



Computers in Homes
Analysis of Rejuvenation Survey

Prepared for The 2020 Communications Trust

Andy Williamson – Wairua Consulting Limited
August 2007



Table of Contents

- Executive Summary _____ 1
- Introduction _____ 2
- Sample _____ 2
- Data Analysis _____ 3
 - Returned computers 3
 - Training and Education 4
 - How Has Having a Computer Benefited Participants? 5
 - Benefits from Participating in Computers in Homes 6
 - Computer Literacy 6
 - Impact on Children’s Education 6
 - Adult Interaction with School and Community 7
 - Family Life and Self-esteem 7
 - Improving Computer in Homes 8
 - Support 9
 - Hardware and Software 10
 - Training 10
- Discussion _____ 11
- Conclusion _____ 12
- Appendices _____ 13
 - Appendix A – Survey of Data Collectors 13
 - Factors Impacting on Response Rates 13
 - Survey Design 14
 - How to Improve Response Rates 14
 - Conclusions and Recommendations for Future Studies 15

Executive Summary

The Computers in Homes (CiH) project has worked with low-income households in selected communities to provide recycled computers, limited free internet access and training in conjunction with local schools since 2000. This report provides an analysis of data obtained from 121 participants across 12 CiH projects. It identifies what benefits are being delivered to families taking part and opportunities for improving or refining the CiH for the future.

The success of CiH is best summarised by the clear increase in self-esteem amongst participants. The project's tangible benefits are many and include strengthening parental connections with school and community, encouraging adult family/whanau members to engage in further study and increasing computer literacy levels for the wider family and whanau.

There is clear evidence to support the assertion that CiH is having a strong and positive impact on family connectedness. CiH appears to play a positive part in breaking the cycle of inter-generational educational under achievement.

Areas for future improvement to emerge primarily relate to funding – problems are noted with unreliable equipment, more training is requested and enhanced support is mentioned. These are all issues that can be fixed with additional funding. They are not seen as criticisms of CiH, rather they reflect the community-centric nature of the programme and the challenge of sustainably funding such a venture in New Zealand.

Participants strongly endorse CiH and are appreciative of what they have gained from it, comments echoed by schools involved in the programme. This research has also shown that CiH is an effective tool for achieving policy outcomes in both education and ICT.

Introduction

The Computers in Homes (CiH) project works with low-income households in selected communities to provide recycled computers, limited free internet access and training in conjunction with local schools. Launched by the 2020 Communications Trust in 2000, the scheme has worked with over 1,000 families and is supported by the Ministry of Education and other private and public sponsors. A key attribute of CiH is that the computer is owned by the family but the project is situated within a school community. The project began with pilots in Cannons Creek, Porirua and Panmure Bridge, South Auckland. It now extends nationally to include rural communities on the North Island's East Coast, inner city Wellington's Newtown School and refugee communities in Hamilton. Computers in Homes attempts to do more than bridge a digital divide; it also attempts to build networks within communities and, significantly, encourages families to have greater involvement with their children's schools.

This report analyses data obtained from participants in a number of CiH projects to determine what benefits are being delivered to families taking part and to identify opportunities for improving or refining the project as it moves forward. In addition, Appendix A, provides a brief qualitative analysis of interviews with the data collectors in order to identify opportunities to improve the design and administration of future surveys.

Sample

Data for the rejuvenation survey was collected through a range of one-on-one methods including face-to-face and telephone interviewing. A standard survey instrument was developed and administered for each interview with respondents identified from lists of initial participants in each project (therefore the survey would include those no longer active). In all, 121 responses were received and are included in the analysis below (n=121), however, as Table 1 shows, response rates varied significantly across different CiH project locations. Because data is not linked to projects and not all CiH projects were included in the Rejuvenation Survey, it is not possible to provide an actual response rate.

Table 1: Indicative response rates

Location	Response rate
Gisborne	94%
Taranaki	73%
Far North REAP	22%
Christchurch (Aranui, Bromley, Linwood)	20%
West REAP	50%

Altogether, data from twelve CiH projects has been included in this analysis:

- Aranui
- Bromley
- St James
- Linwood
- Eltham
- Marfell
- Waitara
- Awapuni
- Kaitaia Primary
- Awanui
- Oturu
- Pamapurua

Data Analysis

This next section will explore the data provided, describing key aspects of the data, focussing on the contribution made by CiH to learning (for both adults and children) and social cohesiveness. It then goes on to identify benefits reported by participants and concludes with a thematic analysis of participants' recommendations for improving the programme. A discussion of the key findings follows.

Returned computers

Less than 2% of respondents (2) involved in CiH had returned their computers, whilst no data was collected on the reasons for this, an insight is given in the additional comments provided by one family:

Make sure they work before giving them out and that the back-up service is there and reliable.

This comment is also supported by data investigating low response rates from one programme.

Training and Education

Fifty-nine percent of respondents had undertaken some form of additional training or education since they started to participate in the CiH programme. Thirty-four percent of respondents report having upskilled as a direct result of their participation in CiH.

Figure 1 shows the different sources of training or education¹, with 30% of participants choosing to undertake training that led to an NZQA-approved qualification. The least popular source of training was Marae-based (3%) or University-based (4%). No inference can be drawn as to the relevance, quality or preference for training venues from this data since such choice can be limited by a variety of geographical, social, cultural and financial factors that were not explored in the survey.

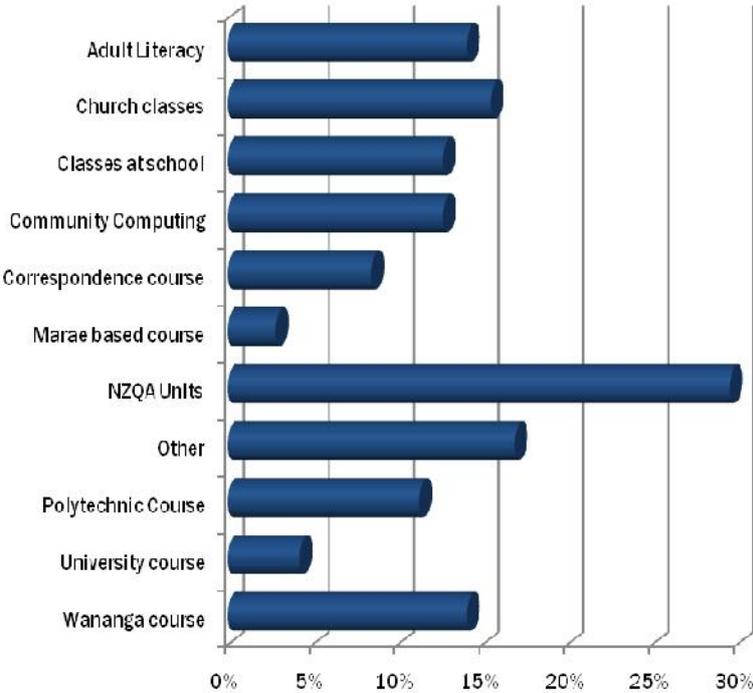


Figure 1: Training and education

Of those who undertook a formal programme of education leading to a qualification, Figure 2 shows that 11% undertook certificate level study (this is assumed to be study at NZQA levels 1-3), falling to 7% studying at degree level (NZQA Level 5 and above). Twelve percent of respondents indicated that their enrolment in a tertiary course was directly related to their participation in CiH.

¹ It could be assumed that some participants undertook more than one training or educational course during this time and therefore percentages might total more than 100%.

No data was provided on whether respondents graduated from these courses or on rates and reasons for non-completion.

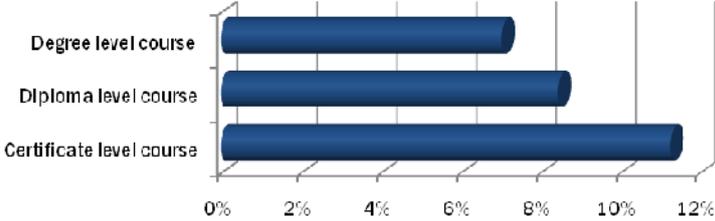


Figure 2: Level of education undertaken

How Has Having a Computer Benefited Participants?

When asked “Has having a computer helped you with this other education or training?”, 58% of respondents said that it had. Of all the 121 respondents, 57% indicated that having a computer at home was either ‘extremely useful’ or ‘very useful’. As Figure 3 shows, 48% perceived a computer at home as being extremely useful, compared to only 3% who perceived it has being either ‘fairly useless’ or ‘extremely useless’.

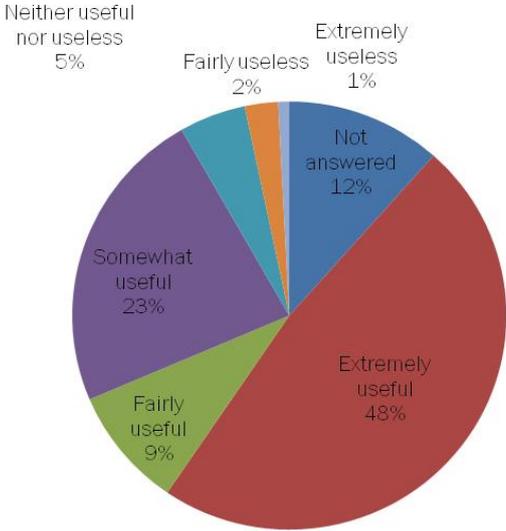


Figure 3: Perceived usefulness of computer at home

The data strongly indicates that a computer in the home – and therefore CiH as a method of achieving home computer ownership where significant barriers exist to it otherwise occurring – is of benefit to the majority of participants in the scheme, with 80% of all respondents seeing at least some benefit in computer ownership.

Benefits from Participating in Computers in Homes

This section identifies the key benefits that participants report as resulting from their involvement in CiH.

Computer Literacy

Given the focus of CiH on the computer and on achieving increases in levels of computer literacy amongst participating families, it is important to reflect on the level to which this has been achieved for participants in the study. The data reveals that it is the children who have benefited the most from access to computers and the associated training and support provided through CiH. Figure 4 shows that 85% of participant families perceive an increase in the levels of computer literacy amongst their children and 74% of respondents see a concomitant rise in computer literacy for the parents. Forty-one percent also noted that other extended family and whanau members have benefited with increased computer literacy, however, the study did not explore the nature or extent of these familiar relationships and whether these 'other family members' were co-resident with the family in question.

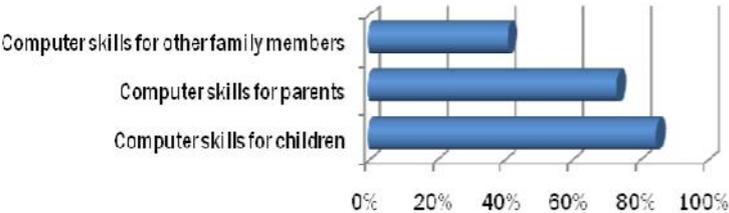


Figure 4: Increase in computer literacy

Impact on Children's Education

Given CiH's primary relationship with the children's school, it is relevant to reflect on the impact that the project has had on the educational achievement of children in participating families. No formal academic assessment is available, however, responses to the survey suggest a generally positive correlation between participation in the project (and, by deduction, in part at least having access to a computer at home) and improved educational performance. Figure 5 shows that 47% of participants report that their children's educational performance has improved since joining the project and 25% report a positive increase in their children's grades. Most pertinent perhaps is that 59% of respondents report that they are now more able to assist their children with homework tasks whereas previously they might have felt unable to help, itself leading to issues of self-esteem and inter-generational educational failure.

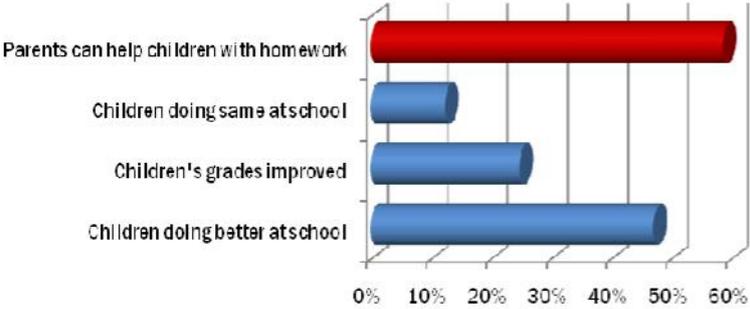


Figure 5: Participation in education

Adult Interaction with School and Community

The data suggests that it is not only children in the family that improve their connection and relationship with the school (and also with the wider community, of which 21% respondents report becoming involved following their connection with CiH). Figure 6 shows CiH has assisted in improving the levels of communication between parents/caregivers and their children's school, with 17% reporting that they had obtained a better understanding of the school and its teachers and 33% saying that their communication with the school had increased since participating in CiH. This is supported by informal reports from the schools involved in CiH who also observe that involvement in CiH appears to reduce barriers to engagement between for family/whanau and school.

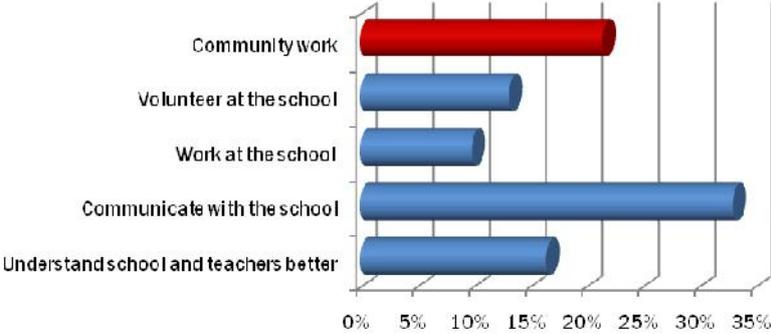


Figure 6: Increased adult involvement with school and community

Interestingly, participation in CiH has also prompted a number of parents to become actively involved in their children's school, the data showing that 13% of respondents have subsequently volunteered at the school and 10% worked or been involved in some form of voluntary capacity since joining the scheme.

Family Life and Self-esteem

Having a computer has changed the way families work and play: Sixty-four percent of families are now using the computer for playing games, and 61% are using a computer to keep in touch with

other family members through email. Figure 7 shows that over half of respondents feel that they are now spending more time together and 53% of adult respondents feel proud of themselves because of the skills acquired and opportunities that have arisen through taking part in CiH. Most significantly, 60% of families surveyed are proud of what their children have learnt and achieved since enrolling in the scheme.

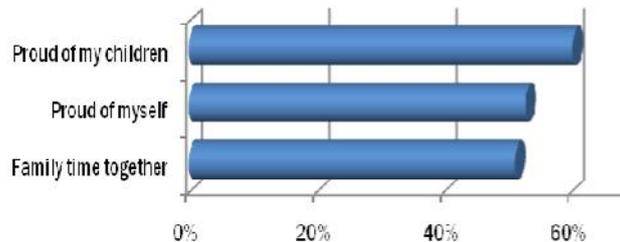


Figure 7: Self-esteem and family connectedness

Figure 8 suggests that the increase in self-esteem manifests in a number of different ways. Fifty-eight percent of respondents report that their confidence has increased as a result of becoming more computer literate and the subsequent changes that this has brought to their life and 44% report improved communication skills. Perhaps equally importantly, 64% of families report having more fun and this suggests that, for many families, the computer has been a catalyst not only for learning and communication but also for family and whanau connectedness.

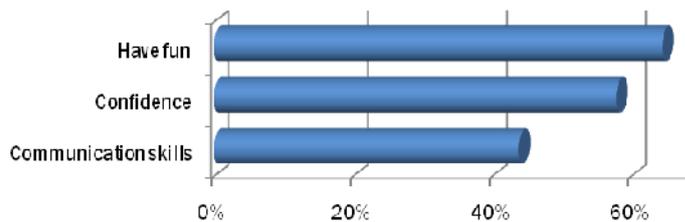


Figure 8: Benefits of computer in the home

Improving Computer in Homes

Respondents were asked to provide a single qualitative comment suggesting potential improvements that could be made to the CiH programme. Fifty-five percent of respondents answered this question and an analysis of the emergent themes highlights, first of all, that many respondents are extremely happy with CiH and appreciative of the opportunity to be involved:

CiH children are leaders in group situations involving computers.

Everything is just a o.k, Keep it up.

It was fantastic and inspired me to upskill.

I think personally this programme will benefit a lot more people if it was in every school.

Three primary themes highlighted potential improvements, these were:

- Improving the availability of programme support.
- Providing better hardware and software.
- More training and more widely available.

These are summarised below.

Support

A number of respondents suggested that having more support and that support being more available to families would improve the experience.

More support for parents and have technicians more readily available.

Make sure... the back-up service is there and reliable.

Suggestions included a help line that parents and caregivers could call and a follow-up system where CiH checked in with families on a regular basis to assess progress and needs:

Perhaps phone check-ups on regular basis to confirm things are running smoothly.

Respondents felt that the current model of support worked because it was accessible and friendly and so extensions to this should not lose the highly valued inter-personal facets of the programme:

Whenever I've had a problem I've approached [name] and it has been sorted as a matter of priority.

I think it would be great to have a help-line, phone number of somebody to talk to about problems that can occur.

Hardware and Software

Although there was a general realisation that the project's budget is limited, there was a sense of frustration apparent regarding the specification and reliability of the computers. A number of respondents noted crashes and hardware failures and others commented that newer computers would be better. It was important to some to be able to obtain peripherals such as printers. Other suggestions included access to a pre-pay broadband package.

Make sure they work before sending them out.

I realise the CiH budget is limited, but a printer made available would be really handy.

Give me a computer that is in better condition.

Have better computers to start with. Mine came back from the Ark worse than it went to them for fixing.

The issue of reliability is an important one to consider as it not only affects the value and day to day use of the computer for families, it also impacts on their confidence and, by inference, continuous adoption of ICT:

Confidence in computers took a beating because it didn't work efficiently and had ongoing problems.

Training

Many comments reflected the value placed on learning to use computers properly and how the initial training was highly valued by participants. In terms of recommended improvements, extending the training programme and creating refresher courses were consistently popular themes:

Perhaps a selection of short courses or projects to help with skills for parents and children.

Please do run another computer training for parents/caregivers and the whole community.

More training and induction step by step.

Have follow up classes or extra lessons to work on when we take the computer.

Have people come to home to teach computing at home.

Discussion

The overall impression presented by the data is that CiH acts a catalyst to parents and caregivers, motivating them to (re-)engage with education and training. Family and whanau life has benefited – participant’s report that they are not just learning together but also playing more together as a family. There are clear indications that the self-esteem of parents/caregivers and children has increased as a direct result of their involvement in CiH. As might be expected, levels of computer literacy have substantially increased.

The programme builds strong connections between families and schools. It not only brings parents into greater and more frequent contact with the school it also helps families and whanau to better understand the role and actions of schools and teachers in their children’s development (this conclusion is supported by reports from the schools).

For the children, there is some evidence that CiH participation leads to better educational achievement, however, this is inconclusive. It is impossible to say whether this relates to them having better access to ICT, the increase in the value for learning or better relationships with the school that support this. Most likely it is a combination of all three. It is, however, clear that parents and caregivers feel more involved in their children’s learning as a result of CiH and are now not only more likely but feel more able to assist their children with homework tasks. The data suggests that CiH is playing a positive part in breaking down cycles of inter-generational educational under achievement.

There is some evidence of frustration on the part of participants and this is almost entirely related to the unreliability of equipment. Suggestions are made as to providing ongoing training, making support more available and looking at delivering in-the-home support services. That said, there is clear recognition of the charitable nature of the project and significant appreciation of what it has achieved for communities as well as for individual families.

This research has established that CiH aligns well with current policy relating to ICT. A core aim of the New Zealand Digital Strategy is to build confidence and capability relating to ICT such that:

All New Zealanders have or are developing/acquiring the skills and confidence needed to turn the information into knowledge; collaborative working practices are utilised to deliver education outcomes for all.

Clearly, CiH achieves this on a local basis for participants in the programme, adults as well as children. The Ministry of Education's ICT Strategic Framework aligns implicitly with the 'confidence and capability' strand of the Digital Strategy through the promotion of information literacy and ICT skills and also extends to ensuring improved access to ICT (connectivity strand), both of which are encompassed by the CiH programme.

This research has established that CiH has led to improved connections between family/whanau and school and greater parental involvement in children's learning. This aligns with the aims of the Ministry of Education's Team Up programme. Educational policy also promotes lifelong-learning beyond the compulsory education system and adults participating in CiH are demonstrably engaging in further and higher education.

Conclusion

This report has taken 121 responses to a survey instrument carried out across 12 CiH sites and presents a strong picture of a programme that is providing significant and real benefit to families and to children.

The above discussion can perhaps be best drawn together by focussing on a clear increase in self-esteem amongst participants. Benefits are many, including strengthening parental connections with school and community, encouraging adult family/whanau members to engage in further study and increasing computer literacy levels for the whole family/whanau. There is clear evidence to support the assertion that CiH is having a strong and positive impact on family connectedness. CiH also clearly aligns well with government policy and this research suggests that CiH is an effective vehicle for achieving both ICT and education policy outcomes.

The only negative points to emerge from this report relate to funding – problems with unreliable equipment, more training and enhanced support are all issues that can be fixed with additional funding. These are not seen as criticisms of CiH, rather they reflect the community-centric nature of the programme and the challenge of sustainable funding such a venture in New Zealand.

Appendices

Appendix A – Survey of Data Collectors

It became apparent during the collection of data for the rejuvenation survey that data collectors were experiencing difficulties contacting a number of families within the CiH programme. It appeared from anecdotal reports that contact information was often out of date and that this resulted from high rates of mobility amongst some families. As a result of this emergent trend, it was decided to conduct a brief qualitative survey of those responsible for data collection in order to ascertain what issues were experienced with regard to data collection. It is hoped that these brief findings will provide useful input to the development of future evaluation exercises.

Five data-collectors were interviewed over the telephone using a structured interview. Given the small number of respondents, the results are presented qualitatively and relate to factors that affected the response rate of the original survey, the survey design and suggestions for improving future response rates.

Factors Impacting on Response Rates

Although most respondents felt that the response rate for the rejuvenation survey was worse than they had expected, all but one felt that the contact information provided by 2020 was accurate. The one respondent who reported that the contact information was very inaccurate was responsible for data collection in the most rural area included in the original study.

In the case of one school, they did not commit to the research and failed to perform their liaison role between the CiH programme and families, meaning that families were not contacted. In a contrasting example, where the school did get involved and not only carried out an initial contact but followed up the invitation by telephone the day before the survey was administered, the data collector reported that 100% of families still living in the area responded to the survey. In other cases, it was noted that parents were easy to engage with the research because they had ongoing contact with the CiH anchor school or programme. This meant that the concept of the survey could be introduced informally and its purpose explained to parents prior to administration.

Given the transient nature of some participant families, it is clear that maintaining regular contact with families is important. This will not only ensure that successful evaluations of CiH can occur but also offers obvious value in terms of maintaining the veracity of the programme. It is noticeable from the data that where regular communication is occurring, engagement and

response rates are higher. Where communication is limited, families appear more sceptical about involvement and less engaged in the programme. Failure to maintain a relationship with participants on the programme is a barrier to those families participating in future research.

Survey Design

The design of the survey instrument directly affects both response rate and the quality of that response. The interviews with data collectors focussed on the nature of the questions and the attitudes of the respondents to the survey.

The findings suggest that respondents were generally comfortable with the survey. Respondents (perhaps surprisingly) did not appear to have any resistance to answering personal questions, however, questions relating to education appear to be the ones least likely to have been answered. Survey fatigue is a real problem as it leads to incomplete surveys and fewer responses, and this definitely emerges as a theme in this instance. Survey fatigue is not simply about the number of questions or their complexity but is also affected by the respondent's motivation to complete the survey – in this case, assessed by attempting to identify reasons for non-response. Two themes emerge here, namely that respondents:

- did not fully understand some of the questions being asked; and
- were wary and resistant to completing surveys.

Secondary factors to emerge included not understanding the reason for the survey or how the data was to be used. Suggestions for improvements from the data collectors also focus on the complexity of the survey and the language used. It is noted that many families have low literacy levels and as a result questions can appear confusing and ambiguous; this is further compounded where participants are not speakers of English as their first language.

How to Improve Response Rates

Suggestions for future research include improved strategies for communicating the aims and purpose of the research prior to administering a survey. It was also suggested that response rates could be increased by breaking the survey down into component parts and integrating the data collection into other regular contacts with participant families.

Language is clearly a factor here and using simple language and explanations that are relevant to the participants is vital. It is also worth considering translating surveys into key second languages, although a note of caution is sounded here in terms of cost and the need to ensure that the meaning is not lost. Question structures need to be thought through and tested to ensure that

they are not overly complex or ambiguous and above all it needs to be made clear to participants why they are being asked to take part in the research and what is to happen to their answers. It should be explicitly communicated how participants are to receive feedback and how the research is intended to help improve the programme, either directly or indirectly.

Conclusions and Recommendations for Future Studies

These findings suggest that the key to effective participation in research is strong and ongoing communication between participant families and the local CiH team. Where good local relationships exist, it is clear that the rates of response are higher and parents more engaged in the programme. This regular communication also overcomes to some degree the problem of transient families simply disappearing.

There are some examples of the survey requiring considerable one-on-one time to complete, this may well be necessary for a programme such as CiH, however, it raises questions as to the most effective use of scarce resources. It might be pragmatic to ask fewer questions and to keep these very simple, however, such a decision needs to be considered in terms of the trade-off between response rates, administrative overhead and the quantity and quality of data collected.

It would seem that the willingness and ability of programme participants to complete on-going research is directly related to understanding the purpose of the research and the use of simple question structures and plain language (noting the potential need to be willing to translate future surveys into first languages). The main conclusion to be drawn from this is that response rates can be improved by:

- Research forms part of a pre-existing and regular pattern of communication between CiH and families;
- Surveys are kept as short as possible and the language used must be simple and easily understandable; and
- Participants need to be fully informed as to what the research is being conducted for, how data is to be used and how their privacy and individual responses will be protected.

One further recommendation is to ensure that research is communicated back to participants in simple and meaningful ways – preferably directly demonstrating how participation in research positively impacts on the programme (this is a particularly useful recommendation in this instance as the research shows a high level of satisfaction and appreciation for the programme).