clarity about the school's goals and expectations in relation to numeracy outcomes, and resulting in most students embedding numeracy teaching into everyday classroom teaching.

Differing views were expressed in the quantitative and qualitative consultations regarding whether the TOWN approach will be sustainable beyond the end of the funding period. On the one hand, some 75% of survey respondents felt there was a clear pathway for this. In the qualitative consultations on the other hand, while there was strong support for the value of this occurring, staff expressed more mixed views about whether this would happen in practice, in the absence of dedicated funding. This may reflect the fact that schools have found that effective implementation of TOWN requires a quite resource-intensive approach, driven by skilled Coordinator with a fair amount of time off-class.

The evaluation suggests that success factors which will make it more likely that the TOWN approach to teaching numeracy will be sustained in schools include:

- the degree to which the TOWN approach has been embedded into numeracy teaching at the school
- whether schools have developed an effective set of teaching resources associated with the program
- having a training strategy for new and existing staff
- the availability of resourcing through other channels.

A further positive benefit of the TOWN approach identified of relevance to sustainability is that it will have a positive impact in future on other aspects of teaching in the school beyond numeracy.

Appendix A

Discussion Guides

Taking Off With Numeracy (TOWN) School Staff Discussion Guide

Engagement

1. What has been the response of teachers and other school staff to the program? Has it been generally well-received? Why/why not?
2. What about any others who have been involved in the program eg trainers, caseworkers etc?
3. What about the students – are you able to comment on how they have responded to the program? What evidence or examples can you provide?
4. What about Aboriginal students – has their engagement been any different to non-Aboriginal students? If so, why is that the case?

Implementation

5. Was the school/were you provided with enough information and sufficient support and guidance to effectively implement the program?
6. Is there any additional support or assistance that you would have liked but didn't get?

Assessment and teaching under the TOWN program

7. How effectively or otherwise does the TOWN assessment process for students work? (Prompts: assessment tools, categorising assessments using the Place value framework to identify the targeted intervention group, analysing the assessment to identify numeracy needs).
8. What are your views on the effectiveness of the program content itself (eg focus on place value, modules, assessment processes and tasks, recording sheets)?
9. The program aims to provide a much more structured, systematic and tiered approach to teaching numeracy, to ensure that students grasp simpler building blocks of numeracy before moving onto more complex building blocks. Does the program achieve this in practice? Is this an effective approach to teaching numeracy?

Case management

10. [If your school has participated in the individual, case management aspect of the program], and question not answered by school executive] How many students have participated in this aspect of the program? How/why have those students been selected? Overall, how well or otherwise has this aspect of the program worked? Overall, how actively has the school participated in this aspect of the program?
11. How well or otherwise has the technology worked (to video students and upload to the website)? Has it been easy to use? Do staff have appropriate skills to be able to use it? Has there been adequate support for any problems encountered?

12. Have you seen any advice from case managers? How useful or otherwise has this advice been? Does it appear to have been provided by people with expertise in addressing students' numeracy problems?
13. Have you engaged in follow-up discussions with case managers (beyond the initial advice) in relation to any students? Why or why not? If yes, how useful or otherwise has this been?
14. Has the online method of consultation been an effective way of receiving expert advice in relation to management of individual students? Why or why not?

Website

15. Have you got any comments on the TOWN website? [*Prompts: The usefulness of its content, user-friendliness etc*]

Impact on teachers and schools

16. What impact, if any, has the program had on you? For instance, has it impacted on your knowledge, beliefs or confidence in teaching numeracy? How has TOWN impacted on teaching numeracy in your class?
17. Are you using new teaching strategies? What difference have these made?
18. How does this program compare to other programs you have been involved in? Why is that?
19. What would you say has been the greatest impact on you through your involvement in the program?
20. What if any other impacts have you observed?
21. Has the program's effectiveness been enhanced or hindered by any other numeracy initiatives operating in the school?
22. Has the program had any impacts at a broader school level? What evidence/examples can you provide of this? What factors have facilitated or hindered this?
23. What if anything might be done to enhance the effectiveness of this program?

Impact on students and their educational outcomes

We will be analysing data on educational outcomes as part of this evaluation. However, we are interested in any data or observations that you may have on this issue also.

24. In your view, has this program led to any improvements in students' numeracy skills? What evidence do you have for this?
25. Are there any other benefits that have flowed to students since the introduction of the program?

26. To what extent is this occurring across the board? Are particular students or groups of students benefitting more than others (eg younger students, CALD students , students with particular learning problems etc)? If so why might this be the case?
27. What about Aboriginal students – are you able to comment on the extent to which they have benefitted from the program? How does this compare with the educational outcomes for non-Aboriginal students? Is this program appropriate for/ work well with Aboriginal students? Why/why not? What if anything has been done/might be done to improve the effectiveness of the program with Aboriginal students?

Final comments

28. Would you support its continual use in this school – why/why not?
29. Would you recommend it to others – on what basis?
30. What advice would you give to other schools thinking about implementing TOWN?

Thankyou very much for your time

Taking Off With Numeracy (TOWN) Parents' Discussion Guide

Today we are going to have a brief discussion about your children's maths ability, and whether the numeracy program called Taking Off with Numeracy (TOWN) has had any impact on this. We are conducting an evaluation of TOWN, which has been introduced into certain NSW schools in 2010, and your school is one of these.

You may not be aware of or heard of these programs – that's OK. We just want to have a general discussion about how you think your child's maths ability is progressing.

Can I just start by asking each of you – what is your first name, how many children you have attending this school and what years they are in?

We are going to be talking about your children in Years 3 to 6 today.

1. Do your children like going to school? What do they like or enjoy about school? Is there anything they don't like or enjoy?
2. Do your children like maths? Why/ why not? What sorts of things do they do (or not do) that tell you this?
3. How would you describe your child's progress in maths? Are they doing reasonably well? Are they struggling a bit? Or is it a bit hard to say?
4. If you think they are doing quite well – how do you know this? Is this from your own observations or what the school has told you? If they are struggling a bit – again how do you know this? What sorts of things are they having difficulty with and how do you know this?
5. Have you ever discussed your child's maths ability with the school? How often does that happen? What sorts of things are discussed in these meetings? Is that helpful to you as a parent? Why/why not? Have you been aware of any new numeracy programs being introduced to the school?
6. Do you know anything about the TOWN program? Has the teacher or school communicated anything about this program to you and the fact that your child is involved in it? If so, what? Have you been told enough about the program?
7. In the last year or so, have you noticed any change in your child's attitude to school? What sorts of things if any have changed?
8. In the last year or so, have you noticed any changes in your children's maths skills? Their overall enjoyment of maths?
9. If so, what has changed? Can you give me any examples?

10. Have there been any other changes in their general attitude to say doing homework, or tests at school, or their confidence in approaching their schoolwork?
11. Do your children talk any more about what goes on in class now than they did in year X?
12. If there have been any improvements – is this just what you would expect given that your child is now a year older? Or has there been a more dramatic change? Is there anything you can point to that you think has had an impact eg something the school or teacher has done, something you have done as a parent? From what you have seen, compared to before they started in the TOWN program (2009), have your child's specific problems in relation to maths been more effectively targeted and addressed, or not?
13. If there has been no significant improvement, why do you think that is the case?
14. Has your child been involved in the case management aspect of the TOWN program (where they video your child working with their maths teacher)? *[Prompt: you would have been asked permission for this to occur.]* Were you involved at all in this aspect of the program? If so, can you comment at all on it?
15. [for Aboriginal parents], are you able to comment on whether or not the TOWN program and the teaching of maths is suitable for Aboriginal students. Does numeracy need to be better supported or enhanced to better meet the needs of Aboriginal students?

Thank you

Taking Off With Numeracy (TOWN) Students' Discussion Guide

Hello, my name is _____ and I am going to talk to you about some things you do at school.

Can I just start by getting your name and what class you are in?

Thankyou, now let's start with a little game.

I have some pens and paper here – what I'd like you to do is to draw something for me.

I'd like you to draw a picture about doing maths. You can draw a picture of how you feel about doing maths – a picture of your face when you are doing maths! Do you look happy? Do you look puzzled? Do you look excited? Do you look bored? Do you look worried?

Then you will show us your picture and we will guess how you feel about maths! If you were drawing this picture say this time last year – would the picture look the same or different? Why is that?

1. Do you do a lot of maths at school? What sorts of things do you do? Do you do this altogether in class? Or in small groups? Or on your own with a teacher or tutor?
2. I want you to think back to year X, is your teacher doing any new or different maths activities now compared to when you were in year X? Are you spending more time doing maths in class now compared to year X? Is that good or bad?
3. What sorts of maths things do you enjoy doing in class?
4. Do you like maths? Why/ why not?
5. Do you usually find maths easy or hard?
6. What sorts of maths activities are easy? What sorts of activities are hard? Are there things you avoid doing?
7. Do you think you are better at maths now than when you were in year X [*before you started in this program*]? What sorts of things are easier to do now? Why do you think that is easier now than before? What sorts of things have helped you to get better at maths? Has the teacher been working more with you on the specific things you find the most difficult with maths? Is there anything else that you'd like to see that would help you even more with your maths?
8. If you are good at maths things – how does that help with your other school work? The kinds of things you can do outside of school?

9. Have you been videoed by your maths teacher (with a small camera) while h/she is working with you? [If yes] how did that feel? Did you know why they were doing it? Did it help you to understand what things you needed to improve so you'd be better at maths?

Thank you

Taking Off With Numeracy (TOWN) Principal/Executive School Staff Discussion Guide

Implementation

1. Why did you select TOWN as your preferred approach to improving students' numeracy? Did you consider any other programs/approaches? In retrospect, are you satisfied with the decision to use TOWN?
2. We understand you started doing assessments for TOWN in 2009 and then implementing the program in 2010. Is that correct? When exactly did these two stages occur?
3. Have you implemented the whole class or full (whole class and individual) TOWN program? Why did you choose that option?
4. Can you please describe how TOWN has been implemented in this school (eg timetabling, teachers)?
5. How (if at all) does TOWN differ from how numeracy has been taught at this school in the past? In your view, is there anything particularly innovative or different about TOWN compared to your school's prior teaching of numeracy, or any other numeracy programs you've been involved in?

Engagement

6. What has been the response of teachers and other school staff to the program? Has it been generally well-received? Why/why not?
7. What have been the key mechanisms for engaging staff in the program? How well has this worked? What has worked well/worked less well?
8. Have some teachers engaged more than others in the program? If so, which ones and why is this the case? What ideas do you have about how the level of engagement of individual teachers or other relevant could be enhanced?
9. What about any others who have been involved in the program eg trainers, caseworkers etc?
10. What about the students – are you able to comment on how they have responded to the program? What evidence or examples can you provide?
11. What about Aboriginal students – has their engagement been any different to non-Aboriginal students? If so, why is that the case?

Assessment and teaching under the TOWN program

12. How effectively or otherwise does the TOWN assessment process for students work? (Prompts: assessment tools, categorising assessments using the Place value framework to identify the targeted intervention group, analysing the assessment to identify numeracy needs).
13. What are your views on the effectiveness of the program content itself (eg focus on place value, modules, assessment processes and tasks, recording sheets)?
14. The program aims to provide a much more structured, systematic and tiered approach to teaching numeracy, to ensure that students grasp simpler building blocks of numeracy before moving onto more complex building blocks. Does the program achieve this in practice? Is this an effective approach to teaching numeracy?

Case management

15. [If your school has participated in the individual, case management aspect of the program] How many students have participated in this aspect of the program? How/why have those students been selected? Overall, how well or otherwise has this aspect of the program worked? Overall, how actively has the school participated in this aspect of the program?
16. How well or otherwise has the technology worked (to video students and upload to the website)? Has it been easy to use? Do staff have appropriate skills to be able to use it? Has there been adequate support for any problems encountered?
17. Do you have any other comments on how well or otherwise the case management aspect of the program has worked?

Website

18. Have you got any comments on the TOWN website? *[Prompts: The usefulness of its content, user-friendliness etc]*

Impact on teachers and schools

19. The TOWN program involves a strong focus on professional development. What professional development activities have staff participated in for the program? What are your views on this professional development? *[Prompts: whether it is evidence-based; the time involved/intensity; does it provide specific enough guidance to staff; quality of written materials?]* How does it compare to the professional development you have received for other programs?
20. [If not answered above] What impact, if any, do you think the program has had on teachers? For instance, what if any impact has the program had on teachers' knowledge, beliefs, skills or confidence in teaching numeracy?
21. What if any new teaching strategies are being used and how has this enhanced teacher capability?
22. Are teachers embedding new understandings about teaching numeracy into their ongoing classroom practice? If so, how?

23. What if any other impacts have you observed?
24. What do you think has been the greatest impact on teachers through their involvement in the program?
25. What do you think have been the critical factors/ success ingredients that have lead to any positive impacts on individual teachers and their teaching practice (eg particular features or aspects of the program, its implementation, the school context/leadership, teacher attributes etc)? What has been the *most* critical factor?
26. Have some teachers benefitted more/or less than others from participating in the program? If so, which ones and why is that the case?
27. Has the program's effectiveness been enhanced or hindered by any other numeracy initiatives operating in the school?
28. Has the program had any impacts at a broader school level? What evidence/examples can you provide of this? What factors have facilitated or hindered this?
29. What if anything might be done to enhance the effectiveness of this program with individual teachers – or in this school more generally?

Impact on students and their educational outcomes

We will be analysing data on educational outcomes as part of this evaluation. However, we are interested in any data or observations that you may have on this issue also.

30. In your view, has this program led to any improvements in students' numeracy skills? What evidence do you have for this? How does this compare to any other programs that you have been involved in?
31. Are there any other benefits that have flowed to students since the introduction of the program?
32. To what extent is this occurring across the board? Are particular students or groups of students benefitting more than others (eg younger students, CALD students , students with particular learning problems etc)? If so why might this be the case?
33. What about Aboriginal students – are you able to comment on the extent to which they have benefitted from the program? How does this compare with the educational outcomes for non-Aboriginal students? Is this program appropriate for/ work well with Aboriginal students? Why/why not? What if anything has been done/might be done to improve the effectiveness of the program with Aboriginal students?

System issues

34. Was your school/were you provided with enough information and sufficient support and guidance to effectively implement the program? What if any other support or assistance might be useful?

35. What plans are there to continue using this program here? How is this going to occur – eg will it be embedded in school planning and budgets?

36. What factors will impact on the sustainability of this program in the school?

Final comments

37. In your experience, what is the value and effectiveness of this program in comparison with other programs and approaches to improving numeracy?

38. Would you support its continual use in this school – why/why not?

39. Would you recommend it to others – on what basis?

Thankyou very much for your time

Appendix B

Online Survey Instrument

Taking Off With Numeracy (TOWN) School Survey

This survey is to be completed by all staff that have been or are currently involved in managing, coordinating or implementing TOWN in Years 3-6. This survey will take around 15-20 minutes to complete, and will ask you about your experiences in being involved in TOWN, and your views about any impacts or benefits.

All relevant staff should complete the survey, including those that have already participated in an interview or focus group as part of the evaluation of TOWN.

All responses will remain confidential.

About your school

1) What school do you work at (please specify)?

.....

2) What *educational jurisdiction* is your school based in?

- ₁ Government
- ₂ Catholic
- ₃ Independent

3) In what *location* is your school based?

- ₁ Metropolitan (Sydney)
- ₂ Regional city (say a city of over 100,000 people)
- ₃ Regional town (say a town of over 30,000 people)
- ₄ A smaller rural/remote area

4) How many students attend your school?

- ₁ Less than 100
- ₂ 100 – 199
- ₃ 200 – 299
- ₄ 300 – 399
- ₅ More than 400

About you

5) What is your gender?

- ₁ Male
- ₂ Female

6) What age group are you in?

- ₁ Under 25 years
- ₂ 25 – 29
- ₃ 30 – 39
- ₄ 40 – 49
- ₅ 50 – 59
- ₆ 60 – 64
- ₇ 65 years or over

7) For how many years have you been teaching or working in primary schools? (Exclude extensive time off eg parental leave)

- ₁ Less than a year
- ₂ 1 – 2 years
- ₃ 3 – 5 years
- ₄ 6 – 10 years
- ₅ 11 – 20 years
- ₆ 21 – 30 years
- ₇ Over 30 years

8) For how many years have you been teaching or working in your *current* school?

- ₁ Less than a year
- ₂ 1 – 2 years
- ₃ 3 – 5 years
- ₄ 6 – 10 years
- ₅ 11 – 20 years
- ₆ 21 – 30 years
- ₇ Over 30 years

9) Were you at your *current* school at the start of the implementation of TOWN?

- ₁ Yes
- ₂ No
- ₃ Not sure

10) Are you of Aboriginal and/or Torres Strait Islander descent?

- ₁ No
- ₂ Yes, Aboriginal
- ₃ Yes, Torres Strait Islander
- ₄ Yes, both Aboriginal and Torres Strait Islander

11) Which of the following best describes your employment?

- ₁ Permanent – full-time
- ₂ Permanent – part-time
- ₃ Fixed term/contract – full-time
- ₄ Fixed term/contract – part-time
- ₅ Casual/relief
- ₆ Other (please specify

12) Are you or were you a member of the TOWN leadership team in your school?

- ₁ Yes
- ₂ No

13) a) Which one of the following best describes your *main* role in implementing TOWN in your school?

- ₁ TOWN Coordinator/Leader
- ₂ Principal
- ₃ Assistant/Deputy Principal
- ₄ Teacher – K to 2
- ₅ Teacher –Year 3
- ₆ Teacher – Year 4
- ₇ Teacher – Year 5
- ₈ Teacher – Year 6
- ₉ Special Education/Needs Teacher
- ₁₀ School Learning Support Officer/Teacher's Aide
- ₁₁ Aboriginal Education Officer
- ₁₃ Numeracy Specialist Teacher
- ₁₄ ESL Specialist
- ₁₅ Other (please specify

(only if answered 2 or 3 to Q13a)

(b) On average, how many days per working week has the TOWN Coordinator/Leader spent off-class on this role (since the beginning of the program)?

Please specify (numbers between 0 and 5, with one decimal point if required eg 1.5)

(only if answered 2 or 3 to Q13a)

c) What was the *main* source of funding to cover the off-class time for the TOWN Coordinator/Leader (select one only)?

- ₁ Your TOWN funding
- ₂ Other National Partnership on Literacy & Numeracy funding
- ₃ Other education-related National Partnership funding (eg Low SES)
- ₄ School base funding
- ₅ Other equity-based funding (eg rural & remote, Indigenous, PSP)

(only if answered 1 to Q13a)

d) Which of the following (if any) did you do in your school? (Please select all that apply)

- ₁ Developed numeracy games and activities
- ₂ Developed or assisted with development of numeracy lesson plans and sequencing
- ₃ Provided additional numeracy material relating to professional development and teaching
- ₄ Organised and led regular staff meetings focused on numeracy teaching
- ₅ Conducted class observation and provided feedback
- ₆ Organised class observation amongst other staff

Content and quality of TOWN training

14) Did you attend the initial TOWN training workshop?

- ₁ Yes (Go to Q15)
- ₂ No (Go to Q16)

15) Overall, how satisfied were you with each of the following aspects of the TOWN training workshop?

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very Dissatisfied
a) The <i>content</i> of the workshop?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b) The <i>quality</i> of the workshop?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c) The <i>relevance/ usefulness</i> of the accompanying resources?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d) The <i>adequacy</i> of the training to enable you to deliver the program	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

(If answered 1 to Q13a skip Q16 and go to Q17 - TOWN Coordinators/Leaders not to answer this question)

16) Overall, how satisfied have you been with the internal training support (both formal and informal) provided by your school's TOWN Coordinator/Leader?

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very Dissatisfied
a) The <i>content</i> of the training?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b) The <i>quality</i> of the training?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c) The <i>relevance/usefulness</i> of accompanying resources?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

Knowledge, attitudes and skills

17) Have you previously used any of the following specific numeracy programs? (select all that apply)

- ₁ Counting On
₂ Count Me In Too
₃ None of the above
₄ Not sure

18) To what extent has TOWN impacted on each of the following:

	Not at all	Minor extent	Moderate extent	Major extent	Can't say/ Hard to say
a) Increased your knowledge about how students learn numeracy	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b) Increased your skills in using diagnostic tools and data to assess students' numeracy learning needs	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c) Deepened your understanding of effective numeracy teaching	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d) Increased your understanding of the importance of place value as a key numeracy concept	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e) Deepened your understanding of the nature and needs of numeracy learners in Years 3-6	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

	Not at all	Minor extent	Moderate extent	Major extent	Can't say/ Hard to say
f) Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g) Increased your belief in teachers' ability to improve numeracy outcomes of low achieving students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
h) Increased your belief in teachers' ability to improve numeracy outcomes of all students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
i) Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
j) Increased your ability to translate numeracy theory into practice	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

19) Do you have a role in teaching numeracy in the classroom on a regular basis?

- ₁ Yes (Go to Q20)
₂ No (Go to Q24)

20) To what extent has TOWN impacted on each of the following:

	Not at all	Minor extent	Moderate extent	Major extent	Can't say/ Hard to say
a) Increased your ability to identify which students are in need of targeted intervention	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b) Increased your confidence in teaching numeracy	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c) Improved your ability to teach numeracy effectively in the classroom	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d) Improved your ability to teach numeracy effectively to individual students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

	Not at all	Minor extent	Moderate extent	Major extent	Can't say/Hard to say
e) Enhanced your ability to reflect on and critique your numeracy teaching practice	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f) Increased your willingness to seek feedback on your numeracy teaching from colleagues (eg through teacher observation)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g) Increased your knowledge of how to cater to all numeracy learning needs in the classroom	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

Teaching practice

21) a) Which of the following statements best describes how TOWN has impacted on your numeracy *teaching practice*?

- ₁ TOWN has had a *significant positive* impact on my numeracy teaching practice
- ₂ TOWN has had *some positive* impact on my numeracy teaching practice
- ₃ TOWN has had *little if any positive* impact on my numeracy teaching practice
- ₄ TOWN has had a *negative* impact on my numeracy teaching practice
- ₅ Hard to say

b) Why do you feel TOWN has had this impact on your numeracy teaching practice?

Please specify

.....

.....

(For those who answered 1 or 2 to Question 21(a), go to Q22. For those who answered 3, 4 or 5 to Q21(a) go to Q23)

22) Please list the three key changes to your teaching practice that have occurred since implementing TOWN?

1.

2.

3.

Critical factors

23) Thinking of the different components of TOWN, how important were each of the following in improving your teaching of numeracy?

	Very important	Important	Not very important	Not at all important	No improvement in my teaching of numeracy	Not applicable / Hard to say
a) The external training workshop	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
b) Ability to reflect on and critique your numeracy teaching practice	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
c) Ability to obtain feedback on your numeracy teaching practice through teacher observation	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
d) In-school support from the school TOWN Coordinator/Leader	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
e) In-school support from the Regional Facilitator	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
f) Access to the TOWN website	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
g) Participation in the regular TOWN video conferences organised by DEC	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
h) Access to useful teaching resources (eg recommended articles, numeracy lessons and activities)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
i) Use of the numeracy continuums (eg place value framework)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
j) Access to case managers for expert advice on individual learning needs	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
k) Observing others modelling lessons/strategies	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

(Complete Q24-28 only if answered 1 to Q13a. Otherwise skip to Q29. Only TOWN Coordinators/Leaders to answer Q24-28)

External resources and networking

24) How adequate was the support you received from the following external sources?

	Very adequate	Adequate	Neither adequate nor inadequate	Inadequate	Very inadequate	Not applicable/ I did not seek support
a) DEC TOWN staff	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
b) DEC funded regional numeracy specialists/ consultants (not Regional Facilitators)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇
c) Networking with other schools in your area/region	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆	<input type="checkbox"/> ₇

TOWN case management / Individual intervention

25) Did your school select to participate in the individual case management component of TOWN (involving videoing students and emailing the videos off for specialist advice from TOWN case managers)?

- ₁ Yes (Go to 26)
₂ No (Go to Q28)
₃ Not sure/can't say (Go to 28)

26) a) How many students have participated in the individual case management component in practice (videos taken of students and uploaded to the case management system)?

- ₁ None
₂ 1-5
₃ 6-10
₄ 11-15
₅ 16-20
₆ More than 20

b) Is this more or fewer students than you initially envisaged would use the case management component?

- ₁ Significantly more (Go to Q27)
₂ A few more (Go to Q27)
₃ About what I expected (Go to Q27)
₄ Slightly fewer (Go to 26(c))
₅ Significantly fewer (Go to 26(c))
₆ Not sure/Hard to say (Go to 26(c))

c) If you have not used the case management component of TOWN as much as was envisaged at the beginning of the program, why was this the case (please specify)?

.....

.....

.....

27) To what extent do you agree or disagree with the following statements?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Hard to say
a) The TOWN video camera was easy to use	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
b) The technology for uploading and filing the videos was easy to use	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
c) For all or the majority of students who were videoed, the videos were uploaded to the case management system	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
d) The advice received from the TOWN case manager was timely	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
e) The advice received from the TOWN case manager was useful in informing how to work with the student in the future	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
f) Overall, the TOWN case manager had a high level of numeracy teaching expertise	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

(If answered 1 to Q25, skip Q28 and go to Q29)

28) If your school selected not to participate in the individual case management component of TOWN, why was this the case (please specify)?

.....

.....

.....

Student outcomes

29) Since the introduction of TOWN, what, if any, improvements or changes have you observed in students?

	Significant improvement	Some improvement	A little improvement	No improvement	Hard to say
a) Students' enthusiasm for maths	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b) Students' understanding and use of multi-unit place value	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c) Students' confidence in doing maths	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d) Students' understanding of what is expected of them	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e) Students' use of effective strategies to assist them doing maths	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f) Students' maths skills	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g) Students' enthusiasm for their other schoolwork (beyond numeracy)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

30) a) Compared to non-Aboriginal students, how effective do you think TOWN has been in improving numeracy educational outcomes for Aboriginal students?

- ₁ More effective than for non-Aboriginal students (Go to Q30b)
- ₂ As effective as for non-Aboriginal students (ie no difference) (Go to Q30b)
- ₃ Less effective than for non-Aboriginal students (Go to Q30b)
- ₄ Not sure/hard to say (Go to Q30b)
- ₅ Not applicable as there are no Aboriginal students participating in TOWN at my school (Go to Q32)

b) Why is this (please specify)?

.....

.....

.....

31) Are there other impacts or outcomes (either positive or negative) that you have observed in Aboriginal students participating in TOWN (please specify)?

32)

.....

.....

.....

33) How effective is TOWN in improving the educational outcomes of the following student groups?

	Very effective	Somewhat effective	Not very effective	Not at all effective	Not applicable / Hard to say
a) All students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b) Students above NAPLAN benchmarks	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c) Students below NAPLAN benchmarks	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d) Aboriginal students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e) ESL/LBOTE students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f) Student with a learning disability	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

34) To what extent do you agree or disagree with each of the following statements?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Hard to say
a) Since the introduction of TOWN there is now more clarity about my school's goals and expectations re numeracy outcomes	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
b) Most teachers in my school are embedding numeracy teaching into everyday classroom teaching	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
c) Through participating in TOWN, teaching of numeracy in my school is now more explicit and focussed	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
d) There is strong leadership support for TOWN in my school	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
e) TOWN was well planned and implemented by the NSW Department of Education and Communities	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Hard to say
f) Overall, I received good support and guidance on how to implement TOWN in my class/school	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
g) There is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
h) TOWN has resulted in greater transparency and consistency in the way numeracy is taught in my school	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
i) The school TOWN Coordinator/Leader had strong numeracy teaching skills	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
j) The TOWN Coordinator/Leader effectively engaged staff participating in TOWN	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
k) Support for TOWN at my school has grown over time	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
l) I would recommend the use of TOWN in other schools	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

35) Overall, how effective do you think TOWN has been in improving the numeracy outcomes for students?

- ₁ Very effective
- ₂ Effective
- ₃ Neither effective nor ineffective
- ₄ Not very effective
- ₅ Not at all effective
- ₆ Too soon to say
- ₇ Hard to say

36) a) Can you think of any way that TOWN (or its implementation) could be improved?

- ₁ Yes (Go to Q35b)
- ₂ No (Finish survey)

b) What suggestions do you have about how TOWN or its implementation could be improved?

.....

.....

Thank you for completing this survey

Appendix C

Full Findings of the Online Survey



A

$$5 + 6 = 11$$

Z



External Evaluation of the Selected National Partnership
on Literacy and Numeracy NSW Programs

Evaluation of TOWN

ONLINE SURVEY REPORT

Prepared for NSW Department of Education and Communities
2011



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TABLE OF CONTENTS

- Key Findings1**
 - 1.1 Training and support.....1
 - 1.2 Effectiveness of town.....1
 - 1.3 Suggested improvements.....2
- 2 The respondents.....4**
 - 2.1 School characteristics.....4
 - 2.2 Personal characteristics4
 - 2.3 Respondent role and experience5
- 3 Training and implementation support.....7**
 - 3.1 Experience with similar numeracy programs.....7
 - 3.2 Satisfaction with training.....7
 - 3.3 Role of the TOWN coordinator9
 - 3.4 External resources and networking10
- 4 Individual case management12**
 - 4.1 Selection of the case management component12
 - 4.2 Implementation in practice.....12
- 5 Outcomes for teachers15**
 - 5.1 Impact on knowledge, attitudes and skills15
 - 5.2 Impact on classroom teaching practice18
 - 5.3 Critical factors23
- 6 Outcomes for students25**
 - 6.1 Overall effectiveness25
 - 6.2 Observed improvements27
 - 6.3 Student groups28
- 7 Impact on the school.....31**
- 8 Suggested improvements34**

TABLES:

Table 1 – School location	4
Table 2 – School size by location	4
Table 3 – Age by gender	4
Table 4 – Years teaching/working in primary schools	5
Table 5 – Years teaching/working at current school.....	5
Table 6 – Main role implementing TOWN in the school by gender.....	6
Table 7 – Experience with similar numeracy programs by role	7
Table 8 – Satisfaction with the TOWN Training workshop)	8
Table 9 – Satisfaction with the TOWN Training workshop by experience with similar numeracy programs.....	8
Table 10 – Satisfaction with the internal training support	8
Table 11 – Satisfaction with the internal training support by role	9
Table 12 – Satisfaction with the internal training support by experience with similar numeracy programs.....	9
Table 13 – TOWN Coordinator average number of days off class per week.....	9
Table 14 – Main source of funding for TOWN coordinator off class time	10
Table 15 – Activities undertaken as a TOWN coordinator.....	10
Table 16 – Adequacy of support from external sources	11
Table 17 – Adequacy of support from external sources by location	11
Table 18 – Number of students who participated in case management.....	12
Table 19 – Number of students who participated in case management compared to initial expectation.....	13
Table 20 – Agreement with statement about individual case management.....	14
Table 21 – Impact on teachers’ knowledge, attitudes and skills.....	15
Table 22 – Impact on teachers’ knowledge, attitudes and skills by years teaching experience	16
Table 23 – Impact on teachers’ knowledge, attitudes and skills by role	17
Table 24 – Impact on classroom teaching practice	18
Table 25 – Impact on classroom teaching practice by years teaching experience.....	19
Table 26 – Overall impact of TOWN on numeracy teaching practice by role	20
Table 27 – Overall impact of TOWN on numeracy teaching practice by years teaching experience	20
Table 28 – Key changes to teaching practice.....	22
Table 29 – Critical factors in improving numeracy teaching	24
Table 30 – Overall effectiveness of TOWN in improving numeracy outcomes for students by role.....	25
Table 31 – Overall effectiveness of TOWN in improving numeracy outcomes for students by years teaching experience.....	26
Table 32 – Overall effectiveness of TOWN in improving numeracy outcomes for students by school size and location.....	26
Table 33 – Observed improvement in students’ numeracy	27
Table 34 – Observed improvement in students’ numeracy by role.....	28
Table 35 – Effectiveness of TOWN for different student groups.....	28
Table 36 – Effectiveness of TOWN for Aboriginal students compared to non-Aboriginal students	29
Table 37 – Agreement with statements about impact of TOWN on the school	31
Table 38 – Agreement with statements about impact of TOWN on the school by school location and size....	33

Key Findings

1.1 TRAINING AND SUPPORT

- Most respondents (82%) had previously used other numeracy programs similar to TOWN, including Counting On, and Count Me in Too.
- Just over half (55%) of the teachers surveyed had attended the initial TOWN training workshop in Sydney. Around three quarters were either *satisfied* or *very satisfied* with the *content* (75%) and *quality of the workshop* (74%). However, there was less satisfaction with the *relevance/usefulness of the accompanying resources* (64%) and the *adequacy of the training to enable you to deliver the program* (60%).
- The majority of respondents (excluding TOWN Coordinators) were either *satisfied* or *very satisfied* with the internal training support (both informal and formal) provided by their TOWN Coordinator. At least 80% of respondents were satisfied with the *quality, content and relevance/usefulness of the accompanying resources*.
- In two-thirds of schools, the TOWN Coordinator spent an average of between one and two days each week working off-class on this role, and in close to a quarter of schools (24%) the Coordinator was off class three days or more.
- The majority of respondents felt that the level of external support had been adequate, identifying *funded regional numeracy specialists/consultants* as the most adequate source of support (77%). Over two-thirds of respondents (68%) felt that the support from *DEC TOWN staff* had been adequate, but close to one quarter (23%) felt that this support was *neither adequate or inadequate*. Respondents from schools in rural/remote areas were less likely to report receiving adequate support from *DEC funded regional numeracy specialists/consultants* and *networking with other schools* than respondents from metropolitan or regional areas.

1.2 EFFECTIVENESS OF TOWN

Student outcomes

- More than three quarters of respondents (77%) reported that overall TOWN had been *effective* or *very effective* in improving numeracy outcomes for students. Respondents working as a TOWN Coordinator or specialist teacher/aide/other support, at either an early or late stage of their teaching career, and from schools in rural/remote areas, were most likely to report this view.
- The majority of respondents reported having observed *some improvement* or *significant improvement* in all seven areas relating to students' engagement with and capability in numeracy since the beginning of TOWN. The top three observed improvements related to *students' use of effective strategies to assist them doing maths* (91%), *students' maths skills* (90%), and *students' confidence in doing maths* (89%).
- Respondents did not identify any particular student group for whom TOWN had been notable ineffective. In terms of Aboriginal students, the large majority of respondents felt either that the program is as *effective* for Aboriginal students as for non-Aboriginal students (55%) or they were *not sure* of the relative effectiveness (38%).

Outcomes for teachers

- The majority of teachers reported that TOWN had had an impact for all of the outcome statements relating to the impact of TOWN on their knowledge, attitudes and skills. The areas with greatest report impacts were: increased your belief in teachers' ability to improve numeracy outcomes of all students (85%), increased your understanding of the importance of place value as a key numeracy concept (84%), and increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff (82%). Overall, a greater proportion of TOWN Coordinators and

specialist teachers/aides/other support staff reported that TOWN had impacted on their knowledge, attitudes and skills in numeracy.

- Similarly, the majority of teachers reported that TOWN had had an impact on all the outcome areas identified relating to elements of their classroom teaching practice. The areas that had been impacted for the highest proportion of students were: increased your ability to identify which students are in need of targeted intervention (86%), enhanced your ability to reflect on and critique your numeracy teaching practice (84%), increased your confidence in teaching numeracy (81%), and improved your ability to teach numeracy effectively in the classroom (81%).
- For both the above outcome areas, the greatest impact was reported by teachers at an early (five or less years' experience) or late (over 20 years' experience) stage of their careers.
- The large majority of teachers (87%) reported that TOWN had had a positive impact on their overall numeracy teaching practice, including close to half (49%) identifying a significant positive impact (49%).
- The most commonly mentioned change to teaching practice was the use of differentiation to target students/explicit teaching according to needs.
- The aspects of the TOWN program regarded as most important in improving numeracy teaching by the highest proportion of teachers were: ability to reflect on and critique your numeracy teaching practice (88%), use of the numeracy continuums (eg place value framework) (87%), and in-school support from the school TOWN Coordinator/Leader (86%).

Individual case management

- The individual case management component of TOWN was the least successful aspect of the program. Quite small numbers of students participated in this component: close to two-thirds of TOWN Coordinators (64%) reported that their school had five or less students, and the same proportion reported that the number of students had been *significantly fewer* than expected. Only 18.2% of respondents reported that for all or the majority of students who were videoed, the videos were uploaded to the case management system.
- The most common reasons identified to explain the lower level of participation in the individual case management aspect of the program were: problems with the technology, having more convenient access to high quality local expertise and advice (from colleagues, regional consultants and/or Community of Schools members), the excessive time required to individually film and manage cases, and the limited value of the advice provided by the case manager. There were also low levels of agreement that the TOWN case manager had a high level of numeracy teaching expertise (36.4%), and that the advice received was timely (31.8%). Respondents who were at an early (five or less years' experience) or late stage (over 20 years) were more likely to report a greater degree of positive impact than those in the middle of their career.

1.3 SUGGESTED IMPROVEMENTS

The most common suggestions for improving TOWN include:

- providing more resources
- greater regional/in-school support and networking
- clearer links to the syllabus/improved guidance for programming and lesson plans
- reduced cost/improved value for money
- more extensive preparation/planning /testing of the program prior to launching to schools
- more release time for professional development, planning and collaboration/reflection

- extending the focus of the program beyond place value
- extending the funding period.

2 The respondents

2.1 SCHOOL CHARACTERISTICS

A total of 141 school staff completed the survey, of which 136 identified the school at which they worked. In total, the respondents represented 35 of the 41 NSW schools (85%) that implemented TOWN under the National Partnership on Literacy and Numeracy. The 35 schools identified by respondents included 33 Government schools and two Catholic schools.

As shown in Table 1 below, the survey respondents represented TOWN schools across metropolitan, regional and rural/remote NSW. The majority of respondents (66%) worked at schools in regional cities or towns, followed by schools in smaller rural/remote areas (29%). A small minority of respondents worked in metropolitan schools (5%).

TABLE 1 – SCHOOL LOCATION (PERCENTAGE OF RESPONDENTS)

LOCATION	TOTAL
Metropolitan (Sydney)	5.0
Regional city (100,000+ people)	29.1
Regional town (30,000+ people)	36.9
Smaller rural/remote area	29.1
TOTAL	100

Table 2 shows that the size of school at which the respondents worked varied by location, with larger schools more concentrated in metropolitan Sydney. In total, just over half (55%) the respondents worked in mid-sized schools with between 200 and 400 students.

TABLE 2 – SCHOOL SIZE BY LOCATION (PERCENTAGE OF RESPONDENTS)

SCHOOL SIZE	TOTAL	METROPOLITAN	REGIONAL CITY	REGIONAL TOWN	RURAL/ REMOTE
Less than 200 students	19.9	14.3	34.1	-	31.7
200 – 400 students	55.3	14.3	51.2	71.2	46.3
More than 400 students	24.8	71.4	14.6	28.8	22.0
TOTAL	100	100	100	100	100

2.2 PERSONAL CHARACTERISTICS

Of the 141 teachers who completed the survey, 75% were female and 25% were male. As shown in Table 3 below, respondents were generally older, with 70% of respondents aged 40 years or over.

TABLE 3 – AGE BY GENDER (PERCENTAGE OF RESPONDENTS)

AGE	TOTAL	MALE	FEMALE
Under 30 years	12.8	17.1	11.3
30 – 39 years	17.0	20.0	16.0
40 – 49 years	28.4	28.6	28.3
50 years and over	41.8	34.3	44.3
TOTAL	100	100	100

A small number of respondents identified themselves as Aboriginal (3%, 4 individuals).

2.3 RESPONDENT ROLE AND EXPERIENCE

2.3.1 EXPERIENCE

Respondents had fairly high levels of experience teaching in primary schools. As shown in Table 4 below, the majority of respondents (72%) had been working in primary schools for over 10 years, and 45% had been a primary school teacher for over 20 years.

TABLE 4 – YEARS TEACHING/WORKING IN PRIMARY SCHOOLS (PERCENTAGE OF RESPONDENTS)

YEARS	TOTAL
2 years or less	5.0
3 – 5 years	10.6
6 – 10 years	12.1
11 – 20 years	27.7
Over 20 years	44.7
TOTAL	100

Respondents were also asked to specify how long they had been working at their current school. As can be seen in Table 5, more than half the respondents (53%) had been working at their current school for over five years, and close to one third of respondents (31%) had been based at their current school for over 10 years.

TABLE 5 – YEARS TEACHING/WORKING AT CURRENT SCHOOL (PERCENTAGE OF RESPONDENTS)

YEARS	TOTAL
Less than a year	4.3
1 – 2 years	14.2
3 – 5 years	28.4
6 – 10 years	22.0
11 – 20 years	21.3
Over 20 years	9.9
TOTAL	100

In line with the proportion of respondents who had worked at their current school for two or more years, 89% of respondents indicated that they were working at their current school at the start of the implementation of TOWN (ie mid-2009).

2.3.2 ROLE IMPLEMENTING TOWN

Teachers were asked to indicate their *main* role in implementing TOWN in their school. The results in Table 6 below show there was a fairly even spread of respondents across TOWN Coordinators (22%), the Executive (21%), Stage 3 teachers (19%) and Stage 2 teachers (18%). Survey respondents also included a smaller group of K-2 teachers (9%), and specialist teachers/ aides/ other teaching support staff (11%). Officially TOWN targeted Year 3-6, but some schools extended to K-2.

Male respondents were more likely to work as either a member of the Executive (34%), or a Stage 3 teacher (29%), whilst female respondents were more likely to work as the TOWN Coordinator (24%) or a Stage 2 teacher (21%).

TABLE 6 – MAIN ROLE IMPLEMENTING TOWN IN THE SCHOOL BY GENDER (PERCENTAGE OF RESPONDENTS)

ROLE	TOTAL	MALE	FEMALE
Executive (Principal/ Deputy Principal)	20.6	34.3	16.0
TOWN Coordinator/ Leader	22.0	17.1	23.6
Teacher K-2	8.5	-	11.3
Teacher Stage 2 (3/4)	18.4	11.4	20.8
Teacher Stage 3 (5/6)	19.1	28.6	16.0
Specialist teacher/ aide/ other support*	11.3	8.6	12.3
TOTAL	100	100	100

* Includes: SLSO/Teacher's Aide, Numeracy Specialist Teacher, Special Education/ Needs Teacher, and Admin Support

Respondents were also asked whether they were or had been a member of the TOWN leadership team in their school. In total, 43% of respondents reported they were or had been part of the program leadership team. This group was primarily composed of TOWN Coordinators (51%) and members of the school Executive (36%), as well as a small group of classroom teaching and support staff (13%).

With respect to employment type, the large majority of teachers were employed as permanent full-time staff (74%) or fixed term/contract full-time staff (16%). A small minority were employed permanent part-time (4%), fixed term/contact part-time (2%) or on a casual/relief/temporary basis (4%).

3 Training and implementation support

3.1 EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS

Respondents were asked to indicate whether they had previously used other numeracy programs similar to TOWN, including Counting On (CO) and Count Me In Too (CMIT). As shown in Table 7 below, the large majority of respondents (82%) had previous experience with CO, CMIT, or both programs. Previous experience with CMIT was particularly prevalent, with 79% of respondents indicating that they had used this program.

TOWN Coordinators were most likely to have prior experience in both CO and CMIT (61%), whilst Stage 2 and 3 teachers were least likely to have previously worked with either of these programs (27% and 30% respectively). Previous experience with CMIT was most prevalent amongst school Executives (93%) and K-2 Teachers (92%).

TABLE 7 – EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS BY ROLE (PERCENTAGE OF RESPONDENTS)

PROGRAM	TOTAL	EXECUTIVE	TOWN COORDINATOR	TEACHER K-2	TEACHER STAGE 2	TEACHER STAGE 3	SPECIALIST/ AIDE/ OTHER SUPPORT
Counting On (CO)	45.4	51.7	64.5	16.7	42.3	40.7	31.3
Count Me In Too (CMIT)	78.7	93.1	80.6	91.7	69.2	66.7	75.0
Both CO and CMIT	42.6	48.3	61.3	16.7	38.5	37.0	31.3
Either CO and/or CMIT	81.6	96.6	83.9	91.7	73.1	70.4	75.0
Neither CO or CMIT	18.4	3.4	16.1	8.3	26.9	29.6	25.0

3.2 SATISFACTION WITH TRAINING

3.2.1 TOWN TRAINING WORKSHOP

Just over half (55%) of the teachers surveyed reported that they had attended the initial TOWN training workshop in Sydney. These respondents were asked to indicate their level of *satisfaction* with the content and quality of the workshop, the relevance of the accompanying resources, and the adequacy of the training to enable the delivery of TOWN in their school. Table 8 below shows the respondents' level of satisfaction with these elements of the training workshop. Satisfaction is presented as *total satisfied* which comprises *very satisfied* and *satisfied* responses.

Around three quarters of the respondents were *satisfied* or *very satisfied* with the *content of the workshop* (75%) and the *quality of the workshop* (74%). However, respondents expressed less satisfaction with the *relevance/usefulness of the accompanying resources* (64%) and the *adequacy of the training to enable you to deliver the program* (60%).

TABLE 8 – SATISFACTION WITH THE TOWN TRAINING WORKSHOP (PERCENTAGE OF THOSE WHO ATTENDED THE WORKSHOP)

ASPECTS OF THE WORKSHOP	TOTAL SATISFIED	VERY SATISFIED	SATISFIED
The content of the workshop	75.3	24.7	50.6
The quality of the workshop	74.0	24.7	49.3
The relevance/ usefulness of the accompanying resources	63.6	24.7	38.9
The adequacy of the training to enable you to deliver the program	59.7	20.8	38.9

Of the respondents who attended the training workshop, 84% indicated that they had previous experience with CO and/or CMIT. Table 9 below shows that the respondents who had no previous exposure to these existing programs were more likely than those who had previous experience to be satisfied with the TOWN training workshop (although it should be noted that the group without previous experience was a considerably smaller sample size).

TABLE 9 – SATISFACTION WITH THE TOWN TRAINING WORKSHOP BY EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS (PERCENTAGE OF THOSE WHO ATTENDED THE WORKSHOP)

ASPECTS OF THE WORKSHOP	TOTAL SATISFIED	PREVIOUS EXPERIENCE WITH CO/CMIT	NO PREVIOUS EXPERIENCE WITH CO/CMIT
The content of the workshop	75.3	73.8	83.3
The quality of the workshop	74.0	73.8	75.0
The relevance/ usefulness of the accompanying resources	63.6	63.1	66.7
The adequacy of the training to enable you to deliver the program	59.7	58.5	66.7

3.2.2 INTERNAL TRAINING BY THE TOWN COORDINATOR

Respondents other than TOWN Coordinators were asked to indicate their level of *satisfaction* with the internal training support (both informal and formal) provided by their school's TOWN Coordinator.

As shown Table 10, the majority of respondents were either *satisfied* or *very satisfied* with the internal training support provided by their TOWN Coordinator. Four-fifths or more of the respondents were satisfied with the *quality of the training* (84%), the *content of the training* (81%) and the *relevance/usefulness of the accompanying resources*.

TABLE 10 – SATISFACTION WITH THE INTERNAL TRAINING SUPPORT (PERCENTAGE OF RESPONDENTS*)

ASPECTS OF THE TRAINING SUPPORT	TOTAL SATISFIED	VERY SATISFIED	SATISFIED
The content of the training	80.9	35.5	45.4
The quality of the training	83.6	40.9	42.7
The relevance/ usefulness of the accompanying resources	80.0	37.3	42.7

* Excludes TOWN Coordinators

Table 11 below shows that there was no notable variation in the level of satisfaction by role. The smaller group of specialist teachers/aides were slightly more likely to be satisfied with the *content* and *quality* of the training than classroom teachers and Executives.

TABLE 11 – SATISFACTION WITH THE INTERNAL TRAINING SUPPORT BY ROLE (PERCENTAGE OF RESPONDENTS*)

ASPECTS OF THE TRAINING SUPPORT	TOTAL SATISFIED	EXECUTIVE	CLASSROOM TEACHER (K-6)	SPECIALIST/ AIDE/ OTHER SUPPORT
The content of the training	80.9	79.3	80.0	87.5
The quality of the training	83.6	79.3	83.1	93.8
The relevance/ usefulness of the accompanying resources	80.0	79.3	80.0	81.3

* Excludes TOWN Coordinators

Similar to the case for the TOWN workshop, respondents who had previous experience with CO and/or CMIT were less likely to be satisfied with the training support provided by the TOWN Coordinator at their school than those who had no experience with these programs (shown in Table 12 below).

TABLE 12 – SATISFACTION WITH THE INTERNAL TRAINING SUPPORT BY EXPERIENCE WITH SIMILAR NUMERACY PROGRAMS (PERCENTAGE OF RESPONDENTS*)

ASPECTS OF THE TRAINING SUPPORT	TOTAL SATISFIED	PREVIOUS EXPERIENCE WITH CO/CMIT	NO PREVIOUS EXPERIENCE WITH CO/CMIT
The content of the training	80.9	78.7	90.5
The quality of the training	83.6	82.0	90.5
The relevance/ usefulness of the accompanying resources	80.0	76.4	95.2

* Excludes TOWN Coordinators

3.3 ROLE OF THE TOWN COORDINATOR

Survey respondents who indicated that they were a member of the school Executive (ie the Principal or Deputy Principal) were asked several questions relating to the role of the TOWN Coordinator in their school. The Executive respondents to the survey represented 21 of the schools that implemented TOWN, and the responses have been analysed according to percentage of schools (not percentage of respondents).

These respondents were firstly asked to indicate the *average number of days* per working week that the TOWN Coordinator had spent *off-class* on this role.

TABLE 13 – TOWN COORDINATOR AVERAGE NUMBER OF DAYS OFF CLASS PER WEEK (PERCENTAGE OF SCHOOLS*)

DAYS	TOTAL
< 1 day	9.5
1 – 2 days	66.7
3 – 4 days	9.5
5 days	14.3
TOTAL	100

*Base = 21 schools

As shown in Table 13, in two thirds (67%) of these schools the TOWN Coordinator spent between one and two days each week working off-class on this role. Close to one quarter of these schools (24%) allocated three or more off-class days per week for the role, with the TOWN Coordinator working off-class full-time in 14% of the respondent schools.

School Executives were then asked to nominate the *main source of funding* used to cover the off-class time for the TOWN Coordinator. The large majority of respondent schools reported funding the role through either their *TOWN funding* (52%) or *other National Partnership on Literacy and Numeracy funding* (43%). A small minority of these schools (5%) reported using funding from other *National Partnerships* resourcing, such as *Low Socio-Economic Status*.

TABLE 14 – MAIN SOURCE OF FUNDING FOR TOWN COORDINATOR OFF CLASS TIME (PERCENTAGE OF SCHOOLS*)

SOURCE	TOTAL
TOWN Funding	52.4
Other NPLN Funding	42.9
Other NP Smarter Schools Funding (eg Low SES)	4.7
TOTAL	100

*Base = 21 schools

Survey respondents who reported that they were a TOWN Coordinator were asked to select which of six listed activities they had undertaken in their role as TOWN Coordinator. The responses are provided in Table 15 below.

All of the six activities had been undertaken by the majority of TOWN Coordinators completing the survey. All, or almost all, TOWN Coordinators reported that they had:

- *Provided additional numeracy material relating to professional development and teaching* (100%)
- *Developed or assisted with development of numeracy lesson plans and sequencing* (97%)
- *Organised and led regular staff meetings focused on numeracy teaching* (97%).

TABLE 15 – ACTIVITIES UNDERTAKEN AS A TOWN COORDINATOR (PERCENTAGE OF TOWN COORDINATORS)

ACTIVITY	TOTAL
Provided additional numeracy material relating to professional development and teaching	100.0
Developed or assisted with development of numeracy lesson plans and sequencing	96.8
Organised and led regular staff meetings focused on numeracy teaching	96.8
Developed numeracy games and activities	90.3
Conducted class observation and provided feedback	77.4
Organised class observation amongst other staff	77.4

3.4 EXTERNAL RESOURCES AND NETWORKING

The questionnaire sought TOWN Coordinators' views on the *adequacy* of the support that they received from external sources and networking. Adequacy is presented in terms of *total adequacy* which comprises *very adequate* and *adequate* responses.

As shown in Table 16, the majority of respondents felt that the level of external support had been adequate, identifying *funded regional numeracy specialists/consultants* as the most adequate source of support (77%). Whilst more than two-thirds of respondents (68%) felt that the support from *DEC TOWN staff* had been adequate, close to one quarter of teachers (23%) reported this support to be *neither adequate nor inadequate*.

TABLE 16 – ADEQUACY OF SUPPORT FROM EXTERNAL SOURCES (PERCENTAGE OF TOWN COORDINATORS)

SOURCE	TOTAL ADEQUACY	VERY ADEQUATE	ADEQUATE	NEITHER ADEQUATE NOR INADEQUATE	INADEQUATE	VERY INADEQUATE	NOT APPLICABLE
DEC funded regional numeracy specialists/ consultants	77.4	48.4	29.0	16.1	-	3.2	3.2
Networking with other schools in your region	74.2	41.9	32.3	9.7	-	9.7	6.5
DEC TOWN staff	67.7	29.0	38.7	22.6	-	9.7	-

Considering the responses by school location, respondents from schools in rural/remote areas were less likely to report receiving adequate support from *DEC funded regional numeracy specialists/consultants* and *networking with other schools* than respondents from metropolitan or regional areas.

TABLE 17 – ADEQUACY OF SUPPORT FROM EXTERNAL SOURCES BY LOCATION (PERCENTAGE OF TOWN COORDINATORS)

SOURCE	TOTAL ADEQUACY	METROPOLITAN*	REGIONAL	RURAL/ REMOTE
DEC funded regional numeracy specialists/ consultants	77.4	100.0	83.3	66.7
Networking with other schools in your region	74.2	100.0	94.4	41.7
DEC TOWN staff	67.7	100.0	55.6	83.3

* Note small sample size (1 respondent)

4 Individual case management

4.1 SELECTION OF THE CASE MANAGEMENT COMPONENT

TOWN Coordinators were asked whether their school had selected to participate in the *individual case management* component of TOWN. Of the 31 TOWN Coordinators completing the survey, 22 reported that their school had participated in the case management intervention.

Those respondents whose schools did *not* implement the individual case management were asked to specify why this was the case. The most common reasons noted included:

- The preference to access local/regional expertise:
'Expert help too far away...having regional people is much more reliable and personal.'
- The preferred selection of Quicksmart:
'We regarded this program as better prepared, data driven and clearly explainable to the parents and students.'
- Concerns about the cost and resourcing requirements:
'Far too expensive.'
'Very time-consuming'.
- Concerns about the reliability of the technology:
'Relying on technology/communication doesn't always work.'

4.2 IMPLEMENTATION IN PRACTICE

Those respondents who had utilised individual case management at their school were then asked a number of questions relating to the implementation and perceived usefulness of the intervention.

TOWN Coordinators were asked to specify how many students at their school had participated in the individual case management component in practice.

As shown in Table 18, close to two-thirds of TOWN Coordinators (64%) reported that their school had had five or less students participate in individual case management. Notably, close to a quarter of respondents (23%) reported that no students at their school had participated in the intervention in practice.

TABLE 18 – NUMBER OF STUDENTS WHO PARTICIPATED IN CASE MANAGEMENT (PERCENTAGE OF RESPONDENTS*)

NUMBER OF STUDENTS	TOTAL
None	22.7
1 – 5 students	40.9
6 – 10 students	27.3
11 – 15 students	4.5
16 – 20 students	4.5
More than 20 students	-
TOTAL	100

* Note this question was answered only by TOWN Coordinators

TOWN Coordinators were then asked to indicate how this participation rate corresponded with their initial expectations for the intervention. As might be expected given the reported participation rate, the majority of respondents (64%) noted that the number of students who participated had been *significantly fewer* than expected. Approximately one-fifth of respondents (18%) reported that the participation rate had been *about what I expected*.

TABLE 19 – NUMBER OF STUDENTS WHO PARTICIPATED IN CASE MANAGEMENT COMPARED TO INITIAL EXPECTATION (PERCENTAGE OF RESPONDENTS*)

PARTICIPATION COMPARED TO EXPECTATION	TOTAL
Significantly more	-
A few more	-
About what I expected	18.2
Slightly fewer	9.1
Significantly fewer	63.6
Not sure/ Hard to say	9.1
TOTAL	100

* Note this question was answered only by TOWN Coordinators

Those respondents who reported lower than expected usage of the case management intervention were asked to specify why this was the case. The most common reasons noted included:

- Issues with technology including background noise and difficulty registering cases and uploading videos (12 mentions):
 - ‘Difficulty using the flip cameras within a normal classroom setting due to noise.’*
 - ‘Technical issues on both the TOWN site and with teacher skills in the uploading of videos was a problem.’*
 - ‘Not user-friendly for classroom teachers, lack of technology support.’*

- More convenient access to high quality local expertise and advice from colleagues, regional consultants and/or Community of Schools members (12 mentions):
 - ‘We found as a large school, collegial discussion was a better solution, faster, easier to manage within the school.’*
 - ‘We had support on hand with the Maths consultant in our school on a weekly roster. She would watch and discuss the student and get immediate feedback.’*
 - ‘There was no relationship with case managers; no-one visited our school so it all felt very separate and robotic. We had experienced members of staff who were capable of solving any problems and teachers worked together and discussed issues.’*

- Excessive time required to individually film and manage cases (10 mentions):
 - ‘The task was put off due to time constraints.’*
 - ‘Videoing/ uploading/ learning the technology was too time-consuming.’*

- Limited value of the advice provided by the case manager (5 mentions):
 - ‘The feedback from the case manager did not result in any new information any only confirmed what the class teacher already knew and was trying with the student involved.’*

'The response I got was not very user friendly and only referred me to resources such as count me in and DENS which I was already using.'

'Staff also felt that the effort it took to actually film, upload and manage a case was not worth the effort when usually the strategies sent back were fairly stock-standard and straight from the DENS books, which we all have.'

TOWN Coordinators were then presented with a series of six statements relating to the use of the individual case management intervention and asked to express how strongly they *agreed* or *disagreed* with each. The responses are presented in Table 20, and *total agreement* is provided as the combined set of *strongly agree* and *agree* responses.

Most statements received a fairly low level of agreement, with only one statement – *the TOWN video camera was easy to use* – receiving above 50% *total agreement*. With respect to views on the role of the case manager, a significant proportion of respondents selected *neither agree or disagree* for statements relating to their *level of numeracy teaching expertise* (36%), the *timeliness of advice received* (41%), and the *usefulness of the advice received* (41%). This response profile suggests a degree of ambivalence towards the role of the case manager.

Statements relating to the process of uploading of videos to the case management system had the highest frequency of *total disagreement*, with the largest proportion of these responses expressed as *strongly disagree*. More than half the respondents disagreed that *the technology for uploading and filing the videos was easy to use* (55% *total disagreement*), and that *for all or the majority of students who were videoed, the videos were uploaded to the case management system* (50% *total disagreement*).

TABLE 20 – AGREEMENT WITH STATEMENT ABOUT INDIVIDUAL CASE MANAGEMENT (PERCENTAGE OF RESPONDENTS*)

STATEMENT	TOTAL AGREEMENT	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	HARD TO SAY
The TOWN video camera was easy to use	59.1	13.6	45.5	27.3	9.1	4.5	-
Overall, the TOWN case manager had a high level of numeracy teaching expertise	36.4	9.1	27.3	36.4	4.5	4.5	18.2
The advice received from the TOWN case manager was timely	31.8	13.6	18.2	40.9	-	18.2	9.1
The technology for uploading and filing the videos was easy to use	27.3	9.1	18.2	18.2	9.1	45.5	-
The advice received from the TOWN case manager was useful in informing how to work with the student in the future	22.7	9.1	13.6	40.9	9.1	13.6	13.6
For all or the majority of students who were videoed, the videos were uploaded to the case management system	18.2	-	18.2	27.3	18.2	31.8	4.5

* Note this question was answered only by TOWN Coordinators

5 Outcomes for teachers

5.1 IMPACT ON KNOWLEDGE, ATTITUDES AND SKILLS

All teachers were provided with a series of outcome statements relating to the *impact* of TOWN on their knowledge, attitudes and skills, and were asked to indicate the extent to which TOWN had had an impact on each. These responses are presented in Table 21 below, including a calculation of *total impact*, which comprises the combined set of *major extent* and *moderate extent* responses.

TABLE 21 – IMPACT ON TEACHERS' KNOWLEDGE, ATTITUDES AND SKILLS (PERCENTAGE OF RESPONDENTS)

IMPACT	TOTAL IMPACT	MAJOR EXTENT	MODERATE EXTENT	MINOR EXTENT	NOT AT ALL	HARD TO SAY
Increased your belief in teachers' ability to improve numeracy outcomes of all students	85.1	52.5	32.6	7.8	5.0	2.1
Increased your understanding of the importance of place value as a key numeracy concept	83.7	63.1	20.6	8.5	4.3	3.5
Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff	81.6	50.4	31.2	11.3	4.3	2.8
Increased your belief in teachers' ability to improve numeracy outcomes of low achieving students	80.1	47.5	32.6	12.8	5.0	2.1
Increased your skills in using diagnostic tools and data to assess students' numeracy learning needs	78.8	43.3	35.5	14.9	4.3	2.1
Deepened your understanding of the nature and needs of numeracy learners in Years 3-6	78.7	53.9	24.8	12.1	5.7	3.5
Increased your knowledge about how students learn numeracy	77.4	42.6	34.8	16.3	4.3	2.1
Deepened your understanding of effective numeracy teaching	76.6	53.2	23.4	12.1	9.2	2.1
Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom	75.9	43.3	32.6	14.2	7.8	2.1
Increased your ability to translate numeracy theory into practice	72.3	45.4	27.0	19.1	6.4	2.1

As shown in Table 21, for all outcome statements the majority of teachers reported that TOWN had had an impact on their knowledge, attitudes and/or skills. The areas that had the greatest impact for respondents were:

- *Increased your belief in teachers' ability to improve numeracy outcomes of all students (85%)*
- *Increased your understanding of the importance of place value as a key numeracy concept (84%)*

- *Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff (82%)*

For each outcome statement, there was only a small minority of teachers who reported no impact on their knowledge, attitudes and/or skills as a result of implementing TOWN.

Considering the responses according to the teachers' level of experience reveals notable variation in the extent of the reported impact on attitudes, knowledge and skills (refer to Table 22). Respondents who were at an early or late stage in their careers were more likely to report a greater degree of positive impact resulting from their participation in TOWN than those respondents in the middle of their career. In particular, a higher proportion of teachers with five or less years' experience, or over 20 years' experience, reported impacts in the following areas:

- *Increased your ability to translate numeracy theory into practice*
- *Deepened your understanding of effective numeracy teaching*
- *Increased your knowledge about how students learn numeracy*
- *Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom.*

TABLE 22 – IMPACT ON TEACHERS' KNOWLEDGE, ATTITUDES AND SKILLS BY YEARS TEACHING EXPERIENCE (PERCENTAGE OF RESPONDENTS)

IMPACT	TOTAL IMPACT	5 YEARS OR LESS	6 – 10 YEARS	11 – 20 YEARS	OVER 20 YEARS
Increased your belief in teachers' ability to improve numeracy outcomes of all students	85.1	86.4	70.6	77.0	93.6
Increased your understanding of the importance of place value as a key numeracy concept	83.7	86.4	70.6	79.4	88.9
Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff	81.6	77.3	64.7	79.4	88.9
Increased your belief in teachers' ability to improve numeracy outcomes of low achieving students	80.1	81.8	64.7	74.3	87.3
Increased your skills in using diagnostic tools and data to assess students' numeracy learning needs	78.8	81.8	53.0	74.3	87.3
Deepened your understanding of the nature and needs of numeracy learners in Years 3-6	78.7	81.8	64.7	74.3	84.1
Increased your knowledge about how students learn numeracy	77.4	86.4	52.9	64.1	88.9
Deepened your understanding of effective numeracy teaching	76.6	86.4	58.8	64.1	85.7
Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom	75.9	86.4	58.8	64.1	84.1
Increased your ability to translate numeracy theory into practice	72.3	86.4	47.1	61.5	80.9

The extent of reported impact was also found to vary somewhat by role, as shown in Table 23 below. In general, a greater proportion of TOWN Coordinators and specialist teachers/aides/other support staff reported that TOWN had impacted on their knowledge, attitudes and skills in numeracy. Conversely, classroom teachers and members of the school Executive were slightly less likely to report a positive impact. In particular, TOWN Coordinators were considerably more likely than respondents in other roles to report that TOWN had:

- *Increased your knowledge about how students learn numeracy*
- *Increased your ability to translate numeracy into practice.*

TABLE 23 – IMPACT ON TEACHERS' KNOWLEDGE, ATTITUDES AND SKILLS BY ROLE (PERCENTAGE OF RESPONDENTS)

IMPACT	TOTAL IMPACT	EXECUTIVE	TOWN COORDINATOR	CLASSROOM TEACHER (K-6)	SPECIALIST/ AIDE/ SUPPORT
Increased your belief in teachers' ability to improve numeracy outcomes of all students	85.1	86.2	87.1	81.5	93.8
Increased your understanding of the importance of place value as a key numeracy concept	83.7	82.8	87.1	83.1	81.3
Increased your willingness to participate in shared reflection and discussion of numeracy teaching with other staff	81.6	79.3	87.1	78.5	87.5
Increased your belief in teachers' ability to improve numeracy outcomes of low achieving students	80.1	75.9	87.1	78.5	81.3
Increased your skills in using diagnostic tools and data to assess students' numeracy learning needs	78.8	79.3	87.1	73.8	81.3
Deepened your understanding of the nature and needs of numeracy learners in Years 3-6	78.7	75.9	87.1	75.4	81.3
Increased your knowledge about how students learn numeracy	77.4	75.9	90.3	72.3	75.0
Deepened your understanding of effective numeracy teaching	76.6	75.9	83.9	73.8	75.0
Increased your knowledge about the latest evidence on best practice numeracy teaching in the classroom	75.9	75.9	87.1	70.8	75.0
Increased your ability to translate numeracy theory into practice	72.3	69.0	83.9	69.2	68.8

Considering the results according to whether respondents indicated having experience with CO or CMIT revealed no significant variation in the extent of impact reported. Those respondents who had no experience with these similar numeracy programs were slightly more likely to report a greater degree of impact on their *skills in using diagnostic tools and data to assess students' numeracy learning needs*, their *understanding of the nature and needs of numeracy learners in Years 3-6*, and their *belief in teachers' ability to improve numeracy outcomes of all students*.

5.2 IMPACT ON CLASSROOM TEACHING PRACTICE

5.2.1 IMPACT ON KEY ELEMENTS OF NUMERACY TEACHING PRACTICE

The survey questionnaire asked respondents to indicate whether they had a role in teaching numeracy in the classroom on a regular basis. Of the 141 teachers completing the survey, 116 (82%) indicated that they regularly undertook classroom teaching. Those respondents who reported having a classroom teaching role were then asked a number of questions relating to the *impact* of TOWN on their numeracy teaching practice.

Firstly, teachers were provided with a series of outcome statements relating to the impact of TOWN on elements of their classroom teaching practice, and were asked to indicate the extent to which TOWN had had an impact on each. As shown in Table 24, for all outcome statements the majority of teachers reported that TOWN had had an impact on their classroom teaching practice. The areas that had been impacted for the highest proportion of respondents were:

- *Increased your ability to identify which students are in need of targeted intervention (86%)*
- *Enhanced your ability to reflect on and critique your numeracy teaching practice (84%)*
- *Increased your confidence in teaching numeracy (81%)*
- *Improved your ability to teach numeracy effectively in the classroom (81%).*

For each outcome statement, there was only a small minority of teachers who reported no impact on their classroom teaching practice as a result of implementing TOWN.

TABLE 24 – IMPACT ON CLASSROOM TEACHING PRACTICE (PERCENTAGE OF RESPONDENTS)

IMPACT	TOTAL IMPACT	MAJOR EXTENT	MODERATE EXTENT	MINOR EXTENT	NOT AT ALL	HARD TO SAY
Increased your ability to identify which students are in need of targeted intervention	86.2	53.4	32.8	8.6	5.2	-
Enhanced your ability to reflect on and critique your numeracy teaching practice	83.6	47.4	36.2	9.5	6.9	-
Increased your confidence in teaching numeracy	81.0	49.1	31.9	11.2	7.8	-
Improved your ability to teach numeracy effectively in the classroom	81.0	49.1	31.9	12.1	6.9	-
Improved your ability to teach numeracy effectively to individual students	80.2	46.6	33.6	13.8	6.0	-
Increased your knowledge of how to cater to all numeracy learning needs in the classroom	77.6	45.7	31.9	15.5	6.9	-
Increased your willingness to seek feedback on your numeracy teaching from colleagues (eg through teacher observation)	69.0	37.1	31.9	20.7	9.5	0.9

* Note this question was answered only by respondents with a regular classroom teaching role

Similar to the findings for reported impact on attitudes, knowledge and skills, comparing the responses according to the teachers' level of experience reveals notable variation in the extent of the reported impact on classroom teaching practices. Respondents who were at an early or late stage in their careers were more likely to report a greater degree of positive impact on their teaching practices resulting from their participation in TOWN than those respondents in the middle of their career. In particular, a considerably higher proportion teachers with five or less years' experience, or over 20 years' experience, reported impacts in the following areas:

- *Increased your confidence in teaching numeracy*
- *Increased your willingness to seek feedback on your numeracy teaching from colleagues.*

TABLE 25 – IMPACT ON CLASSROOM TEACHING PRACTICE BY YEARS TEACHING EXPERIENCE (PERCENTAGE OF RESPONDENTS*)

IMPACT	TOTAL IMPACT	5 YEARS OR LESS	6 – 10 YEARS	11 – 20 YEARS	OVER 20 YEARS
Increased your ability to identify which students are in need of targeted intervention	86.2	90.9	75.1	81.8	91.1
Enhanced your ability to reflect on and critique your numeracy teaching practice	83.6	86.4	62.6	78.8	93.3
Increased your confidence in teaching numeracy	81.0	90.9	62.6	66.7	93.4
Improved your ability to teach numeracy effectively in the classroom	81.0	86.4	62.6	72.7	91.1
Improved your ability to teach numeracy effectively to individual students	80.2	86.4	56.3	72.7	91.1
Increased your knowledge of how to cater to all numeracy learning needs in the classroom	77.6	86.4	62.6	63.7	88.9
Increased your willingness to seek feedback on your numeracy teaching from colleagues (eg through teacher observation)	69.0	81.8	56.3	51.5	80.0

* Note this question was answered only by respondents with a regular classroom teaching role

5.2.2 IMPACT ON OVERALL NUMERACY TEACHING PRACTICE

Teachers with a regular classroom teaching role were then asked to select from a list of statements to describe the *overall impact* of TOWN on their numeracy teaching practice. The responses are summarised in Table 26 below, including an analysis by main role implementing the program.

Overall, the large majority of teachers (87%) reported that TOWN had had a *positive impact* on their numeracy teaching practice, including close to half (49%) identifying a *significant positive impact*. TOWN Coordinators were most likely to identify a *significant positive impact* (72%), and Infants teachers (K-2) were most likely to report an overall *positive impact* (100%). The large majority of Stage 2 and 3 classroom teachers reported an overall *positive impact* on their teaching practice (81% and 85% respectively). However, close to one fifth of Stage 2 teachers noted that TOWN had had *little if any positive impact* on their numeracy teaching practice. Members of the school Executive (with a regular classroom teaching role) were least likely to report a positive impact resulting from TOWN, with only 15% of respondents noting a *significant positive impact*, and close to one third (31%) noting *little if any positive impact* on their teaching practice.

TABLE 26 – OVERALL IMPACT OF TOWN ON NUMERACY TEACHING PRACTICE BY ROLE (PERCENTAGE OF RESPONDENTS*)

STATEMENT	TOTAL	EXECUTIVE	TOWN COORDINATOR	TEACHER K-2	TEACHER STAGE 2	TEACHER STAGE 3	SPECIALIST/AIDE/ OTHER SUPPORT
TOWN has had a <i>significant positive</i> impact on my numeracy teaching practice	49.1	15.4	72.4	36.4	50.0	48.1	40.0
TOWN has had <i>some positive</i> impact on my numeracy teaching practice	37.9	53.8	24.1	63.6	30.8	37.0	50.0
TOWN has had <i>little if any positive</i> impact on my numeracy teaching practice	12.1	30.8	3.4	-	19.2	11.1	10.0
TOWN has had a <i>negative</i> impact on my numeracy teaching practice	-	-	-	-	-	-	-
Hard to say	0.9	-	-	-	-	3.7	-
TOTAL	100	100	100	100	100	100	100
<i>Total positive**</i>	<i>87.0</i>	<i>69.2</i>	<i>96.5</i>	<i>100.0</i>	<i>80.8</i>	<i>85.1</i>	<i>90.0</i>

* Note this question was answered only by respondents with a regular classroom teaching role

** Combined *significant positive impact* and *some positive impact* responses

In line with earlier findings on the impact of TOWN on key elements of numeracy teaching, respondents who were at an early or late stage in their careers were more likely to report a greater degree of positive impact on their teaching practice resulting from their participation in TOWN than those respondents in the middle of their career (refer to Table 27).

TABLE 27 – OVERALL IMPACT OF TOWN ON NUMERACY TEACHING PRACTICE BY YEARS TEACHING EXPERIENCE (PERCENTAGE OF RESPONDENTS*)

STATEMENT	TOTAL	5 YEARS OR LESS	6 – 10 YEARS	11 – 20 YEARS	OVER 20 YEARS
TOWN has had a <i>significant positive</i> impact on my numeracy teaching practice	49.1	72.7	25.0	27.3	62.2
TOWN has had <i>some positive</i> impact on my numeracy teaching practice	37.9	18.2	43.8	57.6	31.1
TOWN has had <i>little if any positive</i> impact on my numeracy teaching practice	12.1	9.1	31.3	15.2	4.4
TOWN has had a <i>negative</i> impact on my numeracy teaching practice	-	-	-	-	-
Hard to say	0.9	-	-	-	2.2
TOTAL	100	100	100	100	100
<i>Total positive**</i>	<i>87.0</i>	<i>90.9</i>	<i>68.8</i>	<i>84.9</i>	<i>93.3</i>

* Note this question was answered only by respondents with a regular classroom teaching role

** Combined *significant positive impact* and *some positive impact* responses

Considering the responses according to whether respondents had indicated that they had previous experience with either CO and/or CMIT revealed some variation in the overall impact reported. Teachers that had no prior experience with these similar numeracy programs were more likely to report *significant positive impact* on their teaching experience (60% of respondents) compared to those teachers with prior experience in these programs (46% of respondents).

Respondents were also asked to specify why they felt the program had had this impact on their numeracy teaching practice. The most common responses provided by those respondents reporting a *significant positive impact* or *some positive impact* on their numeracy teaching practice included:

- The numeracy framework and assessment tasks have enhanced the teachers' ability to identify students' learning needs and differentiate teaching accordingly (66 mentions):

'Continual assessment of students has assisted in my knowledge of the students and where they are and need to go in their numeracy.'

'The framework in TOWN has given me guidelines to assess student learning and progress. An in depth knowledge of this framework is imperative. In number I have programmed, explicitly taught, assessed and reflected on student progress and my teaching based on this framework.'

'Although I have been teaching numeracy for a long time I had gaps in my understanding of all the developmental steps children needed to fully develop concepts and understandings. TOWN showed me how to fully assess children's levels and then what to do to move them on.'

- The program implementation has encouraged a greater whole school focus on quality numeracy teaching (30 mentions):

'TOWN was the catalyst for moving us all to the same page with our teaching.'

'TOWN provided an opportunity and financial support to improve teaching practices and theory of teaching numeracy.'

'Prioritised maths in the classrooms as a large part of the teaching day.'

'As a beginning teacher TOWN has helped my understanding of how and why we teach certain aspects of numeracy. It has started off my career in a positive way in terms of addressing numeracy in my classroom.'

- The funding and resources provided have facilitated increased professional dialogue, reflection and collaborative planning amongst staff (27 mentions):

'It has opened doors for better communication between teachers about quality numeracy teaching and given us the language to describe the issues and the solutions.'

'It also provided opportunities for staff to collaborate, team teach and discuss teaching practice.'

- TOWN has provided new strategies and resources for classroom teaching (20 mentions):

'Opened up a whole new range of strategies and resources with which I'd been unfamiliar.'

'There were so many great strategies to learn about eg the empty number line.'

- TOWN has emphasised the importance of place value in mathematics (17 mentions):

'It has deepened my understanding of how important place value is in numeracy and how quality teaching of it lays the base foundation for all other mathematic strands.'

A limited number of respondents noted reasons why they felt the program had had *little if any positive impact* on their numeracy teaching practice. The most common reasons included:

- Insufficient training, guidance and/or support (7 mentions)

'Very little training prior to its implementation. I don't feel teachers have a good enough understanding of what TOWN is to implement it effectively. The program was a revamped version of Count Me In Too and came with very little support for effective implementation.'

'Poor support... jargonistic language, frameworks ambiguous and unclear.'

- Limited resources provided for lesson delivery (5 mentions):

'I would have liked to have seen more variety of activities to assist my programming.'

- No change to existing teaching approach (4 mentions):

'I am not really doing anything all that differently than I was before. I have been using many of the strategies put forward for years in the classroom effectively.'

- Limited area of focus/ unclear links to syllabus (3 mentions):

'It does not assist with the implementation of other areas of the Numeracy syllabus, and is somewhat time consuming.'

5.2.3 KEY CHANGES TO TEACHING PRACTICE SINCE IMPLEMENTING TOWN

Teachers with a regular classroom teaching role who reported a *significant positive impact* or *some positive impact* on their numeracy teaching practice were then asked in an open-ended question to nominate *three key changes* to their teaching practice that had occurred since implementing TOWN. These responses are summarised in Table 28 below.

The most commonly mentioned change to teaching practice was the *use of differentiation to target students/ explicit teaching according to needs*.

TABLE 28 – KEY CHANGES TO TEACHING PRACTICE

CHANGE	TOTAL MENTIONS	% OF TOTAL MENTIONS
Use of differentiation to target student needs/ explicit teaching	71	21.1
Use of regular assessment to monitor student needs and progress	45	13.4
Greater use of practical/ hands-on activities and games	39	11.6
Focus on place value/ use of the place value framework	35	10.4
Improved planning/ programming/ lesson structure (balanced numeracy teaching)	30	8.9
Greater use of group work	25	7.4
Greater collaboration/ professional dialogue/ reflection with colleagues	24	7.1
Improved communication with students (verbalisation of strategies, open-questioning etc)	17	5.1
Use of Newman's error analysis	8	2.4
Use of data to drive programming	6	1.8
Greater school focus on numeracy	5	1.5
Other**	31	9.2
TOTAL	336	100

* Note this question was answered only by respondents with a regular classroom teaching role

** Examples of *Other* changes include: use of NAPLAN questions in lessons, improved confidence in teaching, greater focus on mental computation strategies, access to a wider set of teaching resources and deeper knowledge of the syllabus

5.3 CRITICAL FACTORS

Respondents with a regular classroom teaching role were presented with a set of different elements of the TOWN program and were asked to rate how *important* each of the elements had been in improving their teaching of numeracy. These responses are presented in Table 29 below, including a calculation of *total importance*, which comprises the combined set of *very important* and *important* responses.

As Table 29 shows, the factors deemed important in improving numeracy teaching by the highest proportion of teachers were (in terms of *total importance*):

- *Ability to reflect on and critique your numeracy teaching practice (88%)*
- *Use of the numeracy continuums (eg place value framework) (87%)*
- *In-school support from the school TOWN Coordinator/Leader (86%).*

The support from the TOWN Coordinator was also nominated as *very important* by the highest proportion of respondents (57%).

The elements *least* frequently nominated as an important factor in improving numeracy teaching were (in terms of *total importance*):

- *Participation in the regular TOWN video conferences organised by DEC (28%)*
- *Access to case managers for expert advice on individual learning needs (39%)*
- *The external training workshop (48%)*
- *Access to the TOWN website (55%).*

It should be noted, however, that not all respondents participated in the first three of these particular elements of TOWN, corresponding to the high frequency of *not applicable/hard to say* responses.

TABLE 29 – CRITICAL FACTORS IN IMPROVING NUMERACY TEACHING (PERCENTAGE OF RESPONDENTS*)

FACTOR	TOTAL IMPORTANCE	VERY IMPORTANT	IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT	NO IMPROVEMENT IN MY TEACHING OF NUMERACY	NOT APPLICABLE/HARD TO SAY
Ability to reflect on and critique your numeracy teaching practice	87.9	43.1	44.8	6.0	0.9	2.6	2.6
Use of the numeracy continuums (eg place value framework)	87.0	53.4	33.6	7.8	-	3.4	1.7
In-school support from the school TOWN Coordinator/Leader	86.2	56.9	29.3	4.3	1.7	5.2	2.6
Observing others modelling lessons/strategies	79.3	43.1	36.2	9.5	-	4.3	6.9
Access to useful teaching resources (eg recommended articles, numeracy lessons and activities)	77.6	41.4	36.2	7.8	1.7	9.5	3.4
Ability to obtain feedback on your numeracy teaching practice through teacher observation	70.7	25.9	44.8	10.3	0.9	6.0	12.1
In-school support from the Regional Facilitator	63.8	37.1	26.7	18.1	1.7	5.2	11.2
Access to the TOWN website	55.2	16.4	38.8	22.4	4.3	11.2	6.9
The external training workshop	48.3	15.5	32.8	13.8	2.6	2.6	32.8
Access to case managers for expert advice on individual learning needs	38.8	11.2	27.6	23.3	8.6	14.7	14.7
Participation in the regular TOWN video conferences organised by DEC	28.4	8.6	19.8	31.0	6.0	6.0	28.4

* Note this question was answered only by respondents with a regular classroom teaching role

6 Outcomes for students

6.1 OVERALL EFFECTIVENESS

The questionnaire sought respondents' views on the impact of TOWN on students at their school. Teachers were asked to rate the *overall effectiveness* of TOWN in improving numeracy outcomes for students. The responses are summarised in Table 30 below, including an analysis of these results by school role.

Overall, more than three quarters of respondents (77%) reported that TOWN had been *effective* or *very effective* in improving numeracy outcomes for students. Respondents working as a TOWN Coordinator or specialist teacher/aide/ other support were most likely report that the program had been effective (90% and 88% respectively). Whilst only a small minority of respondents reported that the program had been *not at all effective* (7%), this view was more common amongst Stage 3 teachers (19%) and K-2 teachers (17%).

TABLE 30 – OVERALL EFFECTIVENESS OF TOWN IN IMPROVING NUMERACY OUTCOMES FOR STUDENTS BY ROLE (PERCENTAGE OF RESPONDENTS*)

EFFECTIVENESS	TOTAL	EXECUTIVE	TOWN COORDINATOR	TEACHER K-2	TEACHER STAGE 2	TEACHER STAGE 3	SPECIALIST/AIDE/ OTHER SUPPORT
Very effective	31.2	27.6	38.7	41.7	30.8	22.2	31.3
Effective	46.1	41.4	51.6	33.3	38.5	51.9	56.3
Neither effective nor ineffective	5.0	10.3	3.2	8.3	7.7	-	-
Not very effective	5.7	13.8	-	-	7.7	3.7	6.3
Not at all effective	7.1	3.4	3.2	16.7	3.8	18.5	-
Too soon to say	2.8	3.4	-	-	7.7	3.7	-
Hard to say	2.1	-	3.2	-	3.8	-	6.3
TOTAL	100	100	100	100	100	100	100
<i>Total effective*</i>	77.3	69.0	90.3	75.0	69.2	74.1	87.5

* Combined *effective* and *very effective* responses

Considering the variation in views on the *overall effectiveness* of TOWN according to respondents' level of teaching experience demonstrated that those respondents either at an early or late stage of their teaching career were more likely to report that the program had been effective. As shown in Table 31 below, teachers with five or less years' experience were most likely to report that the TOWN had been *effective* or *very effective* in improving numeracy outcomes for students (91% of respondents), followed by those respondents with over 20 years' teaching experience (83% of respondents). Respondents with between six and 10 years' and 11 and 20 years' experience were considerably less likely to report finding the program effective (65% and 67% *total effectiveness* respectively).

TABLE 31 – OVERALL EFFECTIVENESS OF TOWN IN IMPROVING NUMERACY OUTCOMES FOR STUDENTS BY YEARS TEACHING EXPERIENCE (PERCENTAGE OF RESPONDENTS*)

EFFECTIVENESS	TOTAL	5 YEARS OR LESS	6 – 10 YEARS	11 – 20 YEARS	OVER 20 YEARS
Very effective	31.2	36.4	23.5	23.1	36.5
Effective	46.1	54.5	41.2	43.6	46.0
Neither effective nor ineffective	5.0	4.5	-	10.3	3.2
Not very effective	5.7	4.5	23.5	2.6	3.2
Not at all effective	7.1	-	5.9	15.4	4.8
Too soon to say	2.8	-	-	2.6	4.8
Hard to say	2.1	-	5.9	2.6	1.6
TOTAL	100	100	100	100	100
<i>Total effective*</i>	<i>77.3</i>	<i>90.9</i>	<i>64.7</i>	<i>66.7</i>	<i>82.5</i>

* Combined *effective* and *very effective* responses

As shown in Table 32, considering the responses according to the location and size of the school at which respondents worked showed some variation in views on the effectiveness of TOWN. Respondents from schools in rural/remote areas were more likely to report finding TOWN effective in improving student numeracy outcomes (85%) than respondents from regional (75%) or metropolitan (57%) schools. Likewise, a higher proportion of teachers working in small schools (96%) reported that TOWN had been effective for students compared to teachers in medium-size (73%) and large (71%) schools.

TABLE 32 – OVERALL EFFECTIVENESS OF TOWN IN IMPROVING NUMERACY OUTCOMES FOR STUDENTS BY SCHOOL SIZE AND LOCATION (PERCENTAGE OF RESPONDENTS*)

EFFECTIVENESS	TOTAL	SCHOOL LOCATION			SCHOOL SIZE (NO. STUDENTS)		
		METRO*	REGIONAL CITY OR TOWN	RURAL/ REMOTE	LESS THAN 200	200 – 400	MORE THAN 400
Very effective	31.2	-	37.6	22.0	42.9	32.1	20.0
Effective	46.1	57.1	37.6	63.4	53.6	41.0	51.4
Neither effective nor ineffective	5.0	28.6	3.2	4.9	-	1.3	17.1
Not very effective	5.7	-	5.4	7.3	3.6	7.7	2.9
Not at all effective	7.1	-	10.8	-	-	11.5	2.9
Too soon to say	2.8	-	3.2	2.4	-	3.8	2.9
Hard to say	2.1	14.3	2.2	-	-	2.6	2.9
TOTAL	100	100	100	100	100	100	100
<i>Total effective</i>	<i>77.3</i>	<i>57.1</i>	<i>75.3</i>	<i>85.4</i>	<i>96.4</i>	<i>73.1</i>	<i>71.4</i>

* Note small sample size

6.2 OBSERVED IMPROVEMENTS

Teachers were asked to indicate the extent of *improvement* observed in seven areas relating to students' engagement with and capability in numeracy since the introduction of TOWN. These responses are presented in Table 33 below, including a calculation of *total improvement* which comprises the combined set of *significant improvement* and *some improvement* responses.

In all seven areas, the majority of respondents reported having observed *some improvement* or *significant improvement* in the students since the introduction of TOWN. The top three observed improvements were (in terms of *total improvement*):

- *Students' use of effective strategies to assist them doing maths (91%)*
- *Students' maths skills (90%)*
- *Students' confidence in doing maths (89%).*

Areas with the highest proportion of *significant improvement* observed in students related to students' engagement with maths, including *students' enthusiasm for maths (53% significant improvement)* and *students' confidence in doing maths (50% significant improvement)*.

TABLE 33 – OBSERVED IMPROVEMENT IN STUDENTS' NUMERACY (PERCENTAGE OF RESPONDENTS)

AREA	TOTAL IMPROVEMENT	SIGNIFICANT IMPROVEMENT	SOME IMPROVEMENT	A LITTLE IMPROVEMENT	NO IMPROVEMENT	HARD TO SAY
Students' use of effective strategies to assist them doing maths	90.8	47.5	43.3	3.5	2.8	2.8
Students' maths skills	90.1	44.0	46.1	4.3	2.8	2.8
Students' confidence in doing maths	89.4	50.4	39.0	5.0	2.8	2.8
Students' enthusiasm for maths	85.8	52.5	33.3	7.8	2.8	3.5
Students' understanding of what is expected of them	85.8	41.8	44.0	7.8	3.5	2.8
Students' understanding and use of multi-unit place value	85.1	40.4	44.7	7.8	3.5	3.5
Students' enthusiasm for their other schoolwork (beyond numeracy)	65.2	27.7	37.6	15.6	9.2	9.9

Considering the responses according to role, TOWN Coordinators were most likely to report observed improvement in students' numeracy across the majority of areas. Infants teachers (K-2) also more commonly reported observed improvements to students' capability and engagement with numeracy. Whilst the large majority of Stage 2 teachers reported observed improved in most areas, the proportion of this teaching group reporting improvement in students' numeracy was slightly lower than classroom teachers at other levels. For example, 81% of Stage 2 teachers noted improvement in *students' maths skills*, compared to 100% of K-2 teachers and 89% of Stage 3 teachers.

TABLE 34 – OBSERVED IMPROVEMENT IN STUDENTS’ NUMERACY BY ROLE (PERCENTAGE OF RESPONDENTS)

AREA	TOTAL IMPROVEMENT	EXECUTIVE	TOWN COORDINATOR	TEACHER K-2	TEACHER STAGE 2	TEACHER STAGE 3	SPECIALIST/AIDE/ OTHER SUPPORT
Students’ use of effective strategies to assist them doing maths	90.8	79.3	100.0	100.0	84.6	92.6	93.8
Students’ maths skills	90.1	86.2	96.8	100.0	80.8	88.9	93.8
Students’ confidence in doing maths	89.4	82.8	100.0	91.7	84.6	92.6	81.3
Students’ enthusiasm for maths	85.8	82.8	96.8	91.7	76.9	85.2	81.3
Students’ understanding of what is expected of them	85.8	86.2	96.8	100.0	73.1	81.5	81.3
Students’ understanding and use of multi-unit place value	85.1	86.2	96.8	75.0	76.9	88.9	75.0
Students’ enthusiasm for their other schoolwork (beyond numeracy)	65.2	62.1	74.2	75.0	50.0	70.4	62.5

6.3 STUDENT GROUPS

6.3.1 EFFECTIVENESS FOR DIFFERENT STUDENT GROUPS

Teachers were asked to rate the effectiveness of TOWN in improving the educational outcomes for a number of different student groups. These responses are presented in Table 35 below, including a calculation of *total effectiveness*, which comprises the combined set of *very effective* and *somewhat effective* responses.

TABLE 35 – EFFECTIVENESS OF TOWN FOR DIFFERENT STUDENT GROUPS (PERCENTAGE OF RESPONDENTS)

STUDENT GROUP	TOTAL EFFECTIVE	VERY EFFECTIVE	SOMEWHAT EFFECTIVE	NOT VERY EFFECTIVE	NOT AT ALL EFFECTIVE	NOT APPLICABLE/HARD TO SAY
All students	89.4	44.7	44.7	2.8	3.5	4.3
Students below NAPLAN benchmarks	83.7	45.4	38.3	4.3	2.8	9.2
Students above NAPLAN benchmarks	75.9	28.4	47.5	7.8	6.4	9.9
Aboriginal students	73.8	31.2	42.6	2.8	2.8	20.6
Students with a learning disability	71.6	22.7	48.9	7.1	3.5	17.7
ESL/LBOTE students	53.9	24.8	29.1	3.5	2.8	39.7

Taking into consideration the proportion of responses reported as *not applicable/hard to say*, respondents did not highlight any particular student group for which TOWN had been notably ineffective. The student groups with the highest proportion of *not very effective* or *not at all effective* responses were *students above NAPLAN benchmarks* (14%) and *students with a learning disability* (11%), compared to 6% of responses for *all students*.

6.3.2 EFFECTIVENESS FOR ABORIGINAL STUDENTS

Teachers were also asked to report their view on the relative effectiveness of TOWN in improving numeracy outcomes for *Aboriginal* students compared to *non-Aboriginal* students. Table 36 below shows the results. The large majority of respondents indicated either that the program is *as effective* for Aboriginal students as for non-Aboriginal students (55%) or that they were *not sure* of the relative effectiveness (38%). A small minority reported that TOWN had been *more effective* for Aboriginal students than for non-Aboriginal students (5%).

TABLE 36 – EFFECTIVENESS OF TOWN FOR ABORIGINAL STUDENTS COMPARED TO NON-ABORIGINAL STUDENTS (PERCENTAGE OF RESPONDENTS)

EFFECTIVENESS	TOTAL
More effective than for non-Aboriginal students	5.0
As effective as for non-Aboriginal students (ie no difference)	55.3
Less effective than for non-Aboriginal students	-
Not sure/ hard to say	37.6
Not applicable as there are no Aboriginal students participating in TOWN at my school	2.1
TOTAL	100

Teachers were asked to specify why they believed this relative effectiveness had been the case. The most common reasons noted by respondents included:

- Teaching caters for the needs of all students through differentiation/ similar profile of results for both groups (70 mentions):

'Aboriginal students are able to complete the same assessments and then as a teacher I am able to place them on the appropriate place value level and then work on moving them to the next level. They enjoy the games and lessons as much as other children. They demonstrate the same levels of diversity in terms of ability. It is about providing quality teaching and learning for everyone.'

'All students were on the framework and all students were on an individual learning program. All students were targeted.'

'Results for both have shown improvement, neither group is better or worse off.'

'Both Aboriginal and non-Aboriginal students moved along the framework and both Aboriginal and non-Aboriginal students failed to move along the framework.'

- Students' positive response to hands-on, practical learning activities and group-work (18 mentions):

'Much of the learning involved group work where the Aboriginal students enjoyed the hands-on activities and the opportunity to talk about learning.'

'The practical and engaging learning activities, differentiated activities and use of group work are practices that are necessary to improve results for all students.'

- Small cohort of high-performing Aboriginal students (9 mentions):

'Both Aboriginal students in my class have been consistently high achievers.'

'Aboriginal students in my class are bright students.'

- Students' positive response to explicit lesson direction and clear expectations (5 mentions):

'They are also aware of what is expected of them during the activity which reduced anxiety in their lessons.'

'Knowledge of the framework helped them understand what was expected. I feel this gave them more self-direction and control of their learning.'

- Small cohort of Aboriginal students – unable to comment on relative effectiveness (32 mentions):

Respondents were also asked to specify any other impacts or outcomes (positive or negative) that had been observed in Aboriginal students participating in TOWN. Of the 141 teachers completing the survey, 49 respondents provided a specific response to this question. The most common additional impacts or outcomes for Aboriginal students noted by respondents included:

- Increased student enthusiasm/engagement with maths (30 mentions):

'Aboriginal students have been more enthusiastic about their maths this year and keen to improve.'

'Students do enjoy maths lessons now and as we are able to provide instruction at the level of achievement they are feeling a sense of achievement when they learn something new and improve their understandings.'

- Increased student confidence (13 mentions):

'An increase in the confidence of Aboriginal students and their willingness to contribute to class discussions.'

- Improved family/community engagement with numeracy/the school (5 mentions):

'Gaining insight into preferred learning strategies through family and incorporating cultural concepts into maths games with family input has led to stronger relationship between the school and the Aboriginal Community.'

- Improved attendance (3 mentions).

7 Impact on the school

Teachers were presented with a series of statements relating to the impact of TOWN on school numeracy practices, the level of support and guidance for implementing TOWN in the school, and the sustainability of the program beyond the funding period. Respondents were asked to express how strongly they *agreed* or *disagreed* with each statement. The responses are presented in Table 37 below.

TABLE 37 – AGREEMENT WITH STATEMENTS ABOUT IMPACT OF TOWN ON THE SCHOOL (PERCENTAGE OF RESPONDENTS)

STATEMENT	TOTAL AGREEMENT	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	HARD TO SAY
School practices							
Through participating in TOWN, teaching of numeracy in my school is now more explicit and focused	85.8	53.2	32.6	7.1	2.1	3.5	1.4
Since the introduction of TOWN there is now more clarity about my school's goals and expectations re numeracy outcomes	83.0	47.5	35.5	10.6	2.1	2.8	1.4
Most teachers in my school are embedding numeracy teaching into everyday classroom teaching	81.6	42.6	39.0	9.2	3.5	1.4	4.3
TOWN has resulted in greater transparency and consistency in the way numeracy is taught in my school	79.4	45.4	34.0	8.5	7.1	3.5	1.4
Support and guidance							
The school TOWN Coordinator/Leader had strong numeracy teaching skills	86.5	59.6	27.0	8.5	1.4	0.7	2.8
The TOWN Coordinator/Leader effectively engaged staff participating in TOWN	83.7	52.5	31.2	12.8	0.7	0.7	2.1
There is strong leadership support for TOWN in my school	80.1	53.2	27.0	13.5	2.8	0.7	2.8
Overall, I received good support and guidance on how to implement TOWN in my class/school	80.1	42.6	37.6	8.5	7.1	2.8	1.4
Support for TOWN at my school has grown over time	73.0	34.8	38.3	14.9	4.3	4.3	3.5
TOWN was well planned and implemented by the NSW Department of Education and Communities	49.6	19.9	29.8	24.1	7.1	15.6	3.5
Sustainability and value							
There is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period	74.5	27.7	46.8	11.3	4.3	5.0	5.0
I would recommend the use of TOWN in other schools	69.5	36.2	33.3	18.4	5.0	5.7	1.4

With respect to the impact of TOWN on school numeracy practices, there was a high level of agreement with all statements. The statement with which teachers agreed most (in terms of both *total agreement* and proportion of *strongly agree* responses) was that *through participating in TOWN, teaching of numeracy in my school is now more explicit and focused* (53% *strongly agree*, 86% *total agreement*).

In terms of the level of support and guidance for implementing TOWN in the school, the majority of respondents agreed with statements relating to support received from the TOWN Coordinator and the school leadership. The highest level of agreement expressed for any statement was that *the TOWN Coordinator had strong numeracy teaching skills* (60% *strongly agree*, 87% *total agreement*). Conversely, significantly fewer respondents agreed with the statement that *TOWN was well planned and implemented by the NSW Department of Education and Communities* (20% *strongly agree*, 50% *total agreement*).

There was a fairly high level of agreement on the sustainability of the TOWN approach, with three-quarters (75%) of respondents agreeing that *there is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period*. Likewise, the majority of teachers (70%) agreed that they would *recommend the use of TOWN in other schools*.

In Table 38, the responses are presented by the location and school size of respondents. In general, respondents from rural/remote schools, and small schools (with less than 200 students) were slightly more positive about the impact of TOWN on their school, expressing greater agreement with statements such as:

- *Through participating in TOWN, teaching of numeracy in my school is now more explicit and focused*
- *The TOWN Coordinator/Leader effectively engaged staff participating in TOWN*
- *Support for TOWN at my school has grown over time*
- *I would recommend the use of TOWN in other schools.*

Respondents from metropolitan schools expressed the lowest level of agreement to many statements; however, it should be noted that the validity of this result is limited by the small sample size of metropolitan teachers completing the survey.

TABLE 38 – AGREEMENT WITH STATEMENTS ABOUT IMPACT OF TOWN ON THE SCHOOL BY SCHOOL LOCATION AND SIZE (PERCENTAGE OF RESPONDENTS)

STATEMENT	TOTAL AGREEMENT	SCHOOL LOCATION			SCHOOL SIZE (NO. STUDENTS)		
		METRO*	REGIONAL CITY OR TOWN	RURAL/ REMOTE	LESS THAN 200	200 – 400	MORE THAN 400
School practices							
Through participating in TOWN, teaching of numeracy in my school is now more explicit and focused	85.8	71.4	84.9	90.2	92.9	83.3	85.7
Since the introduction of TOWN there is now more clarity about my school's goals and expectations re numeracy outcomes	83.0	85.7	83.9	80.5	92.9	83.3	74.3
Most teachers in my school are embedding numeracy teaching into everyday classroom teaching	81.6	100.0	75.3	92.7	85.7	73.1	97.1
TOWN has resulted in greater transparency and consistency in the way numeracy is taught in my school	79.4	57.1	82.8	75.6	85.7	79.5	74.3
Support and guidance							
The school TOWN Coordinator/Leader had strong numeracy teaching skills	86.5	57.1	87.1	90.2	92.9	87.2	80.0
The TOWN Coordinator/Leader effectively engaged staff participating in TOWN	83.7	57.1	84.9	85.4	92.9	82.1	80.0
There is strong leadership support for TOWN in my school	80.1	71.4	80.6	80.5	92.9	79.5	71.4
Overall, I received good support and guidance on how to implement TOWN in my class/school	80.1	42.9	81.7	82.9	92.9	78.2	74.3
Support for TOWN at my school has grown over time	73.0	42.9	73.1	78.0	96.4	66.7	68.6
TOWN was well planned and implemented by the NSW Department of Education and Communities	49.6	14.3	54.8	43.9	75.0	43.6	42.9
Sustainability							
There is a clear pathway for sustaining TOWN improvements/approach in the school beyond the funding period	74.5	57.1	78.5	68.3	85.7	74.4	65.7
I would recommend the use of TOWN in other schools	69.5	42.9	67.7	78.0	96.4	64.1	60.0

* Note small sample size

8 Suggested improvements

Teachers were asked whether they could think of any improvements to the TOWN program or its implementation. Of the 141 teachers completing the survey, 70 respondents put forward suggestions for improving the program.

The most common suggestions for improving TOWN included:

- Provision of more resources (27 mentions):

'Once on the framework we had to source everything else ourselves. The resources provided were not easy to understand or implement.'

'To have a ready-made resource kit would be very beneficial.'

'Less teacher time spent making resources/games, more time on learning the 'system'.'

- Greater regional/ in-school support and networking (22 mentions):

'I think it would have more impact if it were implemented across a COS with a coordinator from the COS (eg practicing classroom teacher who has experience with TOWN) to assist all COS schools to implement TOWN.'

'A Local Person TOWN Supervisor was needed - visits from DEC Support Staff were infrequent.'

'Less of the video conferences and the web site tracking and more time and money spent on providing the support in schools. We gained a lot more from the visits to our school where planning and strategies were appropriate to where our school was at.'

- Clearer links to the syllabus/ improved guidance for programming and lesson plans (13 mentions):

'More guidance in the form of programming. It was very unclear and left up to individual schools to implement their own strategies.'

'TOWN gave us the framework to assess our students - beyond that, there was nothing else. It would have been great to have a whole school program or even lesson sequence to ensure quality teaching... Thank goodness, our school leader for TOWN was driven by TOWN to then look elsewhere to gain greater resources for our school. Unfortunately TOWN did not do this for us.'

'TOWN should be more prescriptive like Count me In Too. I have learnt some much more assessing my students through CMIT. TOWN programming and activity planning could be better presented and much more user friendly if it was in a package like CMIT.'

'Clearer pathways for integration with other KLA's, cross matched with Maths syllabus.'

'Access to a consistent delivery focus such as the North Coast Scope and Sequence and the Lesson Study approach have provided a stronger focus on the teaching of numeracy across the school.'

- Reduced cost/ improved value for money (12 mentions):

'The program itself and the resources provided should have cost far far less than what was actually charged. Our school paid \$55,000. We received one facilitator's book, a couple of guides, one conference, a handful of fairly simple videoconferences, an average website, a clunky online database. No program manuals for teachers, no minefield of new teaching strategies, no teacher release or training, very little expertise that was helpful or timely. I would have valued the material we received through TOWN at around \$6,000. I feel very let down.'

'TOWN only provided us with the framework and assessment. It did not offer value for money.'

'I was extremely disappointed with the return we received on the \$53,000 we had to pay to be part of the program. This money could have been better utilised to improve the learning outcomes of our students in numeracy.'

- More extensive preparation/planning/testing of the program prior to launching to schools (11 mentions):

'It would have been great to have had the website and resources ready before the program began and not being developed as we went.'

'It appeared that the program was being developed as it was being implemented across schools.'

'The TOWN project from the outset came across in a very confusing light. At the initial conference in Sydney, the information provided was vague and unclear with many participants ending the first day still not really aware of what TOWN actually was. The project (from an outsider's perspective) seemed to be being developed 'on the go' with a lack of resources and leadership. The video conference component at times felt more as though it were the schools involved developing the project rather than the designated staff.'

'I don't think the TOWN program gave all that was needed to effectively drive, develop and deliver a numeracy program in our school. TOWN is a theory and a continuum to place students along as a starting point. The buck stopped with the school coordinator to develop TPL resources, lead planning and programing, develop assessment structures etc. TOWN group were too slow to get these organised earlier enough to be utilised in the initial 6mths of the program. By the time the video conferences got around to dealing with multi/div we were well past this stage.'

- More release time for professional development, planning and collaboration/reflection (10 mentions):

'More time spent on observations and evaluations of lessons. This was really good when it happened, but more feedback would increase my confidence further.'

'More in-depth training on frameworks more professional learning on assessment strategies and how to program for the data teachers have collected.'

'Ongoing funding support which is gradually reduced over time to allow professional development through regular discussion sessions, mentoring and collaboration to continue.'

- Extending the focus of the program beyond place value (7 mentions):

'By focusing only on Place Value, other areas of need were not able to be addressed. Numeracy and Mathematics is more than Place Value.'

- Extending the funding period (3 mentions):

'Allow the funding, support and the project to run for a longer time. In many ways our journey has just begun... It runs the risk of falling apart because teachers and team leaders simply will not have the time to implement a very worthwhile project that delivers results for students.'

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