Upskilling Partnership Programme

EVALUATION REPORT

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Department of Labour
TE TARI MAHI

Acknowledgement
This study has been possible due to the generous co-operation of many individuals, companies and other stakeholders. We would like to acknowledge and thank the following:

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CONTENTS

TABLES

FIGURES

ABBREVIATIONS

ALL	Adult Literacy and Lifeskills Survey
ESOL	English as a second or other language
IALS	International Adult Literacy Survey
LLN	literacy, language and numeracy
OECD	Organisation for Economic Co-operation and Development

EXECUTIVE SUMMARY

Background

The Upskilling Partnership Programme was an initiative established by the Department of Labour in collaboration with partner agencies. The programme ran from July 2006 until June 2009. It was designed in response to the large numbers of working-age adults without the language, literacy, and numeracy (LLN) skills necessary for sustained employment and active participation in society. Very few employers undertake workplace LLN training, despite poor foundation skills being a constraint on an organisation's ability to modify workplace practices and introduce innovations to increase productivity. The programme was developed to increase the engagement of employers in workplace literacy programmes and to evaluate the impact of these programmes.

Upskilling Partnership Programme

In order to establish workplace literacy and numeracy programmes for evaluation and to engage employers, the Upskilling Programme Office in the Department of Labour set up 15 partnerships with companies throughout New Zealand. The partnerships covered a range of industries, locations, programme types, and learners. Eighteen courses were set up across the 15 partnerships. The courses were delivered by providers external to the companies, varied in approach and length, and were tailored to the needs of the company.

The courses offered between 20 and 100 hours of tuition, usually one to two hours per week. On average, participants were offered 45 hours and attended 35 hours.

Each course was individually evaluated and the results then analysed as a whole. The evaluation used a comprehensive, multi-method approach to investigate the impact of the programmes across as many aspects of the participants' lives and their companies' operations as possible. A total of 491 participants were interviewed pre-course and had their reading and writing skill formally assessed, 343 were re-interviewed post-course, and the 280 with low literacy skills were re-assessed post-course.

Results

Running effective LLN programmes in workplaces is challenging due to the complexities of workplaces and the nature of LLN skill development. This evaluation found that workplace LLN programmes are generally viable in New Zealand across a range of industries and companies. The courses successfully engaged and retained groups who are generally reluctant to engage in learning and skills development – those with low levels of LLN skills and who have low or no qualifications, including Māori and Pasifika.

This was an ambitious study in the international context, and although the study had considerable methodological strengths, some factors limited the ability to

draw conclusions and attribute changes to specific features of the course or to the programme overall.

Language, literacy, and numeracy skills

Overall, small to medium statistically significant improvements in participants' average writing and reading scores were found. However, very little of the variation in the change in pre-course and post-course scores could be attributed to the observed demographic characteristics of participants or courses. No relationship existed between test scores and the number of hours participants attended; those who received very little tuition (which in most cases was due to poor attendance) were found to have improved as much as those who received much more tuition. This was the case for those who spoke English as a first language and those who spoke English as a second or other language.

It seems unlikely that the reading and writing skills of those who received very little tuition would have improved, so the significant improvement in their test scores is puzzling. Given that the scores of those who received many more hours improved no more on average than those who received very few hours, it appears that, although average test scores improved overall, the reading and writing skills of learners may not have improved. If the skills of those who received very little tuition did improve, then the skills of those who received substantially more tuition did not improve any more, and courses where learners attended an average of 12 to 20 hours were as effective as those where learners attended an average of 40 to 60 hours.

Given these results, there is no conclusive quantitative evidence that the courses improved participants' reading and writing skills. This finding is consistent with international studies, which have found that similar length courses have no or very little impact on participants' measured literacy skills.

Many participants reported improvements in their LLN skills. Around 90 percent of those who spoke English as a second language said their reading, writing, spelling, speaking, and listening skills had improved. Around 40 percent of those who spoke English as a first language reported that their reading and writing skills had improved, and 55 percent said their listening and speaking skills had improved. However, no statistical association existed between self-assessed improvements and changes in test scores.

Changes in workplaces

Participants were very positive about the courses and it impacts. Most participants reported that the course had a positive impact on their performance of work, in particular with tasks requiring communication skills and reading and writing skills such as paperwork. They also reported small improvements in job confidence and satisfaction and larger improvements in their confidence speaking in a range of workplace situations. Half of the participants reported that their course had changed how they felt about their job.

The evaluation has found mixed evidence of a direct and immediate link between improving LLN skills and improving workplace practices. There was evidence of a link between self-reported improved speaking and listening skills, but no evidence of a link between the improvement in measured reading and writing skills. (Although reading and writing scores improved and work practices

improved overall, they did not tend to improve together.) It is not clear which were the skills acquired by learners that led to improved work practices, but practices did improve from the perspective of learners, supervisors, and managers.

Participants' direct supervisors reported that around 60 percent of participants showed improvement in each aspect of work practices assessed: team work, attitude, initiative, ability to work without supervision, willingness to attempt new tasks, and completion of paperwork.

Company managers strongly supported the course. They said the course had increased participants' personal confidence and improved their communications skills, job confidence, attitudes towards work, and team work. Many also said the course had increased participants' understanding of health and safety and improved their completion of paperwork and quality of work. In terms of the impact on their companies' performance, around half the managers reported positive impacts on staff morale/satisfaction, work quality, work throughput, participation in training, and staff retention. In nearly all cases, they said there had been some, rather than a lot of, impact. Companies expected to observe a more direct impact on employees than on company performance.

Key messages

The key messages from the evaluation of the Upskilling Partnership Programme are as follows.

- Workplace LLN programmes are generally viable in New Zealand across a range of industries and companies.
- The Upskilling courses reached the right people – those with low levels of LLN skills and who have low or no qualifications, including Māori and Pasifika.
- There was no conclusive quantitative evidence that the courses improved participants' reading and writing skills. This finding is consistent with international studies, which have found that similar length courses have no or little impact on participants' measured literacy skills.
- Participants reported improvement in their LLN skills, particularly in language and communication skills and tasks involving reading and writing.
- Managers and supervisors reported improvements in participants' performance at work, including increased personal confidence and improved communications, team work, attitudes towards work, understanding and compliance with health and safety, and completion of paperwork.
- Evidence was mixed about the direct links between improvements in LLN skills and improved workplace practices.
- Including LLN in workplace training provides the opportunity for participants to improve their workplace knowledge and skills at the same time as they improve their LLN skills.
- Employers found the need for LLN courses was greater than they had originally expected, so most of them are continuing LLN initiatives in their companies.
- Contributions to productivity improvements happen in small ways.

1 INTRODUCTION

1.1 Upskilling Partnership Programme evaluation

Context for the evaluation

In 2006, few businesses were investing in literacy, language, and numeracy (LLN) skills development, as they had not made the links between low skills and poor productivity. Overall, employers lacked awareness about the issues associated with LLN skills and did not make the connection between, on the one hand, business issues such as poor health and safety practices, poor workplace documentation, re-work, and wastage and, on the other hand, limited literacy and numeracy skills.

The Upskilling Partnership Programme was a three year programme, from July 2006 to June 2009, that aimed to increase the number of workplaces engaging in workplace LLN training. The programme's long-term aim was to generate improvements in productivity. The programme was a starting point for a more negotiated and deliberate way of approaching LLN issues in the workplace.

The evaluation was part of the learning-by-doing approach of the Upskilling Partnership Programme, so more could be learned about the business benefits of employees improving their LLN skills and the wider work-related and social benefits for individuals.

Aims of the evaluation

The evaluation aimed to find out more about the different approaches taken to LLN development in the workplace and the success of these approaches from both learners' and companies' perspectives.

The evaluation sought to assess the impact of workplace LLN training courses on participants' skills, as well as the impact on participants' job performance and work practices. A key part of this evaluation was to identify the extent of the link between improved LLN skills and improved work performance. It was expected that the individual courses would vary in terms of their impact on participants' skills and work practices and in terms of the benefits from companies' perspectives.

Other objectives of the evaluation were to better understand the issues companies' faced when developing and implementing LLN courses and to determine whether it was viable for companies to run these courses longer term.

1.2 Literacy, language, and numeracy skills and productivity

LLN are important skills in themselves as well as the foundation for developing and using other skills. When a workforce has gaps in these skills, it can constrain an organisation's ability to modify its workplace practices and introduce innovations to increase productivity. For the individual, better LLN skills are associated with increased likelihood of employment and higher earnings (Satherley et al 2009; Earle, 2009).

Inadequate LLN skills are by no means the only factor that impede productivity, but they are likely to impede economic growth in the long run. Literacy provides

a platform from which a person can acquire other skills and enables the take-up of innovation, ideas, and knowledge. Improved LLN skills can have immediate application in workplaces and can help people to gain from other learning opportunities, such as making the most of other workplace training and achieving qualifications. Minimising the number of people in New Zealand with poor workplace LLN skills helps to optimise labour market participation.

The 1996 International Adult Literacy Survey (IALS) showed that many New Zealand workers did not have sufficient LLN skills to enable them to fully meet the demands of work and wider society or to perform at a level that would help firms to lift productivity (OECD, 2000). A second national survey a decade later, the Adult Literacy and Lifeskills Survey (ALL), showed a small improvement in these skills, but the improvements largely reflected cohort effects (Satherley et al, 2008).

1.3 Context of the Upskilling Partnership Programme

Upskilling Partnership Office

The Upskilling Partnership Office in the Department of Labour was responsible for running the Upskilling Partnership Programme. The office's role included establishing 15 partnerships with companies and training providers that ran a variety of LLN courses in their workplaces. This approach was intended to increase the focus on employer-identified needs. The office also worked to engage more employers in LLN training, beyond the purposes of the evaluation.

Companies that participated

The companies that took part in the Upskilling Partnership Programme were from a variety of industries with workers with low-level LLN skills as identified by the ALL. Companies were part of the roading, meat and sea-food processing, manufacturing, personal services, recycling, tourism, hospitality, healthcare, and engineering industries and were located throughout the country.

Twelve of the partnerships were with a single company. Two partnerships were clusters of small companies that operated in the same industry and one partnership included two companies in one location.

Each company developed its own approach to LLN skills development in the workplace and developed its own course or set of courses. Eighteen courses across the 15 partnerships have been evaluated (see the summary of each course and its participants in the Appendix, Table A1).

Easiest and most difficult companies to engage

Large companies proved the easiest to engage, possibly because training was not as daunting for these companies because they often have a culture of learning and development.

The most difficult companies to engage and get programmes under way in were small companies. These companies usually lacked the numbers of workers and infrastructure to support programmes. To get around this difficulty, the Department of Labour negotiated the creation of two cluster models involving

several small companies and a single training provider. However, these clusters proved difficult to set up, administer, and coordinate.

Training providers that participated

An external training provider was part of each partnership. They tailored LLN courses to meet each company's needs. There were thirteen training providers engaged as partners; two providers were in two partnerships. Two other providers subcontracted some of the course to other providers.

Funding of courses

All courses received government funding through the Tertiary Education Commission. Sixteen courses were funded through the Workplace Literacy Fund and two through Industry Training Embedded Literacy and Numeracy Projects.

The Workplace Literacy Fund has existed since 2001. Its operation has changed since 2001, including over the period of the evaluation (Gray and Sutton, 2007).

1.4 Current state of knowledge

Research on workplace LLN skills is a newly emerging field, so research is scarce and variable in quality in New Zealand and overseas. This is a consistent theme running through the literature reviewed for this project: an initial international review (Gray, 2006), a synthesis of New Zealand research (Benseman and Sutton, 2007), a series of national reviews in Australia, Canada, Ireland, the United Kingdom (UK), and the United States (US),[1] as well as in a more recent review in Canada (Salomon, 2009).

Ananiadou et al (2003, p 46) concluded their literature review with:

> our knowledge of basic skills [LLN] training and the effects of poor basic skills in the workplace is fragmentary and highly inadequate. Given the importance of the subject, it is quite remarkable how limited are the studies in this field of enquiry.

Subsequent reviews have shown little change in this situation. Deficiencies in the workplace LLN literature include:

- the small numbers of studies
- small sample sizes
- limited sources of data and an over-reliance on self-reported information
- lack of pre-course and post-course comparisons
- poor completion rates in post-course assessments
- lack of quantitative studies
- lack of controls

[1] These can be found on the publications page of the Department of Labour website (www.dol.govt.nz/index-publications.asp).

- very few studies at Kirkpatrick's level 3 (impacts on learners' behaviour at work) and level 4 (impacts on organisational performance).[2]

With these caveats in mind, the reviews of the literature make provisional observations about the impact of workplace LLN programmes. For example, Ananiadou et al (2003, pp 6–7) say:

> Some studies have suggested that employer-provided literacy and numeracy courses may raise productivity, improve the use of new technology in the workplace, contribute to enhanced customer satisfaction, save time, and reduce costs. … Those employers who have sponsored basic skills training are generally positive about the experience. Although not all those interviewed by researchers have perceived any impact on measured outcomes (e.g., productivity), there is no evidence that employers who have sponsored basic skills training have found it to be either burdensome or an unnecessary expense.

An extensive body of literature has explored the relationship between productivity and skill development in general, but there is relatively little literature on the relationship between LLN skill development and productivity. As Gray (2006, p 57) says:

> The literature supports the view that increasing LLN skills can bring a wide variety of social and economic benefits to employers and employees. However, the links between basic skills training and benefits are often unclear and difficult to establish. For example, a company's willingness to invest in training may be enough to increase employees' confidence, self-esteem and sense of loyalty, without necessarily being associated with significant gains in LLN skills. While anecdotal and subjective reports are the main source of evidence and almost without exception positive, the number of studies is minimal, and hard data is either lacking or hedged with cautions.

Effective workplace training

Relatively little research literature discusses the best way to deliver LLN training in the workplace (Gray, 2006). Running effective LLN programmes in workplaces is challenging for a variety of reasons that reflect the complexities of workplaces and the nature of LLN issues. These challenges include:

- obtaining key stakeholder commitment
- creating company-wide awareness and understanding
- locating high-quality course tutors who can deliver appropriate teaching content effectively
- overcoming the stigma associated with having poor LLN skills and identifying appropriate publicity and selection processes
- fitting course logistics around the demands of workplaces while achieving consistent course attendance
- transferring newly acquired skills into participants' jobs.

[2] In the 1950s, Donald Kirkpatrick developed a model for measuring the effectiveness of training programmes (Kirkpatrick, 1994). Many researchers have since adapted Kirkpatrick's model, but its basic structure has remained unchanged. The model is shown in Table 2.1.

Successful learning in workplaces requires (Folinsbee, 2001; Campbell, 2003, 2005; Benseman et al, 2005; Gray, 2006):

- needs assessments to identify literacy needs
- consultative planning and design processes that include employees at all levels
- effective and appropriate publicity and selection processes
- skilful instructors who create a positive learning environment, are flexible, and can contextualise the course content to learners' jobs
- tailored and flexible support during and after training
- recognition of achievements.

Factors that enhance gains to learners

The factors that best enhance gains to learners and that are supported by the strongest evidence include:

- appropriately skilled teachers who can accurately identify the strengths and weaknesses of learners
- a curriculum that is linked to the authentic literacy events that learners experience in their lives
- deliberate and sustained acts of teaching that are clearly focused on learners' diagnosed needs and programmes that deliver clearly structured teaching and use a variety of methods, for example:
    - explicit teaching of reading by teachers who are trained in the reading process and skilled in identifying reading difficulties and using appropriate teaching strategies to address them
    - when teaching oral communication in English as a second or other language (ESOL) programmes, maximising oral communication, discussion, and group work, varying practice and interaction, and instructing in the learners' native language
    - writing programmes that use learners' contexts, experiences, and opinions
- making proactive efforts to retain learners
- ongoing assessment that takes into account the variation in learners' skills across the dimensions of reading and writing
- programmes that involve more than 100 hours of tuition (although this needs to vary according to the level of learner need; for example, learners with very low levels of skill and learners with English as a second language generally require more tuition for longer).

It should be noted that the research reviewed on literacy learning gain had mixed findings. Three studies found learners made gains when they received over 100 hours' teaching. Two other studies found learners improved with 50 or more hours' teaching. Although most of the research focused on the total amount of teaching provided, intensity and regularity of tuition are also likely to be important (Basic Skills Agency, 2000; Boudett and Friedlander, 1997; Comings, 2003; Kruidenier, 2002; Shameem et al, 2002). Comings (2009) concluded that 100 hours serves as a benchmark that identifies an effective

programme (that is, a programme likely to have a measurable effect on at least half of its participants).

Challenges of evaluating workplace literacy, language, and numeracy programmes

The challenges of carrying out workplace LLN studies goes some way to explain the paucity of substantial studies in this area. The Upskilling Partnerships Programme evaluation faced several challenges, including:

- fully documenting the large number of different courses
- measuring LLN skills
- identifying the impact of the courses on participants' work practices and their lives outside work
- identifying the impact of the courses on companies' performance and productivity
- establishing that the courses caused the observed impacts.

2 METHODOLOGY

This section describes the methodology for the Upskilling Partnership Programme evaluation.

2.1 Coverage of the evaluation

The evaluation covered 18 workplace literacy and numeracy courses in 16 companies throughout New Zealand and covered a variety of industries, locations, programme types, and learners.

Each course was individually evaluated and the results were then analysed as a whole. The evaluation used a comprehensive, multi-method approach to investigate the impact of the programme on as many aspects of the participants' lives and their work practices as possible.

2.2 Aim of the evaluation

The evaluation sought to assess the impact of the courses on participants' LLN skills, as well as the impact on participants' job performance and work practices. A key part of this evaluation was identifying the extent to which links existed between improved LLN skills and changes in work performance. The intention was to evaluate the impact of the courses on as many aspects of the participants' lives and their work practices as possible. It was expected that the individual courses would vary considerably in terms of their impact on participants' skills and work practices and the perceived benefits from companies' perspectives.

The most frequently quoted source for evaluating workplace interventions has been Donald Kirkpatrick, whose four levels of training effectiveness (see Table 2.1) have frequently been expanded on, but seldom improved to any significant degree (Pye and Hattam, 2008). Kirkpatrick's evaluation model aims to show the impact of an intervention in the long term and the value of the intervention to the organisation concerned (Kirkpatrick and Kayser Kirkpatrick, 2009).

Table 2.1: Kirkpatrick's four levels of training effectiveness

Level 4: Results	To what degree targeted outcomes occur as a result of the learning event(s) and subsequent reinforcement. *The outcome sought by companies included improved profitability and productivity, a reduction in errors and re-work, reduced staff turnover, and improved loyalty, attendance, and health and safety practices.*
Level 3: Behaviour	To what degree participants apply what they learned during training when they are back on the job. *An improvement in participants' job performance, including improved communication skills, improved communication between workers and with supervisors, improved attitudes towards work, more self-confidence, and improved paper work and problem solving.*
Level 2: Learning	To what degree participants acquire the intended knowledge, skills, and attitudes based on their participation in the learning event. *The degree to which literacy, language, and numeracy skills were improved and job-specific skills and knowledge were acquired.*
Level 1: Reaction	To what degree participants react favourably to the learning event. *The extent to which participants' were successfully recruited, attended the course, and felt the course was a positive and worthwhile experience.*

Source: Kirkpatrick (1994).

Initial research questions for overall Upskilling Partnership Programme

Based on widespread consultation with government agencies and other key stakeholders, the initial research objectives were to:

- test the viability of a range of approaches to set up and run LLN programmes in New Zealand workplaces
- monitor the relationship between changes in learner LLN skills and downstream changes in the workplace
- evaluate the effectiveness, costs, and benefits of these approaches
- assess these programmes' potential to contribute to New Zealand's productivity agenda.

This evaluation focused on the first three objectives.

Ethical approach

The Social Policy Evaluation and Research Committee's Good Practice Guidelines were used to guide the work throughout the evaluation project (SPEaR, 2008). The five good practice principles of respect, integrity, responsiveness, competency, and reciprocity underpinned all interactions with all stakeholders.[3]

All those who took part in this evaluation had the project explained to them orally, were offered a two-page detailed written explanation, and signed a Department of Labour consent form. Everyone was assured that their

[3] The application of these principles is outlined in SPEaR (2008, pp 23–27).

contributions were confidential to the evaluators and they would not be identified in any way in the individual company reports or main report. Potential participants were told they could withdraw from the project at any point, but nobody did. A small number of people refused to do the written part of the post-course assessments, usually because of pressure to get back to work, but also because of issues such as having a headache or not liking writing. All data has been maintained on a Department of Labour password-protected filing system or in locked cabinets.

Individual reports were written for each company and showed the impact the specific course had on participants as a group and on their ways of working. Employers and providers were asked to provide feedback on draft reports, and this feedback was incorporated into the final company reports.

2.3 Evaluation design

A comprehensive, mixed-method evaluation was undertaken. The evaluation included process evaluation activities such as documenting key events in the project (eg, changes in course content). However, the evaluation was primarily concerned with summative or outcome evaluation activities showing:

- the impact of the courses on participants' skills, views, and attitudes
- whether the impacts of the courses on participants were transferred back to participants' work practices
- the broad impact of the courses on the companies involved.

There were also some elements of formative evaluation early in the project (eg, advising providers and employers of the feedback the evaluators had gathered), but this type of activity reduced considerably as the project progressed.

The evaluation incorporated quantitative and qualitative data to measure changes in outcomes such as reading skills and to allow for the richness of explanation that comes from qualitative data in interviews. Such mixed-method approaches to evaluation are intended to be used in complementary rather than dichotomous ways.

Key aspects of the design were interviews with participants before and after courses and assessment tools to measure progress in reading and writing skills.

Data was collected from interviews, questionnaires, observation, assessments (self-assessments and assessment tools), and documentation, report and record analysis.

The project sought to evaluate the impact of newly developed courses, rather than existing courses in the workplace. This approach was to better understand the issues companies face developing and implementing such courses from scratch and to monitor the viability of such courses for companies longer term. The challenges inherent in developing and delivering new courses in workplaces affected how the evaluation was designed and carried out. The main effects were on how the companies and learners were selected and the numbers of learners in each course included in the evaluation.

Selection of companies and learners

The Upskilling Programme Office and research team established 15 partnerships for participation in the evaluation over about 18 months. A purposive sampling approach was used to ensure a variety of workplaces and courses, particularly in terms of industry, geographic location, and company size. Specific industries and regions were selected based on data from the 2006 Adult Literacy and Lifeskills Survey, which became available early in the project. Industries and regions that were shown to have low levels of literacy were targeted for the evaluation project. In addition, to facilitate statistical analysis, it was desirable to include courses with reasonable numbers of participants (at least 30).[4]

Once a company was confirmed as an Upskilling Partnership Programme partner, the researchers negotiated access to the company, its employees, the course provider, and associated course material. All interviewees (both course participants and key stakeholders) were given an oral and a written explanation of the project, told the expectations about their involvement, and told about the guarantees of anonymity and confidentiality and their right to withdraw at any point. In over 1000 interviews for the project, no interviewee refused the initial invitation and only a small number refused to do small parts of the interviews (eg, the writing tasks).

Eighteen courses were covered within the 15 partnerships; in one company, three different courses using different LLN approaches were undertaken. For the purposes of the evaluation, there are 18 courses. One course was for a cluster of three companies, one was for a cluster of seven companies, and one was a course for people who had multiple employers. One partnership was in community-based and included two courses in two companies. The courses are described further in section 3.2.

Originally, it was hoped there would be sufficient numbers of learners in each course to enable results for individual courses to be reported with acceptable levels of statistical confidence. However, this did not always eventuate, as many companies' programmes had relatively small numbers of potential learners and, in some cases where larger numbers of suitable participants had been identified, the companies wanted to run two or three staggered courses. The evaluation included around 500 learners, with five courses having 15 to 20 learners, nine having 21 to 40 learners, and four having 41 to 70 learners.

In most cases, all or nearly all course participants were included in the evaluation. In some cases, this was not possible, because total course numbers were too large, additional participants joined after the pre-course visits, or the courses were of a 'rolling' nature, taking in additional participants throughout the duration of the course. It was not always possible to arrange multiple visits to cover the additional enrollees, especially in more remote areas.

The selection of learners in the various courses fell into three categories.

- In nine courses, almost all participants were included in the evaluation, with a very small number not included, usually because they were absent at the time of the pre-course visit.

[4] Many New Zealand LLN courses had fewer than six participants at any one time.

- In seven courses, all participants who had enrolled at the time of the pre-course visits were included, but participants who joined after this visit were not included. Overall, around 20 percent of learners in these courses were not included in the study.
- In two courses, all participants from two sites were included. These courses involved several hundred participants throughout the country, so sites from the North Island and South Island were selected as broadly representative of the company.

The format of the courses and way learners were selected for inclusion in the evaluation meant the courses fell into two groups.

- Sixteen courses involved one or two hour's tuition per week over 20 to 52 weeks, with all or most participants included in the evaluation. The number of learners interviewed pre-course was 411.
- Two courses were embedded block courses involving two days of tuition, typically followed by a further two days about six to eight weeks later. This company's courses involved a large number of participants, of whom only a small proportion was included in the evaluation. The number of learners interviewed pre-course was 112.[5] Four branches of this company were chosen on the basis of having reasonable numbers of participants and being reasonably representative of the company in those regions.

Most of the results in this report are based on the mean (or average) for all learners included in the evaluation. In some cases, results excluding the two embedded block courses are also reported, and occasionally individual course means are reported.[6]

Control groups

The use of control groups increases the rigour of an evaluation by providing information about what might have happened in the absence of an intervention (ie, they provide a counterfactual). Throughout the early part of this project the aim was to obtain control groups. Unfortunately, this process proved to be very difficult and not feasible for reasons such as companies were not prepared to have eligible workers not participate, comparable groups of non-participants could not be identified, and where they could be identified there were insufficient numbers, or the logistics involved were too complex.

For example, one of the early partners agreed to the selection of a control group, whose members would do the course at a later time. Unfortunately, the company allocated workers to the study and control groups based on need and likelihood of staying with the company, rather than randomly. Of the 10 course participants and eight controls, only eight and five respectively were successfully re-assessed. In the second company, seven controls were identified, but only two were re-assessed. At this point, it was decided to abandon using controls; it

[5] These two courses were funded through Industry Training Embedded Literacy and Numeracy Projects.

[6] An alternative (or complementary) approach would have been to report the mean of the course means. However, we decided against this because some courses had very few learners who completed and were successfully followed up, so many course means were not reliably estimated.

was simply too difficult to achieve sufficient rigour in the selection process and adequate numbers.

Pre-and post-course interviews and assessments

Participants were interviewed around 2 weeks before their course started and on average around one month after their course ended. Courses varied in duration from two to 12 months, with most courses six to nine months long.

The decision to re-interview learners very soon after the course finished was largely influenced by concerns that:

- more learners would leave the companies over time, so would not be able to followed up
- learners would not be able to recall details sufficiently well a considerable time after the course ended
- the courses were typically of sufficient duration that the likely impacts of the course on learners' work practice would be evident by that time.

Wolf and Evans (2009) did not re-assess literacy skills immediately post-course, but rather three months to two years after the courses ended or, in the case of relatively short courses, one to two years after the courses started. Wolf and Evans suggest that immediate post-course gains may not be permanent or secure. However, Wolf and Evans did not test the scores of their participants straight after the course, so were unable to comment on short-term gains. Perhaps the best approach would be to test immediately post-course and to test again later to see how far the gains on the course had been sustained or developed through practice, or had declined through lack of use or further development. For the purposes of this evaluation, it is not known to what extent our results reflect short-term gains or what the longer term impact of the course would be on learners' literacy skills.

Attrition and missing data

During the evaluation, no company or training provider withdrew from the project and the level of cooperation was extremely high. Some data is missing (eg, one employer questionnaire), and the collection of some types of data was introduced after the first courses began (eg, supervisors' assessments). However, it was not felt that the amount of data missing warranted excluding the course from the analysis. Because of gaps in the data, the total number of individuals, companies, or providers is always given in the tables. Overall, the data set for the project is of a high quality, even with the challenges of collecting such a large amount of data.

Some attrition of course participants occurred over the duration of the project. This is not surprising given that most of the courses were six to nine months long. In total, 491 participants were interviewed before the course and started their course, and 343 (or 70 percent) were successfully re-interviewed post-course. Of the 148 not re-interviewed post-course, 89 had left the company, 20 had withdrawn from the course but were still employed by the company, 13 were on annual or maternity leave at the time of the second interview, 20 were on sick leave or not able to be contacted, and four refused to be re-interviewed. Excluding those who had left their companies before finishing the course,

85 percent of participants were successfully re-interviewed. The follow-up rate was extremely high for a study of this type (Gray, 2006; Salomon, 2009).

The number of people who had left their employment included a significant number who had been laid off. The effects of the recession were evident in the later part of the study and this affected the numbers of participants available to be interviewed after the course.

A comparison of the characteristics of those who were interviewed pre-course and started the course, those re-interviewed post-course, and those who were not re-interviewed post-course shows some differences. Those re-interviewed post-course were slightly more likely to be older, have had recent workplace training, have a tertiary qualification, and rate their company more highly and were less likely to be Māori. These differences were statistically significant, but they were small, meaning the post-course participants are reasonably representative of those who started the course. Differences by gender, years in New Zealand (for those who spoke English as a second language), number of years of secondary schooling, experiences of school, and qualifications gained were not significant (see the Appendix, Table A2).

2.4 Data sources

Data was collected from a variety of sources and analysed as part of the evaluation. With each course, an individual report was prepared at the completion of the course and was given to the participating companies and course providers. These stand-alone reports have remained confidential to the companies and providers concerned. At various times during the project, data was sourced from:

- company literacy needs analyses (undertaken by the provider)
- course planning documents
- information about attendance at a tutor training programme[7]
- structured interviews with course participants, managers, provider managers, and tutors[8] (pre- and post-course)
- assessments of reading and writing skills (pre- and post-course)
- learner assessments of LLN skills (pre- and post-course)
- supervisor assessments of learners work practices (pre-and post-course)

Assessment of reading and writing skills

An important part of the evaluation was to show whether the participants' LLN skills changed from participating in their courses. The Upskilling Partnership Programme was primarily interested in recruiting participants at the two lowest levels, levels 1 and 2, of the five levels in the 1996 International Adult Literacy Survey and 2006 Adult Literacy and Lifeskills Survey.

People at level 1 can read simple documents, accomplish literal information-matching with no distracting information, and perform one-step calculations

[7] The evaluation of specific teaching and learning strategies was outside the scope of the evaluation.

[8] About 1,050 interviews were undertaken for the project.

(about 18 percent of New Zealand adults were at this level in 1996 and 13 percent in 2006).

People at level 2 can search a document and filter out some simple distracting information, make low-level inferences, and execute one- or two-step calculations and estimations (about 29 percent of New Zealand adults were at this level in 1996 and 31 percent in 2006) (Satherley et al, 2008, p 32).

In contrast, people at level 3 can perform more complex information filtering, sometimes requiring inferences, and manipulate mathematical symbols, perhaps in several stages (about 35 percent of New Zealand adults were at this level in 1996 and 41 percent in 2006).[9]

Level 3 skills are generally considered adaquate for coping with the demands of everyday life and work in a complex advanced society. Level 3 skills are often considered a target level of proficiency.[10]

Go! assessment tool

No suitable reading and writing assessment tool was available in New Zealand when the evaluation project started, permission was obtained to use an assessment tool called Go!. The National Foundation for Educational Research developed Go! for the National Research and Development Centre for Adult Literacy and Numeracy's workplace LLN project in England.

Go! consists of pre- and post-testing tools that enable researchers to monitor relatively small changes in lower-level skills over time. The reading test differentiates between participants at IALS level 1, level 2, and level 3+ (and within level 1, the UK entry levels 1, 2, and 3).

The tool administered before the course consists of:

- a locator booklet used to determine which version of the test to give to a learner
- a range of texts in magazine format (using articles and publicity of interest to adults that were contextualised for New Zealand in terms of names and places)
- two reading booklets (A and B) containing questions at different levels (asking literal, inferential, and evaluative questions on the content of the magazine)
- a writing booklet (asking for three short pieces of writing on different subjects and using a range of text types such as a formal letter)

[9] The proportions for levels 4 and 5 combined were 19 percent in 1996 and 15 percent in 2006.

[10] Canadians researchers have argued in more detail why achieving level 3 reading skills is important (Murray et al, 2009, p 22). Level 3 skills are associated with satisfactory job performance in the overwhelming majority of Canadian occupations, with the effective use of public health information and with active community participation (Statistics Canada and OECD, 2005). Researchers believe level 3 represents a point at which there is an important shift in the underlying cognitive strategies that readers must deploy to access and apply information embedded in print (Murray et al, 2009, p 22). It is also the point at which readers achieve a reasonable ability to readily de-code and read fluidly, which 'frees' the brain to concentrate on more complex processes such as comprehension (Murray et al, 2009, p 20).

- administrator instructions, including marking schedules
- rating scales and tables to cross-reference to UK levels and IALS/ALL levels.

The tool administered after the course followed the same format as the pre-course tool, but with different content and questions. The reading booklets were marked using a standard schedule, scores were totalled and then scaled. The scaled score enables comparisons of performance irrespective of which test version is used and can be translated into IALS/ALL and UK levels. The writing exercises were marked using a marking scheme, but the scores obtained cannot be transferred to any other scaling system, because IALS/ALL did not assess writing skills.

The Go! instrument's everyday appearance (it was introduced as 'something you might find in a doctor's waiting-room') made it less threatening than a conventional test format, and most people appeared to enjoy doing the reading tasks. The writing tasks were less readily accepted, but as the last part of the interview, they were generally accepted as part of the whole exercise. Several people commented that they 'hadn't seen it [the reading booklet] in the shops'.

One of the three tasks in each assessment required the participants to write several paragraphs about a general topic. The first topic (smoking) worked very well as a prompt whereas the second (the World Cup, which had been changed from 'football violence' in the UK booklets) was topical when the project began, but became less so as time went on. The second task of writing a formal letter to request some information is probably a little outdated in the days of email and should probably have been changed to something in a workplace context, such as writing a note to a supervisor. These issues aside, the three writing tasks appeared appropriate for most people, and the marking rubric provided a consistent analysis of the participants' writing skills overall.

Moderation of Go!

To ensure the reliability of the results from Go!, several moderation measures were used during the project. First, evaluators randomly checked one another's markings of the tests. This cross-checking was done during or shortly after site visits and was done most frequently at the beginning of the project to achieve consistency from the outset.

Secondly, towards the end of the project, a very experienced ESOL and LLN teacher was employed to moderate all the reading and writing assessment results available at that point. Around three-quarters of those participants who had completed both pre- and post-course assessments were moderated. Where the teacher's assessments differed from those of the original markers, the assessments were jointly reviewed, and a final mark settled by majority if necessary. Initial scores were consistent in at least 95 percent of cases, with more consistency in the reading than in the writing scores.

From a methodological perspective, it would have been preferable for markers to not know what test they were marking (ie, pre- or post-intervention). Ideally, the two versions of the Go! instrument should have been randomised, with pre- and post-course tests marked on the same occasion.

Re-assessment of literacy skills

Only learners who were assessed as being at IALS/ALL level 1 or level 2 in the pre-course reading test had their reading and writing re-assessed post-course. In total, 52 of the 334 learners assessed pre-course were at IALS/ALL level 3 or above. The decision not to re-assess these learners was made primarily because level 3 was seen as the target level of proficiency, and the instrument could not differentiate beyond that level. The researchers were also acutely aware of the high levels of goodwill needed from employers to successfully undertake workplace research, so did not want to impose what might seem an unnecessary burden on employers and learners.

Assessment of numeracy skills

The original intention was to include projects with numeracy elements wherever possible. However, few courses focused on maths-oriented content and only a small number of projects devoted even a small proportion of teaching time to this skill area. Consequently, participants' maths skills were assessed in only one course, and this included only seven of the participants who were doing maths-related sessions. A second course that included a numeracy component generated over 40 pre-course numeracy assessments, but most of these participants lost their jobs as a result of the recession, so did not complete post-course assessments.

An Australian test designed for use with both children and adults (Vernon et al, 1996) was chosen to assess numeracy skills. The test took approximately the same amount of time as the Go! reading test, so participants who did the Vernon test did it instead of the reading test and completed the writing assessments as well.

Assessment of other literacy, language, and numeracy skill areas

Other LLN skills such as oral communication (speaking and listening) were not assessed with specific assessment tools, but were covered in the scope of the interviews with participants. There were no specific assessments of the English skills of participants for whom English was a second language, but these skills were covered by the generic questions relating to speaking and listening and some further interview questions learners that related to oral communication.

Assessment of participants' work practices

Learners were interviewed pre and post course on various aspects of their job. The pre-course interview covered their confidence and satisfaction with work, their job ambitions, and difficulties they experience in their job. In the post-course interview they were also asked whether they thought were doing their job better as a result of the course, and things they had learned that they had been able to apply to their job.

Not all supervisors were directly interviewed by the researchers, but they were asked to complete a form in which they rated each learner on six specific aspects of their work practices before and after the course. In two cases, supervisors were asked to rate learners both before and after the course had been completed.

Structured interviews were also held with company managers pre- and post-course. Questionnaires were completed which focused on their expectations and the outcomes of the course overall.

Assessment of personal impacts

Learners were also asked a range of questions which sought to identify the impacts of the course on a more personal level, outside of work, and on their relationships with family members and the activities they were involved within their communities.

The pre-course interview covered their expectations of the course, reading practices, and degree of involvement in their children's schooling. In the post-course interview they were also asked whether the course had changed how they thought about themselves and their relationships with friends and family members.[11]

Provider perspectives

Interviews were held with providers and tutors post-course, using structured interview schedules. The topics covered included publicity and recruitment issues, the use of LLN-related terms when publicising courses, the suitability of the people chosen for the course and the course format, and the degree of company support they received. They were also asked about the impact of the course on learners' LLN skills, self-confidence, and interest in training.

Company perspectives

Interviews were also held with company managers pre- and post-course which focused on their expectations and the outcomes of the course overall.

2.5 Data analysis

The evaluation data was collated and analysed separately for each individual company report. The data from the 18 courses was then collated into one data file for this final report.

The quantitative data for the study came from the Go! assessment tools and from closed questions in the interview schedules and surveys. Descriptive statistics, tables, and graphs were generated to explore and describe the data. Cross-tabulations show the relationship between two variables of interest (eg, comparing pre- and post-course results).

To examine differences by demographic characteristics (eg, gender and ethnicity), analysis of variance was used to test for differences in mean scores or responses between two or more groups. The standard criterion for statistical significance was used ($\alpha<0.05$). Regression analysis was also used to investigate relationships and associations between variables.

This study also collected a large amount of qualitative data from open-ended questions from interviews and questionnaires with participants, managers, supervisors, tutors, and other stakeholders. Data was recorded verbatim on

[11] Some questions (eg, the reading practices ones) have not been analysed at this time and not included in this report.

interview schedule sheets and captured in the data file. Individual stories, some of which were rich in detail and provided valuable insights, were also recorded. Much was learnt about the LLN learners and the impact of the course on their work, lives, and sense of self from the stories.

As Sarantakos (2004, p 301) points out, there is no single definitive way of analysing qualitative data. However, the essential factor in all methods is being grounded or immersed in the data, 'so that embedded meanings and relationships can emerge' (Patton, 2002, p 454). This was achieved through on-site observation, ongoing discussion of the findings throughout the project, and extensive reading of the interview transcripts.

2.6 Study limitations

The study had considerable strengths including pre- and post-course interviews with participants and the use of an assessment tools to measure progress in reading and writing skills, but it also had the following limitations.

Despite efforts to include control groups, they turned out to be unfeasible, so were not included in the project. Therefore, it is not possible to conclusively show that the courses *caused* the observed outcomes. For example, the language skills of participants who spoke English as a second language may have improved as a result of being exposed to English generally rather than as a consequence of the courses they attended.

Learners' skills were re-assessed almost immediately after the end of the course, so little is known about the longer-term impact of the courses.

White (2010, p 160) says:

> A study which presents a single impact estimate (the average treatment effect) is likely to be of less use to policy-makers than one examining in which context interventions are more effective, which target groups benefit most and what environmental setting are useful or detrimental to achieving impact.

The LLN-specific content of each course was not mapped or evaluated sufficiently to enable the relationship between the extent of the LLN intervention and LLN outcomes to be investigated across courses. Each course was 'tailor-made' for the company and much of the teaching was modified to match learners' needs. The number of hours for each learner was recorded for 73 percent of participants and, although this may not be an ideal proxy for LLN content, it was able to be used to identify those who received very little teaching, and then to compare the outcomes of these learners with those who received many more hours.

The courses generally involved too few learners to reliably estimate *individual* course impacts. The profile of participants in individual courses was often very specific (eg, participants were all male or all spoke English as second language). These two features meant the effectiveness of different types of provision overall or for specific groups of learners could not be identified. However, it was possible to examine the overall impact of the courses and the extent to which this differed by characteristics of the learners (eg, age, gender, ethnicity, and pre-course literacy levels).

There was limited representation of small and medium-sized enterprises, despite efforts to facilitate their participation in the evaluation.

The small number of courses that included a substantive numeracy component and the small number of learners who had their numeracy assessed means this skill area cannot be reported with any confidence. Numeracy provision in the workplace remains relatively unexplored in the New Zealand context and internationally.

3 COMPANIES, PROVIDERS, COURSES, AND PARTICIPANTS

This section describes the companies, training providers, courses, and participants involved in the Upskilling Partnership Programme evaluation.

3.1 Creating demand through partnership

The Upskilling Partnerships Programme was developed to increase the engagement of employers in workplace literacy programmes and to evaluate the impact of these programmes.

Gray (2006) stated in a literature review that the Government can engage employers in skill development in a variety of ways. These ways include partnership activities, information campaigns, and funding initiatives. In a partnership approach, government representatives work with employers to help them understand the issues and then encourage and support them to the point where they can take action independently. This strategy requires a business-focused approach where government representatives work alongside employers, training providers, and other stakeholders. This logic and process underpin the approach that the Upskilling Partnership Office took in forming the upskilling partnerships, which are the focus of the evaluation.

Role of the Upskilling Partnership Office

The Department of Labour set up a dedicated office, the Upskilling Partnership Office, to manage the day-to-day support for the partner agencies involved in the Upskilling Partnerships Programme. The office explored ways to begin partnerships and make them work, and worked to develop and maintain the LLN work that was initiated in these workplaces.

The Upskilling Partnership Office set up 15 partnerships for evaluation purposes, across a range of industries and regions that had been identified in the Adult Literacy and Lifeskills Survey as having workers with low LLN skills. The office went on to establish a further eight partnerships, which are not included in the evaluation. The office also assisted companies to launch further programmes and, in some cases, to begin work on integrating LLN into their longer-term organisational development, strategic, and action plans.

Partnership incentives

That the Workplace Literacy Fund had been under-spent in the years before the Upskilling Partnerships Programme was established suggests it takes more than the availability of funding to get employers involved in LLN training. In many cases, Upskilling employers said they did not know who to talk to, where to go, or how to access funding and get a programme started. Having someone to initiate the process and provide advice and support acted as a catalyst. The Upskilling Partnership Office could also make employers aware of the links between LLN programmes and business outcomes.

Employers gave four key reasons for committing to a partnership agreement and undertaking literacy and numeracy programmes. The reasons were:

- the expected benefits for staff and the business
- the availablilty of support from the Upskilling Partnerships Office
- external funding
- the alignment of the programme with work they already had under way.

Managers were asked how important the government funding was in their decision to run an LLN programme; of the 12 surveyed managers, nine rated it very important and three as quite important. Several commented that without government support, they would not have even thought about running these courses.

Two programmes received funding from the Tertiary Education Commission's embedded industry training organisation literacy and numeracy projects[12] and the others from the Workplace Literacy Fund.[13]

Recruitment and engagement of training providers

Once companies agreed to undertake an LLN programme, the Upskilling Partnership Office often helped them to select a training provider. This Upskilling Partnership Office intervention in the system created a sense of dissonance with providers who had been used to making their own connections directly with employers. However, by working with the Upskilling Partnerships Programme, some providers were able to work on a larger scale and reach more participants than they would have been able to on their own or, indeed, had done in the past.

Participating companies and providers

Most of the participating companies were based in the North Island. The locations of workplaces included areas of high LLN need, such as Northland. The partnerships covered a variety of industries (eg, roading, meat and sea-food processing, manufacturing, personal services, recycling, tourism, hospitality, healthcare, and engineering industries).

Providers had varying degrees of experience in running workplace LLN programmes or other forms of workplace or LLN training. Levels of experience ranged from being new to LLN, but experienced in workplace training, to experienced LLN providers with limited workplace experience, to providers who had been delivering workplace LLN for up to 18 years.

3.2 The courses

Four of the courses can be categorised as *embedded LLN* courses where the main content was not LLN, but such things as leadership, supervising skills, or industry-specific skills and knowledge. The other courses, apart from one, involved direct teaching of LLN skills based on individual participants' needs and used company contexts or documentation to do this. Most participants were paid to attend and received one or two hours of teaching per week over four to 12

[12] Tertiary Education Commission (2009a).

[13] Tertiary Education Commission (2009b).

months. However, two of the embedded courses involved four days of learning spread over a one to two month period.

Course aims

Each of the 18 courses had its own set of aims, which ranged from very broad company goals to highly specific LLN-related ones. These aims were determined by each company's business needs (eg, to improve attitudes towards the company and work, improve productivity, or reduce absenteeism). In many cases, specific LLN-related aims were also identified (eg, to improve the writing of incident reports, improve numeracy skills so daily production sheets are more accurate, improve the writing of progress notes, and improve communication skills).

Table A1 in the Appendix briefly describes each course in terms of its LLN-related aims, format, duration, attendance rates, and the profile of the participants who were re-interviewed at the end of the course. The 18 courses varied enormously in these aspects.

Course content

The provider, in conjunction with the company, designed most of the course content, using the results of literacy needs analyses. These reports included not only analyses of learner needs, but also descriptions of company documents and operations that involved LLN skills and issues in the company related to them. Only one course was not contextualised—an International English Language Testing System (IELTS) preparation course for learners with English as a second language.

It was not possible to map accurately and fully how much explicit teaching of the various LLN skills occurred in the 18 courses as content varied considerably over the duration of the course, between companies and sites (some companies had more than one site), and even from learner to learner. In broad terms, feedback from providers indicated that most of the courses taught a lot of reading, speaking, and listening, some writing, and only a little maths and information and communication technologies; grammar was most commonly taught where there were reasonable numbers of ESOL learners.

Course formats

The courses ranged from 20 hours to over 100 hours of tuition, with an average of about 45 hours available to the participants. Most learners were offered one to two hours teaching per week. In a few cases (eg, in rural areas) the sessions were offered often only once a fortnight. The IELTS preparation course offered participants four hours a week of tuition and additional optional tutorials. Two of the embedded LLN courses were taught in a block format, which involved four days of learning spread over a one or two month period.[14]

Of the 18 courses:

- 11 were delivered to small groups of two to six learners[15]

[14] As discussed in section 2.3, these two courses differed from the others. They involved 4 days over 1 or 2 months and a large numbers of employees, with around 10 percent included in the evaluation.

[15] With poor attendance in some companies, these often ended up as one-to-one teaching sessions.

- Four were a mixture of one-to-one sessions and small groups
- two were on a one-to-one basis
- the IELTS preparation course was delivered in two groups of about 15.

3.3 Publicity and recruitment

Overall, the publicising of courses and recruitment of course participants proceeded reasonably well in the participating companies, although there was considerable variation across the 18 courses. The biggest issues were that in some cases:

- workers were given inadequate notice of the course
- the explanation of what the course involved (especially its LLN components) was poor
- what could be offered to participants was over-promised.

A significant number of the people interviewed just before the course said they were not aware of the course, they did not know they were going to be involved with the course, and/or they did not understand what the course was about.

In some companies, the avoidance of LLN-related terms and the description of courses in broad generic terms probably contributed to course participants saying they did not understand what the course was about. It was also clear that sometimes the managers did not understand the content or intentions of the courses they were asked to promote.

The best publicising and recruiting results were achieved when potential participants were proactively shoulder-tapped to attend by managers, supervisors, or key people in the office. These people were usually seen as having a high reputation within the company and were widely respected by potential participants. Using multiple strategies also increased the likelihood of employees being aware of the course and knowing what it was about.

The course participants who started their courses did so as a result of volunteering on an open-entry basis, some careful cajoling and active encouragement by managers or supervisors, and, in one case, the enrolment of everyone. Participants were not compelled to attend programmes. All of those interviewed for the evaluation said they felt they could have refused to go on to their course if they really did not want to do it.

Describing literacy, language, and numeracy courses

Most of the courses were not openly identified as LLN; few explicit references were made to reading, writing, maths, or literacy in the names of the courses or the explanations of the courses for potential participants. The avoidance of LLN terminology was usually at the insistence of employers rather than providers, who were often less concerned about using LLN terminology up front. Hence, courses had titles such as 'Upskill Yourself', 'Perform', and 'Stepping Up'. Some publicity did refer to 'communication skills', 'working with numbers', 'improving your skills in writing', and 'foundation skills', but these terms were usually contained in minor text rather than in the main headings.

Lessons learned

Although the publicity and recruitment generally went well, one concern is that a significant minority of enrollees were not aware they were going on a course in the near future, and when they did know, they often did not know anything about its content. The impact of a training course is considerably influenced by what happens even before the course begins (Brinkerhoff, 2003). The impact of a course is enhanced by notifying participants of the course and its intentions, and even providing pre-course preparation. This ideal practice was not always followed in upskilling courses.

To ensure the right people are recruited, terms and words used to promote and recruit workers to these programmes need to achieve a balance between being clear and non-threatening on the one hand and stating clearly what the courses are about on the other. Involving providers in the publicity and recruitment process is probably the best way to ensure LLN courses are explained and publicised in ways that meet these criteria.

3.4 Participants' characteristics

Of the 491 people who completed a pre-course interview and started their course, 148 were not re-interviewed after the course. This was for a range of reasons, but around half had left their companies. Section 2.3 compared the characteristics of those who were re-interviewed with those who were not (Appendix, Table A2). Those re-interviewed were slightly more likely to be older, have a tertiary qualification, and have rated their companies as better places to work than those who were not re-interviewed. However, these differences were not great, meaning the post-course interviewees were reasonably representative of those who started the courses.

Table 3.1 shows the characteristics of the 343 participants who were re-interviewed after their course. The characteristics of those who spoke English as a first or second language are shown separately, as are those of learners who attended the two embedded LLN courses taught in block format. None of those who spoke English as a second language participated in an embedded block format course.

Of those who spoke English as a second language, around half had been in New Zealand for less than four years. Around two-thirds were Pasifika, and one in five was Asian. Sixty percent were female. Around half had a tertiary qualification, and a third had a diploma or a degree. Two-thirds were assessed as having level 1 reading skills before beginning the course.

Of those who spoke English as a first language, around half were Māori or New Zealand European. Around 75 percent were male and 60 percent had no school qualifications. Twenty percent were assessed as having level 1 reading skills, 53 percent at level 2, and 22 percent at level 3. Six percent were not assessed before they started their course.

Two of the courses were comprised entirely of participants who spoke English as a second language. In four other courses, 70–79 percent of participants spoke English as a second language, in two courses around 60 percent, and in three courses 20–40 percent. Seven courses included no one who spoke English as a second language.

Several aspects of the data suggest a small number (eg, the 14 percent at level 3 in the pre-course test) whose places could have been better filled by other employees in the companies. In their interviews, a disproportionately high number of these people expressed strong criticism of being in the courses. Twenty-two percent of participants in the embedded courses were at level 3 and 10 percent of those in the other courses. The higher proportion in the embedded courses likely reflects that the criteria for inclusion were slanted to some extent towards the job content (eg, supervisory skills) rather than the LLN content.

Table 3.1: Characteristics of participants

		English as a second language	English as a first language		
Characteristic	**Total**	**All courses**	**All courses**	**Embedded block courses**	**Other courses**
Number	**343**	**143**	**200**	**90**	**110**
			Mean		
Age	40	39	41	42	40
Hours offered	45	53	39	32	46
Hours attended	35	41	29	31	28
Attendance rate	83%	79%	87%	96%	75%
Pre-course reading score (out of 100)	40.1	27.5	49.6	49.0	50.2
Pre-course writing score (out of 29)	16.7	14.8	18.2	16.8	19.4
			Percentage (%)		
Age					
18–24 years	8.7	7.0	10.0	7.8	11.8
25–34 years	22.4	26.6	19.5	15.6	22.7
35–44 years	32.1	35.7	29.5	31.1	28.2
45–54 years	24.5	22.4	26.0	30.0	22.7
55+ years	9.3	5.6	12.0	12.2	11.8
Ethnic group					
Māori	28.0	0.0	48.0	36.7	57.3
Pasifika	28.9	64.3	3.5	0.0	6.4
Asian	9.0	21.7	0.0	0.0	0.0
New Zealand European	27.4	0.0	47.0	63.3	33.6
Other	6.7	14.0	1.5	0.0	2.7
Gender					
Male	59.5	41.3	72.5	88.9	59.1
School qualification					
None	47.8	32.9	58.5	71.1	48.2
School Certificate / NCEA Level 1	31.8	39.2	26.5	21.1	30.9

Characteristic	Total	English as a second language	English as a first language		
		All courses	All courses	Embedded block courses	Other courses
Higher school qualification	4.4	18.2	11.0	7.8	13.6
Missing	2.3	9.8	4.0	0.0	7.3
			Percentage (%)		
Tertiary qualifications					
None	50.4	51.0	50.0	30.0	66.4
Certificate	8.7	8.4	9.0	4.4	12.7
Diploma	11.4	23.8	2.5	0.0	4.5
Trade	6.4	4.2	8.0	2.2	12.7
Degree / postgraduate degree	5.5	12.6	0.5	0.0	0.9
Missing / not asked	17.5	0.0	30.0	63.3	2.7
Tertiary qualifications gained overseas	21.3	47.6	2.5	0.0	4.5
Previous training in the last 2 years					
None	17.5	17.5	17.5	0.0	31.8
Induction	12.5	18.2	8.5	0.0	15.5
Other	23.3	40.6	11.0	0.0	20.0
Induction and other	45.2	22.4	61.5	100.0	30.0
Prior reading level					
ALL level 1 / UK entry level 1	9.3	18.2	3.0	2.2	3.6
ALL level 1 / UK entry level 2	8.5	15.4	3.5	3.3	3.6
ALL level 1 / UK entry level 3	21.9	33.6	13.5	18.9	9.1
ALL level 2 / UK level 1	42.3	28.0	52.5	54.4	50.9
ALL level 2 / UK level 2	13.7	2.8	21.5	21.1	21.8
Not assessed	4.4	2.1	6.0	0.0	10.9
Provider experience					
High LLN, High WP	25.9	30.1	23.0	0.0	41.8
High LLN, Low WP	41.1	65.7	23.5	0.0	42.7
Low LLN, High WP	30.9	4.2	50.0	100.0	9.1
Low LLN, Low WP	2.0	0.0	3.5	0.0	6.4

Note: ALL = Adult Literacy and Lifeskills Survey; LLN = literacy, language, and numeracy training; WP = workplace training.

The Upskilling Partnerships Programme was successful in recruiting and retaining groups of people with low levels of LLN as identified in ALL.[16] Of particular note is the high representation of:

- Pasifika[17]
- Māori
- those with few school or tertiary qualifications
- those living in small towns and rural areas
- men
- those who spoke English as a second or other language
- migrants
- those working in semi-skilled and unskilled roles.

In cases where more than one course was run or there was rolling entry, companies became better at selecting the right participants. Improving this process involved not only knowing which people had LLN needs, but also knowing what roles in the company would benefit most from improving LLN skills, who was motivated to commit to a course, and what level of LLN need it was realistic to deal with in the timeframe of the course.

3.5 Course attendance and ratings

Course attendance

Course attendance[18] rates are important to the success of a workplace LLN programme. There can be many competing demands on employees' time that hinder full participation in training courses as well as factors to do with individuals' motivation to attend.

Most attendees (71 percent) attended their teaching sessions during work time, while similar proportions attended both during work time and outside work time (15 percent) and outside work time only (14 percent). Nearly all participants were paid their normal wage for the period of attending their course.

Overall attendance patterns for different courses varied considerably, and in most courses there were variations across individuals. On average, participants were offered around 45 hours of instruction and attended 35 hours. Those who spoke English as a second language participated in courses that offered more hours. On average, they were offered 53 hours and attended 41 hours (the average attendance rate was 79 percent). Those who spoke English as a first language and attended the embedded block course were offered 32 hours and attended 31 hours on average (96 percent), while those who attended other courses were offered 46 hours and attended 28 hours on average (75 percent).

[16] These findings do not mean these courses are representative of all workplace LLN programmes because there is no national data against which to compare them.

[17] Ninety-three percent of Pasifika learners spoke English as a second language and 64 percent of those who spoke English as a second language were Pasifika.

[18] Attendance figures were supplied by providers for 15 out of the 18 courses, covering 72 percent of the participants.

Most of the participants reported finding it reasonably easy to attend their teaching sessions. Only 12 percent of participants said they usually found it difficult to attend their sessions, 26 percent said it was sometimes difficult, and the remaining 62 percent reported no difficulties. The reasons given for attendance difficulties were almost always increased work demands or work crises.

The two embedded block courses that involved four days spread over a one or two month period had very high attendance rates (an average of 96 percent.) The IELTS preparation course also had very high attendance, with 93 percent attending more than 80 percent of sessions, and an average attendance rate of 93 percent.[19]

Not surprisingly, attendance rates were more variable across the courses that offered one to two hours of teaching per week over a period of four to 12 months. Eleven of the 15 courses had full attendance information recorded. The average attendance rate was 75 percent, with 52 percent attending 80 percent or more of sessions, 20 percent attending 67–80 percent of sessions, 17 percent attending 50–66 percent of sessions, and 11 percent attending less than 50 percent of sessions.

Average attendance rates varied across the 11 courses from around 60 percent to 90 percent. Five had an average attendance rate of 80 percent or more, two had rates of 75–79 percent, and three had rates of 60–69 percent.

Relevance of courses

A key feature of the Upskilling Partnership Programme was that the providers and their tutors worked to contexualise the teaching content to the participants' work demands and issues as well as to their individual interests and learning needs. Most participants judged the courses to be highly relevant: 59 percent rated the content as very relevant, 35 percent as fairly relevant, and only six percent as not relevant. This attribute is likely to have contributed to the high attendance rates.

Course and tutor ratings

Learner ratings of tutors and courses were highly correlated. Courses were rated an average of 4.9 on a scale from 1 to 6 (1 = low), and tutors were rated an average of 5.5. Participants identified a wide variety of factors they liked about their courses and tutors, and a smaller range of factors they did not like.

Factors participants liked about their courses included:

- the sense of satisfaction gained from making progress
- the challenge
- individual needs and circumstances being catered for
- the opportunity for revision
- LLN skill improvement
- being respected as adult learners within a supportive environment
- seeing things in a broader perspective

[19] These participants attended outside work time and were not paid.

- the value of skills learned for use in the workplace
- helping with life outside work.

Factors participants did not like about their courses included:

- lack of challenge
- not being taught what was promised
- high tutor turnover
- personal frustrations with learning
- frustrations with other learners
- irrelevant teaching content
- feeling they were the wrong person for the course
- poorly organised courses
- problems with timing, course length, or location.

Comments about tutors were mainly positive, and closely match the research literature on effective teaching (Benseman, 2001; Daloz, 1986; Heimlich and Norland, 1994; Looney, 2008). Factors participants liked about their tutors included:

- positive personal qualities (eg, patience)
- commitment
- creating a safe, inclusive learning environment for under-confident learners
- ensuring teaching material was relevant
- having the ability to relate to learners as adults
- having the ability to meet learners' needs
- using formative assessment
- use of humour
- knowledge of teaching content (especially in embedded LLN courses)
- giving clear explanations
- being different from a school teacher
- making links to issues outside work
- challenging and supporting learners.

Only about one in nine participants was critical of the tutor. Their criticisms included:

- not being treated as adult learners
- not being taught what was promised
- not receiving reasonable attention
- the tutor lacking in relevant knowledge and/or skills
- unprofessional behaviour
- not adapting teaching to learners' needs
- unfocused teaching
- repetitive teaching

- lack of clarity.

Overall, higher ratings were given by Pasifika and those who spoke English as a second language learners. Tutors working for providers with high levels of LLN experience were rated more highly.

Lessons learned

Consistently high attendance rates in workplace LLN courses are challenging and not easy to achieve. Attendance rates between and within courses varied considerably. A myriad of factors can impede learners from getting to their teaching sessions and a corresponding array of strategies can help to eliminate or reduce these obstacles.

Attendance rates were not associated with tutor and course ratings at the course level or the individual level. Educational factors in relation to the courses (eg, poor teaching and difficulties with learning material) have been at most a very minor element influencing attendance. Poor attendance is much more likely to be affected by the realities of running courses around the demands and complexities of workplaces.

Learner commitment was important for achieving good attendance rates. Some courses had poor attendance, despite considerable efforts on the part of the tutors concerned. While it is not possible to definitively say why these people did not respond to these efforts, it is difficult not to conclude that motivation was the major factor missing.

3.6 Providers' perspectives

As Salomon (2009, p 14) notes, 'At the heart of the learner's experience in workplace literacy and essential skills training is the provider and instructor'.

The findings reported in this section are based on a survey completed by 14 providers after their courses ended.

Running the courses

Providers were asked to comment on how representative the course had been for them compared with others they had run. Nine providers reported the course had been harder than usual, three said about the same, and two easier.

Recruiting learners to the programmes was, in almost all cases, undertaken by the companies and did not generally cause problems for the providers.

Providers were generally satisfied that the right people had been chosen to participate in their courses. One challenge that came through was the diversity of the course participants and the importance of trying to meet the needs of all learners, whatever their job and skills level and whether they spoke English as a first or second language.

Nine providers made comments about course timing, with seven stressing the importance of fitting in with the companies' schedules and being flexible. However, two providers noted that the course timing could make it difficult to recruit teaching staff.

Course publicity

Eleven providers commented on course publicity. Only four were satisfied with the publicity for their course. One remarked on the crucial role publicity played in engaging learners and managers, and another noted the importance of good company support. The importance of good publicity and company support was also implicit in comments made by other respondents. Five were dissatisfied with the publicity their programme had received: three of these criticised the company's approach to publicity and two said greater clarity about how course publicity was to be carried out was needed. Several providers were not brought into the programme until after the publicity had been organised. Overall, the providers' perspective differs from that of the employers, who were more positive about course publicity.

Lessons learned

From their overall reflection on what made for a successful programme, the following features were identified as important from the providers' perspective.

- Providers need to be flexible and responsive to the needs of the company.
- Courses need high-quality tutors with appropriate skills, qualifications, and experience who can work in a business environment. They need to be flexible, able to establish a good rapport with the learners, and able to fit in with company needs.
- Courses need to meet learner and company needs and be contextualised to the workplace.
- Course publicity is very important in engaging learners and managers and there needs to be clarity around whose role course publicity is.
- Course timing is a critical factor and needs to fit in with a company's schedule. However, course timing can make it difficult to recruit tutors.
- Supervisors play a key role in ensuring company success. A supportive supervisor can ensure learners attend the course, inform the tutor of workplace needs, and give feedback on learners' progress transferring skills into the workplace.
- Managers' support for a training programme is very important for its success and strong buy-in is needed at all levels in a company.
- It is important lines of communication are clear between all stakeholders in a workplace LLN programme.

4 IMPACT ON LITERACY, LANGUAGE, AND NUMERACY SKILLS

This section considers the impact of the Upskilling Partnership Programme's training courses on the reading, writing, numeracy, speaking, and listening skills of participants. It focuses on evaluating the courses at level 2 of Kirkpatrick's training effectiveness model (Kirkpatrick, 1994; see also Table 2.1). Level 2 is the level of learning, and evaluation at this level measures the extent to which course participants acquired the intended knowledge, skills, and attitudes as a result of participating in the courses.

Course participants were assessed both before and after the course in one or more LLN skills area. Most of the course participants were assessed for both reading and writing.[20] Interviews with participants' pre- and post-course were an additional source of information on the impacts of the courses on participants' skills.

4.1 Reading

Course participants' reading skills were assessed using the assessment tool *Go!*, which the National Foundation for Educational Research developed to monitor changes in these skills. For an explanation of the tool and the assessment process, see section 2.

Of the 343 participants who were interviewed post-course, 326 had done the pre-course reading assessment. Their average pre-course scaled score was 40.1 on a 100-point scale.[21] The 35 participants who scored at IALS/ALL level 3 in the pre-course reading test were not re-assessed post-course. In total, 280 participants were assessed both pre- and post-course.[22] Their average pre-course scaled score was 34.4. At the end of their course, the participants were reassessed using a different version of the Go! reading assessment. The average scaled score for the post-course reading assessment was 44.5. (See Table 4.1.)

The mean change in scaled reading score was 10.1 points, which was a statistically significant change.[23] The mean improvement in scores corresponds to an effect size of 0.57 standard deviations.[24] This compares favourably with an average effect size of 0.4 for educational interventions (Hattie, 2009). Overall, 86 percent of participants had some increase in score, 4 percent had no change, and 10 percent had a lower score.

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[20] A small number of participants studied numeracy as part of their course, and these learners were assessed for numeracy and writing.

[21] The 100-point scaled score covers IALS/ALL levels 1 to 3.

[22] The remaining 11 participants were not reassessed for various reasons. In a few cases, participants refused to do the second Go! test.

[23] $t(279)=16.75$, $p<.0001$.

[24] The 95 percent confidence interval for this effect is (0.40, 0.73). The convention for evaluating effect sizes (Cohen, 1988) is that those between 0.2 and 0.5 are small, those between 0.5 and 0.8 are medium, and those above 0.8 are large. The assumption of constant variance is met, with no significant change in the standard deviation of scores pre and post.

Table 4.1: Average reading scaled scores pre-course and post-course

	Pre-course (N=280)	Post-course (N=280)	Change (N=280)
Mean	34.4	44.5	10.1
Standard deviation	17.6	17.9	10.0
Standard error	1.1	1.1	0.6
	English as a second language (N=132)	**English as a first language** (N=142)	**Total** (N=280)
Pre-course mean	25.6	42.2	34.5
Post-course mean	37.6	50.6	44.5
Mean change in score	11.9	8.5	10.1
Standard error (change)	0.8	0.9	0.6

Changes in reading levels

The Go! scores can be transferred to the IALS/ALL and UK literacy levels. Excluding those assessed at IALS/ALL level 3 (UK level 2) in the pre-course assessments, 49 percent of participants were at IALS/ALL level 1 and 51 percent at level 2. Post-course, 30 percent were at level 1, 57 percent at level 2, and 13 percent at level 3.[25] The proportion of participants at level 1 decreased, while the proportions at levels 2 and 3 increased.

With respect to the UK literacy levels (where IALS/ALL level 1 is split into three entry levels), the proportion of participants at UK entry levels 1 and 2 decreased from 22 percent to eight percent and the proportion at UK entry level 3 decreased from 27 percent to 22 percent.[26]

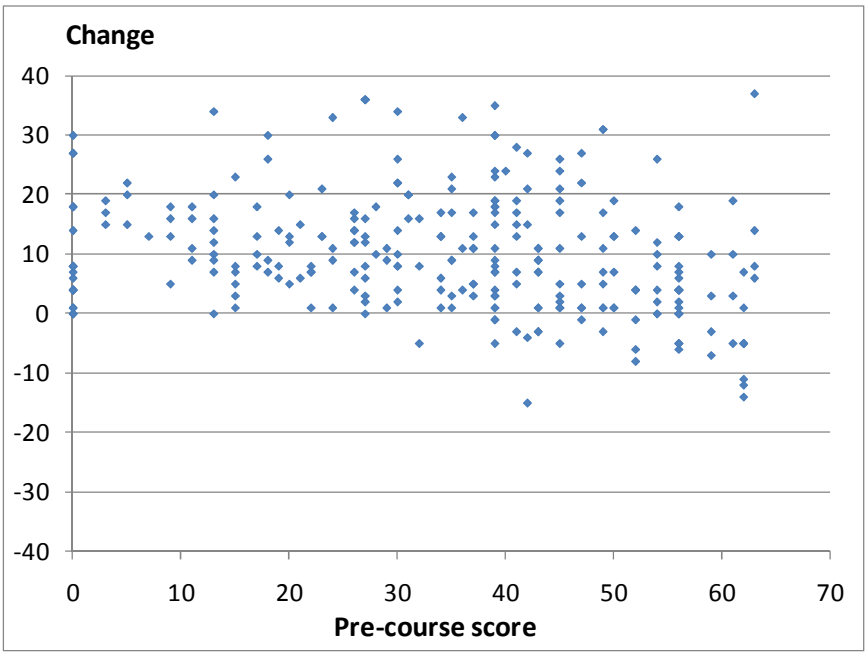
Variation in the degree of change in reading scores

Figure 4.1 shows the changes in scaled score by pre-course score. There was considerable variability in the change in scores, with 15 percent of learners experiencing no or very little improvement and 15 percent of learners improving 20 points or more.

[25] In terms of IALS/ALL levels, 30 percent of the participants increased their literacy level, 69 percent stayed at the same literacy level, and 1 percent decreased their literacy level

[26] If the learners who were part of the two embedded block course were excluded, the mean changes (and standard error) were 11.2 (0.68) and 9.8 (1.3) for those who spoke English as first language. The mean for those for those who spoke English as second language did not change, as the learners who were part of these two courses all spoke English as first language.

Figure 4.1: Changes in reading scaled score by pre-course scaled score



A regression analysis of the changes in scores showed that most of the variation in the change in scores cannot be attributed to the observed characteristics of learners or courses. Differences by prior reading level, gender, ethnicity, school qualifications, and provider experience were statistically significant. However, variations by age, English as a first or second language, level of tertiary qualification, attendance, hours of learning, and course were not statistically significant. The significant factors explained only 17 percent of the variation in the change in scores. This means that after controlling for the characteristics of individuals, 83 percent of the variation in the change in scores could not be explained. Several factors may account for this, including the reliability of the test instrument, candidate reliability, and unobservable characteristics of participants, for example aptitude and motivation.

The results from the regression analyses are summarised in the Appendix, Table A3. Participants belonging to the 'Other' ethnic group (adjusted mean of 1.0) improved less on average than New Zealand European, Māori, Asian, and Pasifika (12.7). Those who had higher school qualifications experienced a greater improvement in scores (14.3) than those who had no school qualifications (8.9). Those whose reading was assessed as being at UK level 1 (the equivalent of IALS/ALL level 2) experienced a smaller improvement in scores (7.5) than those at IALS/ALL level 1 (13.0).[27] Females experienced a greater improvement in scores (12.2) than males (8.9) on average. The scores of participants in courses run by providers who had experience in both LLN and workplace training improved more (12.1) than those run by providers with no or little experience in LLN but experience in workplace training (8.6). Differences between those who spoke English as a first or second language were not significant, after difference

[27] This is due in part to the 'regression to the mean' effect.

by prior reading level, gender, school qualifications, and provider experience was taken into account.[28]

Separate regression analyses for those who spoke English as a first language and as a second language showed very similar relationships (ie, differences by prior reading level, gender, ethnicity, school qualifications, and provider experience), although the relationships were weaker and not statistically significant among those who spoke English as a second language.

The courses varied in terms of the content, focus on reading and writing, experience of the provider in teaching LLN, and number of hours of teaching received by participants. However, the average reading scores of participants in nearly all courses improved significantly.[29] Two courses achieved an average improvement of less than six points, 12 courses an average improvement of 6–11 points and five courses an average improvement of 12–16 points. The variation by course is *not* statistically significant, after prior reading level, gender, ethnicity and school qualifications are taken into account. In many cases the number of participants successfully followed up was less than 10 and usually less than 20, too few to reliably estimate the effect of an individual programme. All courses included both learners who experienced no or very little improvement and large improvements in reading scores.

Reliability of the test instrument

This is not the only study using the Go! instrument that found considerable variability in change in score. Wolf and Evans (2009) used the Go! instrument and found that reading scores had improved slightly, but not significantly, 12 and 30 months post-course. They observed a high degree of variability between the pre-course and two post-course reading scores. Changes of plus or minus 20–30 points out of 100 were not uncommon, even though overall mean scores increased only 2 points. A change of 30–35 points is the equivalent of one IALS level. Changes in score reflect test and candidate reliability, as well as changes in skills.

Improvement in reading skills

It is unlikely, for most participants, that reading skills would have improved over time without any intervention. Alamprese makes clear, 'the normal

[28] All Asian and Other learners and 93 percent of Pasifika learners spoke English as a second language, and all Māori and New Zealand European learners spoke English as a first language. Differences between those who spoke English as a first or second language were not significant (based on a regression analysis that includes English spoken as a first or second language but not ethnicity). Reading scores improved 9.3 points on average for learners who spoke English as a second language and 10.9 points for learners who spoke English as a first language (p=.32). Un-adjusted means were 8.5 points for learners who spoke English as a first language and 11.9 points for learners who spoke English as a second language.

[29] The average change in scores was not statistically different from zero for 4 of the 18 programmes. These programmes improved scores by 6 points or less on average: -0.5 points (n=4), +2.7 points (n=8), +6.3 points (n=7), +6.4 points (n=5). Some of these programmes may well have improved participants scores above average, but the number of participants is too small to reliably estimate the effect of an individual programme.

developmental trajectory for adult learners on standardized reading assessments is essentially flat in the post high school-age period' (Alamprese, 2009, p 109, quoting Alamprese et al, 1999). However, it is possible that the reading skills of some of those who spoke English as a second language may have improved over time. This is more likely to be the case among participants who were relatively recent arrivals in New Zealand, but less likely for those who had been in New Zealand a long time as their English language ability would have generally plateaued. Around 23 percent of participants who spoke English as a second language had been in New Zealand for less than two years, 50 percent for less than four years, and about 22 percent for 10 or more years.

It is also possible that a 'test–retest effect' could be observed (whereby individuals do better in the test the second time they do it), although this was not observed in the two published studies that have used the Go! instrument.

'An [impact] evaluation study probably remains the best way to address [the attribution] problem, if one has the time, money and expertise' (Mayne, 2001, quoted in White, 2010). For the reason discussed in the methodology section (section 2.3), control groups were not included in the evaluation. In the absence of control groups, it may be possible to establish a link between the intervention and the observed outcomes by establishing a relationship between the amount of LLN tuition received and the degree of improvement in reading and writing scores.

Attendance data was collected for most participants, and the total number of hours was used to compare the outcomes of those who received relatively little tuition with those who received substantially more. It seems reasonable to assume that those who received very little tuition would have received little reading and writing tuition and that those who received substantially more hours would have received more.

This study did not measure the actual number of hours of LLN (or reading and writing) tuition received by participants. This was for several reasons.

- In embedded courses, it was difficult to disentangle the number of hours spent teaching a topic (eg, supervisory or hospitality skills) and the number of hours spent on the LLN embedded in the course (some of which occurs spontaneously in response to LLN issues as they arise).
- When courses were contextualised but not embedded, it was difficult to assess the time spent teaching the context (eg, health and safety) for their workplace compared with the time spent on LLN.
- Some programmes set reading-related homework while others did not.
- Tutors often tailored their courses to meet the specific needs of learners, which meant learners on the same course could receive different amounts of reading-related teaching.
- The study did not measure the total hours individual learners spent on reading activities *outside* of their course.[30]

[30] Course participants were not asked how many hours they spent reading outside class or reading homework. Therefore, we do not know the total number of hours each participant spent improving their reading.

Learners who received relatively little tuition

Among the courses that had attendance data recorded, the number of hours of tuition offered to learners varied considerably by course from 24 to 100 hours. Attendance was recorded for 250 (73 percent) participants in 15 of the 18 courses. On average, these learners were offered an average of 45 hours and attended an average of 35 hours. Some learners received very little tuition: 42 of the 250 learners who had hours recorded received less than 20 hours and 16 received less than 10 hours of tuition. Ten courses included at least one learner who received less than 20 hours and seven courses had at least one person who received less than 10 hours. Those who received very little tuition mainly did so because they missed classes or pulled out. It is very unlikely that reading skills of these learners would have improved. These learners were more likely to be Māori and male. The average pre-course reading score for those who received 1–9 and 10–19 hours was 34.5 and 31.0 point respectively, very similar to the 33.5 among those who received 20 or more hours. In the Appendix, Table A4 compares the characteristics of those who received less than 20 hours with those who attended 20 hours or more.

Table 4.2 shows that the reading scores of learners who received less than 10 hours (an average of seven hours) improved nearly as much on average as those who received many more hours. The average improvement in reading score for those who received less than 10 hours training was 8.1 points, not significantly lower than the overall mean of 10.4.[31] The average improvement in reading score for those who received less than 20 hours training (an average of 12 hours) was 10.3 points, very similar to the overall mean of 10.4. The average improvement in reading score for those who received 20 or more hours (an average of 40 hours) was 10.4 points. The same pattern was observed among those who spoke English as a first language and those who spoke English as a second language.

A regression analysis of changes in score showed that the variation in changes of score by participants' prior reading level, gender, ethnicity, and school qualifications were statistically significant, but variation by age, English as a first or second language, level of tertiary qualification, attendance, hours of learning, and course were not. A regression analysis, which included the significant variables *and* the number of hours of tuition (split into seven categories), resulted in covariate adjusted means that were similar to the unadjusted means (see the Appendix, Table A5). In other words, there is no relationship between the change in reading score and the hours of tuition received. This illustrates that the lack of relationship between change in score and the number of hours of tuition is not due to any differences in the observed characteristics of those who received fewer or more hours.

[31] Excluding the two embedded block courses of 32 hours, resulted in a mean change of 11.1 for those who received 30–39 hours, and increased the overall mean change in scores from 10.4 to 11.7.

Table 4.2: Changes in average reading scores by the number of hours of teaching received

	Total			English as a second language			English as a first language		
Hours	N	Mean	SE	N	Mean	SE	N	Mean	SE
1–9	16	8.1	2.8	6	5.7	1.8	10	9.5	4.4
10–19	26	11.7	2.2	12	14.0	2.7	14	9.6	3.4
20–29	30	13.0	1.7	20	11.6	2.1	14	15.0	3.3
30–39	93	8.0	1.0	21	9.8	1.5	73	7.5	1.2
40–49	26	10.6	1.5	25	11.2	1.6	8	5.3	1.9
50–59	28	11.7	2.0	27	12.0	2.1			
60+	23	14.7	2.1	20	16.3	2.2			
Total	250	10.4	0.6	131	12.0	0.8	119	8.6	1.0

The average covariate-adjusted improvement in reading score for those who received less than 20 hours' training was 10.2 points, very similar to the unadjusted mean of 10.3. The covariate-adjusted average improvement in reading score for those who received 20 or more hours was 10.4 points, the same as the unadjusted mean.

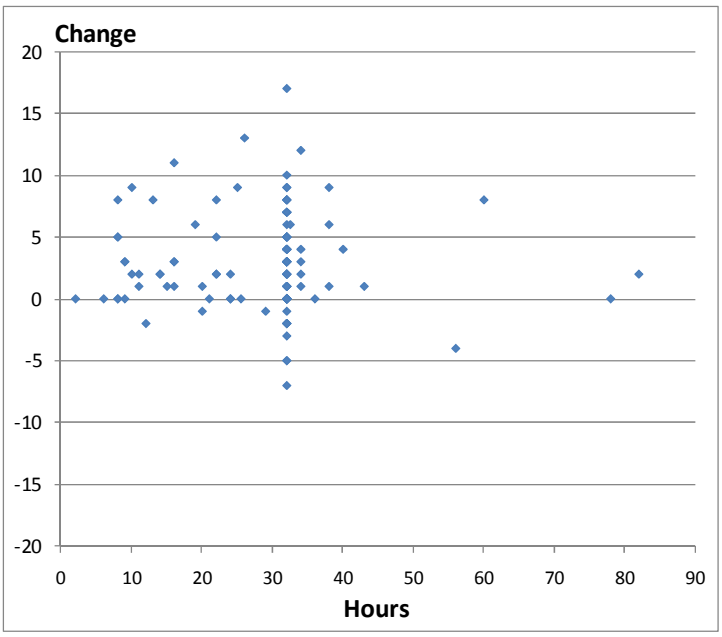
Figure 4.2 shows the relationship between hours and changes in reading scores for those who spoke English as a first and second language separately. Two of the courses were embedded block course of 32 hours, where all 70 participants spoke English as a first language.[32] It is also apparent that nearly all learners who received more than 40 hours spoke English as a second language. The average number of hours of teaching received by those who spoke English as a first and second language was 29 hours and 41 hours respectively.[33]

[32] Ninety out of 343 participated in these two courses. Twenty had a pre-course reading level above IALS/ALL level 2 and were not re-assessed post-course.

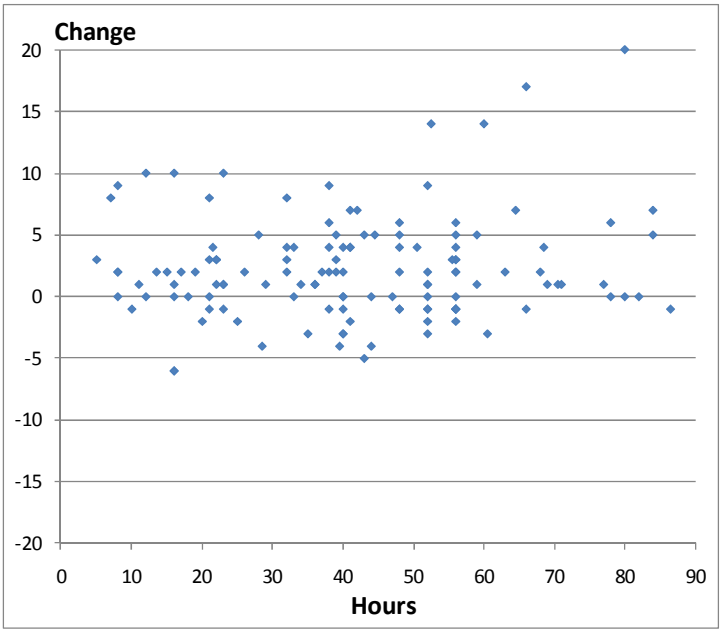
[33] Regression adjusted mean change in reading scores were 10.9 and 9.3 for participants who spoke English as a first and second language respectively, which were not significantly different (p=.32).

Figure 4.2: Change in reading score by the number of hours of teaching received

(a) Participants who spoke English as a first language



(b) Participants who spoke English as a second language



Including the number of hours of teaching in a regression analysis of change in reading score resulted in a non-significant coefficient very close to zero. Excluding the two embedded block courses from the analysis did not change the result. Overall, there was no linear relationship between hours of teaching received and improvement in reading scores.

It seems unlikely that the reading skills of those who received very little tuition, either because they missed classes or dropped out of the course, would have improved. That the scores of those received a lot more tuition improved no more

than those who received very little tuition suggests that while average scores improved, the reading *skills* of participants may not have improved.

One explanation for the improvement in scores among those who received very little tuition is that a small amount of tuition is sufficient to 'reactivate' skills, or improve attitudes or confidence.[34] It is noteworthy that many learners had received little or no training in the previous two years. If the improvement in scores of those who received very few hours reflects the re-activation of dormant skills, then it appears that those who received a lot more tuition did not improve any more than this.

Courses that involved relatively few hours of tuition

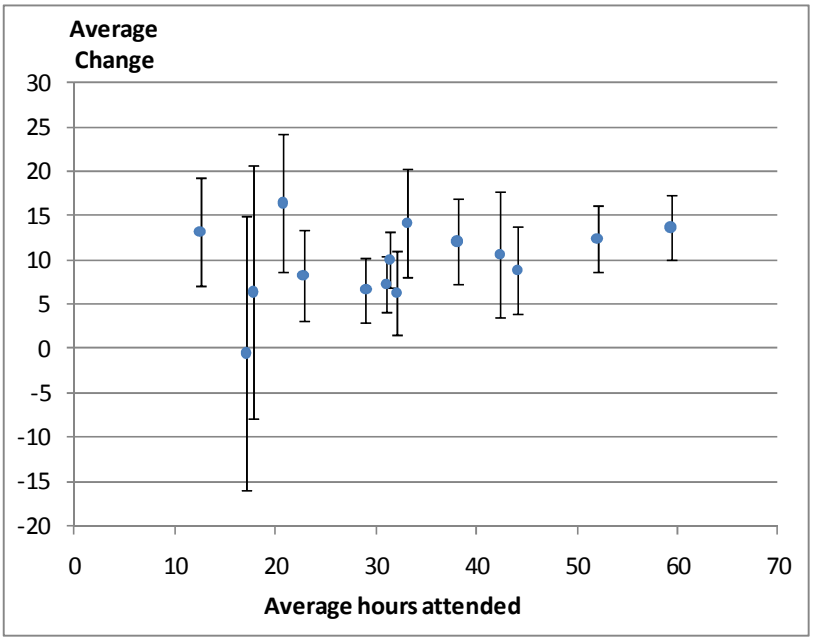
Having considered the relationship between hours of tuition and outcomes, this relationship is now analysed at the level of courses. As discussed previously, it was difficult to determine the LLN content of the individual courses. Therefore it was not possible to investigate whether there was a relationship between the extent of LLN content and change in average outcomes across *all* courses.

Information on hours of teaching was collected for 15 courses. The courses varied considerably in terms of the number of hours of teaching offered and the number of hours taken up. Three courses offered a maximum of 20, 24, and 25 hours, seven offered 30 to 44 hours, four offered 45 to 60 hours, three offered around 70 hours, and one up to 100 hours. The average number of hours taken up by participants varied from 12 to 60 hours.

While the number of hours may not be a good proxy for the intensity of reading tuition, it seems unlikely that courses where participants received very few hours of tuition could have improved reading skills. As mentioned previously, there is some consensus in the literature that around 100 hours of literacy tuition is needed to materially improve the reading comprehension skills of a majority of course participants.

[34] The re-activation of skills seems a plausible explanation for those who spoke English as a first language, but perhaps not for those who spoke English as a second language. Many of those who received very few hours effectively dropped out of the course. Therefore, the post-course assessments would have been conducted several months after they ceased attending.

Figure 4.3: Average change in reading score by average number of hours of tuition in each course



Note –bars are 95% confidence interval for the mean

Figure 4.3 shows that on average courses where learners attended an average of 12 to 20 hours were as effective at improving average reading scores as those where learners attended an average of 40 to 60 hours. More hours of tuition did not result in any additional improvement in reading scores on average. The variation in the average change in scores by course was statistically significant,[35] but not so after individual differences in prior reading level, gender, ethnicity, and school qualifications were taken into account. This lack of statistical difference by course partly reflects that in many cases the number of participants successfully followed up was fewer than 10, and was usually fewer than 20, too few to obtain a reliable estimate of the course mean. The 95 percent confidence intervals around the means illustrates this.

4.2 Writing

Course participants' writing skills were assessed using the Go! assessment tool (explained in section 2.3).

Of the 343 participants who were interviewed both pre- and post-course, 328 had done the pre-course writing assessment. Their average pre-course score was 16.7 on a 29-point scale. The 35 participants who scored at IALS/ALL Level 3 in the pre-course reading test were not re-assessed for writing post-course. In total, 278 participants were assessed both pre- and post-course. Their average pre-course score was 15.6, and their average post-course writing score was 18.1.[36]

[35] F=2.1, df=17, p=.008.

[36] At the end of their course, the participants were reassessed using a different version of the Go! writing assessment.

The mean change in writing scores was 2.5 points, which was statistically significant.[37] The mean improvement in score corresponds to an effect size of 0.31 standard deviations.[38] This is generally considered to be a small effect and lower than the average effect size of 0.4 for educational interventions (Hattie, 2009). Table 4.3 shows participants' writing scores before and after the course.[39]

Table 4.3: Average writing scores pre- and post-course

	Pre-course	Post-course	Change
Mean	15.6	18.1	2.5
Standard deviation	8.2	8.0	4.0
Standard error	0.49	0.48	0.24
	English as a second language (N=132)	**English as a first language (N=142)**	**Total (N=278)**
Pre-course mean	14.4	16.5	18.1
Post-course mean	16.8	19.2	15.6
Mean change in score	2.4	2.6	2.5
Standard error (change)	0.4	0.3	0.2

The writing scores cannot be related to IALS/ALL levels, as those surveys did not include any writing assessments.

Variations in the degrees of change in writing scores

The degree of change in writing scores varied considerably. Around 66 percent of participants had an improved score, 17 percent had a lower writing score, and 17 percent had the same score.

Very little of the variation can be attributed to the observed characteristics of learners or the courses. A regression analysis of the change in writing scores showed that improvement in scores varied only by course,[40] and this explained 13 percent of the overall variation. The average improvement across course varied from 0-5 points, with four courses achieving an average improvement of less than 1 point, and six courses achieving an average improvement of 4–5 points. Average writing scores improved significantly in nine out of 18 courses. Variation by ethnicity, age, gender, highest school qualification, level of tertiary qualification, prior reading level, attendance, hours, and provider experience were not significant.

[37] $t(279)=10.4$, $p<.0001$.

[38] The 95 percent confidence interval for this effect size is (0.14, 0.48).

[39] If the learners who were part of the two embedded block course were excluded, the mean change (and standard error) was 2.4 (0.28) and 2.6 (0.42) for those who spoke English as first language. The mean for those for those who spoke English as second language did not change, as the learners who were part of these two courses all spoke English as first language.

[40] $F=2.16$, $df=17$, $p=.0058$.

Improvement in writing skills as a result of participation in the course

As with reading skills, it is unlikely that the writing skills of most participants would have improved by the observed level without any intervention.

Learners who received very little tuition

Forty-four of the 247 learners (who had hours recorded) received less than 20 hours of tuition, and 16 received less than 10 hours. The writing scores of learners who received less than 10 (and less than 20 hours) improved as much on average as those who received many more hours. The average improvement in writing scores for those who received less than 20 hours training was 2.6 points, the same as the overall mean improvement. (See Table 4.4.)

As with reading, it seems unlikely that the writing skills of those who received very little tuition would have improved. However, the average writing scores of those who received very few hours of tuition improved as much as those who received many hours. This was the case among those who spoke English as a first language and those who spoke English as a second language.

That the scores of those who received a lot more tuition improved no more than those who received very little, suggests that the courses may not have improved the writing *skills* of learners, even though overall average scores improved.[41] As with the change in reading scores, one explanation for the improvement in scores among those who received very little tuition is that even a small amount of tuition is sufficient to 'reactivate' skills or improve attitudes or confidence. If this is the case, then those who received a lot more tuition did not improve any more than this.

Table 4.4: Changes in writing scores by hour of teaching received

	Total			English as a second language			English as a first language		
Hours	**N**	**Mean**	**SE**	**N**	**Mean**	**SE**	**N**	**Mean**	**SE**
1–9	16	3.0	0.8	6	4.0	1.5	10	2.4	0.9
10–19	28	2.4	0.8	14	1.2	1.2	14	3.5	1.0
20–29	32	2.3	0.7	18	1.8	0.8	14	2.9	1.1
30–39	94	2.8	0.4	20	2.5	0.7	74	2.9	0.5
40–49	26	1.5	0.7	24	1.5	0.7	6	1.8	1.6
50–59	28	1.7	0.7	27	1.9	0.7			
60+	23	4.0	1.2	20	4.2	1.4			
Total	247	2.6	0.3	129	2.3	0.4	118	2.9	0.4

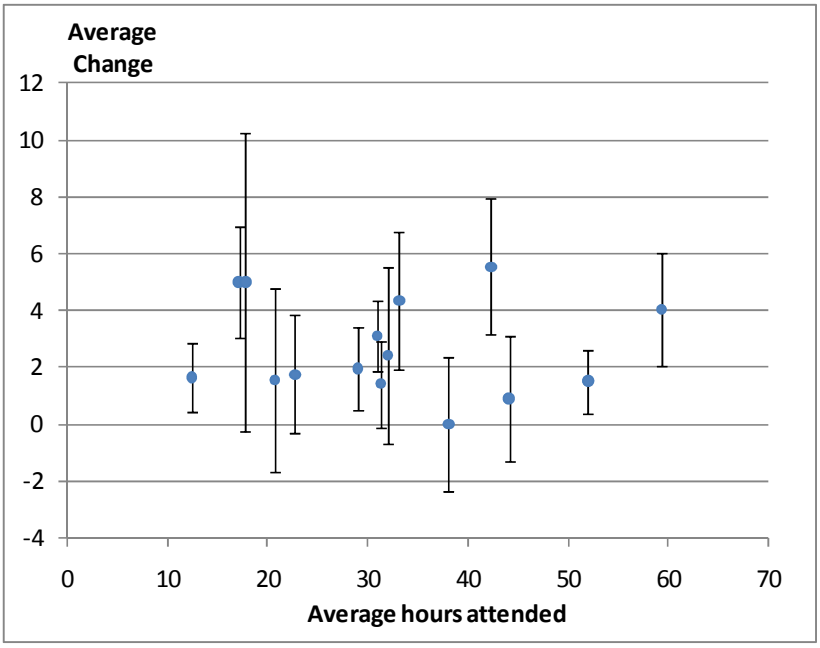
No statistical relationship was found between improvement in writing scores and teaching hours.[42] Figure 4.4 shows the mean change in writing scores for each

[41] Some courses may have improved writing skills above average, but the number of participants selected and successfully followed up was too few to reliably estimate most course means.

[42] Excluding the two embedded block courses from the analysis did not change this result.

course, by the average numbers of hours of tuition received by participants. Courses where learners were offered an average of 12 to 20 hours were as effective at improving average writing scores as those where learners were offered an average of 40 to 60 hours.

Figure 4.4: Average change in writing score by average number of hours of tuition in each course



Improvement in reading and writing scores together

Figure 4.5 shows no obvious relationship exists between improvements in reading and writing scores.

In total, 269 participants were at IALS/ALL level 1 or level 2 pre-course, and had both reading and writing assessed pre- and post-course. Their average changes in reading and writing scores were 10.2 and 2.5 points respectively. A very weak statistical relationship (a correlation coefficient of 0.15, p=.014) exists, which is due to a very small number of participants who made large gains in both reading and writing scores.

Figure 4.5: Change in writing score by change in reading score

4.3 Numeracy

While the Upskilling Partnerships Programme succeeded in its aim of including courses in the programme that taught reading and writing skills, very few courses focused on numeracy. Only one course was described by its training provider as teaching a lot of maths, five were described as teaching some maths, 10 as teaching a little maths, and two taught no maths. Even when maths was taught, it was not necessarily taught to all the participants. For example, the course that included a lot of maths taught maths skills to less than half of the participants in the programme; the remaining participants focused on other skill areas. Course participants were asked to complete the pre-course Go! reading and writing assessments unless it was clear they were going to be focusing on numeracy skills in the programme. Evaluating the course impact on numeracy skills was also made difficult by the fact that in some cases it was not clear until after the course had started whether a learner was going to be taught numeracy skills.

In one course where over 40 participants were given numeracy assessments pre-course, the great majority of these participants had lost their jobs due to the economic downturn by the time of the post-course interviews. Only seven learners completed both pre- and post-course assessments. The seven numeracy learners attended their maths course for an average of 19 hours out of a possible 22. Their numeracy skills were assessed using the Australian Council for Educational Research's Mathematics Competency Test (Vernon et al, 1996). This is a written test assessing mathematical achievement that has been designed to be appropriate for adults as well as children. Results from the Mathematics Competency Test showed an improvement in the average numeracy score achieved by the learners. On average, the participants' score increased from 12.1 to 15.3 (out of 46).

4.4 Self-assessed measures of skills

Listening and speaking skills were not assessed with a specific assessment tool as was the case for reading, writing, and numeracy. Participants were asked to rate their skills in the pre- and post-course interview.[43] The oral communication skills of participants with English as a second language and those with English as a first language were both assessed in this way. Participants were asked to use a a 1–6-point scale to self-assess their reading, writing, spelling, and maths ability and their confidence speaking in a range of workplace situations.[44] In the post-course interview, many participants were also asked to what extent they believed the course had improved their reading, writing, spelling, numeracy, speaking, and listening skills.[45]

Self-rated skills and confidence at work

The course had a moderate effect on learners' confidence speaking in a range of workplace situations. The greatest improvement was for speaking to people learners did not know; an increase from 3.8 to 4.4 (0.5 points) on a 1–6-point scale. Improvements in other situations were around 0.3 and 0.4 points.

Participants' confidence in terms of doing their job increased slightly from 5.1 to 5.3 (0.2 points). On average, self-rated reading ability increased from 4.3 to 4.5 and writing ability increased from 3.8 to 4.1, so the courses had only a small effect on learners' self-assessment of their reading and writing ability at work.

Average self-rated maths ability increased from 3.6 to 4.1. However, many course participants received no or little maths instruction.

Average self-rated computing ability also increased substantially, even though most courses did not involve using computers.[46] For most participants, a self-reported improvement in numeracy or computer skills is an indirect effect and may be a result of participants having improved in other skill areas or increased their self-confidence.

[43] The accuracy of self-assessments compared with assessments using assessment tools is hotly contested in LLN literature (Jones, 1997). However, there is agreement that the two forms of assessment do not necessarily correlate. Irrespective of this discrepancy, self-assessments are seen as important to represent how learners perceive their progress.

[44] They were not shown their pre-course ratings in the post-course interviews.

[45] These questions were asked in 15 out of the 18 courses. Not all questions were asked in each case. One of the response categories was 'not applicable'.

[46] The evaluation did not set out to evaluate the impact of the training programmes on computer skills in any detail. Twelve of the 18 courses did not include any information and communication technologies skills, and the six included a small amount. The increase in the computer score likely reflects that some people did do a little information and communication technologies learning in their courses, but participants' may also have improved skills in other areas.

Self-rated improvement in skills

Many participants were also asked whether they thought their skills had improved as a result of the course.[47] This information was not collected for all courses or for all skills areas.

Those who spoke English as a second language were much more likely to report that their skills had improved. Around 90 percent thought their reading, writing, spelling, speaking, and listening skills had improved. In comparison, around 40 percent who spoke English as a first language thought their reading and writing skills had improved, and 55 percent thought their listening and speaking skills had improved.

Overall, around 75 percent of participants thought their speaking skills and listening skills had improved as a result of the course and around 60 percent thought their reading skills and writing skills had improved.[48] Despite the little numeracy taught, many participants reported an improvement in maths skills. Where numeracy skills were taught, they typically involved specific work-related tasks. It could be that easily identified new skills (such as being able to calculate volume) are more tangible for participants than the acquisition of communication or literacy skills.

Variation in self-rated improvement in skills

Variation in self-ratings was examined using an average rating incorporating the five self-assessed improvement measures. There was significant variation by hours of teaching, ethnicity, and course, but not by age, gender, or school qualifications. Those who received the least hours of tuition thought they had improved least, while those who received the most hours thought they had improved the most. Pasifika and Asian participants thought they had improved the most; New Zealand Europeans thought they had improved the least.[49]

No statistical association existed between improvement in reading scores and self-assessed improvement in reading skills or between improvement in writing scores and self-assessed improvement in writing skills.

[47] These questions were included in 15 out of the 18 courses, although not all skill areas were included in each case. Fifteen courses included reading, writing, and maths, 13 courses included spelling, and 12 courses included listening.

[48] Overall, if the two embedded block courses were excluded, around 70 percent of participants thought their speaking, listening skills, and reading and writing skills had improved.

[49] There were differences in self-assessed improvement in LLN by ethnicity ($F=3.98$, $df=4$, $p=.004$) and course ($F=7.27$, $df=11$, $p<.001$). Māori participants were more likely to think they had improved than New Zealand European participants, but less likely than Asian and Pasifika participants.

Table 4.5: Self-rated skills and confidence

Rating of skills and self-confidence	English as a first language (N=200)			English as a second language (N=143)			Total (N=343)		
	Pre-course	Post-course	Change	Pre-course	Post-course	Change	Pre-course	Post-course	Change
How would you rate yourself …									
Using computers	2.5	3.1	0.53	3.0	3.4	0.41	2.8	3.2	0.47
Doing maths	3.4	4.0	0.55	3.8	4.3	0.42	3.6	4.1	0.50
Writing things like a note/report	3.8	4.0	0.22	3.9	4.2	0.34	3.8	4.1	0.27
Spelling	3.7	4.1	0.22	4.0	4.4	0.41	3.9	4.3	0.33
Reading	4.3	4.5	0.18	4.3	4.7	0.33	4.3	4.5	0.24
How confident are you at …									
Speaking English to workmates/ supervisors one to one	4.9	5.1	0.22	4.2	4.7	0.50	4.6	5.0	0.34
Speaking English to a small (3–5) group of people	4.3	4.7	0.37	4.0	4.5	0.47	4.2	4.6	0.41
Speaking English to a large group of people	3.2	3.7	0.54	3.4	3.7	0.30	3.3	3.7	0.44
Speaking English to someone you don't know	4.0	4.4	0.47	3.7	4.3	0.60	3.8	4.4	0.53
About doing your job	5.1	5.3	0.19	5.2	5.4	0.27	5.1	5.4	0.22

Table 4.6: Self-rated improvement in skills

Skill	Amount skill improved as a result of the course											
	English as a first language				English as a second language				Total			
	N	A lot	A bit	Not	N	A lot	A bit	Not	N	A lot	A bit	Not
Reading	171	10	32	58	98	46	43	11	269	23	36	41
Writing	173	11	27	62	99	39	52	9	272	21	36	43
Spelling	129	5	19	75	93	37	51	13	222	19	32	49
Maths	174	12	38	50	80	29	43	29	254	17	39	43
Speaking English	94	17	38	45	92	40	51	9	186	29	45	27
Listening	57	23	32	46	90	50	41	9	147	39	37	23

Listening and speaking skills

Receptive oracy skills (listening) and productive oracy skills (speaking) are fundamental to workplace communications. These skills were not assessed with a specific assessment tool as was the case for reading, writing, and numeracy. Instead, the evaluation methods used for oracy included:

- self-assessments of these skills by the participants in the pre- and post-course interviews
- feedback from managers, providers, and tutors in
  - pre- and post-course interviews
  - manager and provider questionnaire surveys that were sent out after the courses had finished.

The oral communication skills of participants with English as a second language and those with English as a first language were both assessed in this way.

Table 4.5 shows that overall, 73 percent of participants reported that their speaking skills had improved as a result of the course and 77 percent that their listening skills had done so. This was greater than the percent of participants reporting improved reading skills (59 percent) and improved writing skills (57 percent).

Course participants were also asked, pre-course and post-course, to rate their confidence[50] on a 1–6 scale (1 = low) in speaking to:

- a workmate or supervisor one to one
- a small group
- a large group
- someone they don't know, such as a new customer.

The courses had a moderate effect on learners' confidence speaking in a range of workplace situations. The greatest improvement was for speaking to people learners did not know: an increase from 3.8 to 4.4 (0.5 points) on a 1–6-point scale. Improvements in other situations were around 0.3 and 0.4 points.

Improved speaking skills were reported to be an important outcome of the Upskilling Partnership Programme courses in the final questionnaire sent to managers and providers. In the questionnaire sent out after the course had finished, managers and providers were asked what impact they believed their courses had had on course participants. The top three impacts reported by managers and providers were on personal confidence, job confidence, and communications with other workers (see sections 5 and 6 for further details).

[50] They were not shown their pre-course ratings in the post-course interviews.

4.5 Feedback from managers and providers on course impacts

Managers and providers were also asked to comment on the impact of the course on the participants' LLN skills. Around two-thirds of managers reported positive impacts on participants' reading, speaking, listening, and writing skills. Some managers reported positive impacts on participants' maths and computer skills. All providers reported impacts on participants' speaking, listening, reading, and writing skills. Some providers reported positive impacts on participants' maths and computer skills.

Managers were also asked about possible impacts the courses had on course participants. Nearly all managers reported positive impacts on personal confidence, communications with other workers, interest in doing further training, attitude to work, and communication with managers. Around half of the managers reported some impact on accuracy of paper work, speaking at meetings, or providing feedback.

4.6 Conclusion

This section presented findings on the impact of the Upskilling Partnership Programme courses on participants' language, literacy, and numeracy skills as well as their listening and speaking skills.

Changes in reading and writing skills

Reading and writing skills were assessed before and after the course using an assessment tool designed to measure progress in low-level general reading and writing skills.[51] There was a positive and statistically significant improvement in participants' average reading and writing scores. The average reading score increased from 34.4 to 44.5 out of 100, an effect size of 0.57. The average writing score increased from 15.6 to 18.1 out of 29, an effect size of 0.31. These are considered medium and small sized effects respectively.

Because control groups were not included in the evaluation, it is not possible to say that participation in the courses caused the improvement in reading and writing skills. It is possible skills might have improved in the absence of the course. However given the relatively large magnitude of the observed increases, it is very unlikely that skills would have improved to the extent observed in the absence of any intervention.

As a way of establishing that the courses had an impact on participants' reading and writing skills, there was work undertaken to identify a relationship between the amount of tuition received and the degree of improvement in reading and writing scores. It was not possible to determine the relative reading and writing content of all courses, but it was possible to identify that some learners received very few hours of tuition. The reading and writing scores of those who received very few hours of tuition (less than 20 hours and an average of 12 hours) improved as much as those who received 20 or more hours (an average of 40 hours). It seems unlikely that the literacy skills of those who received very little

[51] The lack of numeracy teaching in the courses meant this aspect could not be adequately evaluated.

tuition, either because they missed classes or dropped out of the course, would have improved, and the significant improvement in their test scores is puzzling. That the scores of those received a lot more tuition improved no more than those who received very little tuition suggests that the reading *skills* of participants may not have improved.

One explanation for the improvement in scores among those who received very little tuition is that a small amount of tuition is sufficient to 'reactivate' skills, or improve attitudes or confidence (for example, they may have made a greater effort or taken greater care in the second test).[52] Many learners had received little or no training in the previous two years. If learners are just a bit 'rusty', then a small amount of training might lead to an improvement in literacy skills. It is not clear whether such gains should be interpreted as an improvement in skills.[53] It is not known whether these skills would be sustained into the future. This is likely to depend, in part, on whether participants had opportunities to apply their skills. The re-activation of dormant skills seems a plausible explanation for those who spoke English as a first language, but less so for those who spoke English as a second language. Additionally, if re-activation from a small amount of hours occurred, then it is noteworthy that the scores of those who received substantially more tuition did not improve by any more.

Courses where learners attended an average of 12 to 20 hours were as effective at improving average reading and writing scores as those where learners attended an average of 40 to 60 hours. More hours of tuition did not result in any additional improvement in reading scores on average. Some courses may have improved reading and writing skills, but the number of participants was too few in most courses to reliably estimate the impact of individual courses.

There have been very few other studies on the impact of workplace LLN training on learners' LLN skills. The most recent comparable research is that by Wolf and Evans (2009) who found only small improvements in average reading scores one to two years post-course completion, which could not be clearly ascribed to course participation. The improvement observed for those who spoke English as a first language was small and not statistically significant, and the larger gain among those who spoke English as a second language may reflect an improvement in skill over time that would have occurred in the absence of the programme. Wolf and Evans concluded there was no evidence that participation had improved reading skills.[54]

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[52] There may also be a test–retest effect (whereby individuals do better in the test the second time they do it), although this effect was not observed in some other studies that used the Go! instrument.

[53] Wolf (2009) dismisses gains observed immediately post-course as not being permanent or secure. In the Upskilling Partnership Programme, many of those who received very few hours dropped out of their courses, and would have completed the post-course assessments some many months after they ceased attending.

[54] This intervention differed from the Upskilling Partnership Progamme in that the learning material was not contextualised to the workplace and literacy skills were re-assessed 12 and 30 months after the course finished, rather than around 1 month after it finished.

The Upskilling Partnership Programme courses offered 20 to 100 hours of tuition and learners received an average of 35 hours. There is some consensus in the US literature that at least 100 hours of literacy tuition is needed to materially improve the reading comprehension skills of a majority of course participants. The courses in the Upskilling Partnership Programme were contextualised to the learners and workplaces, so they may well have been more effective than comparable UK and US studies.

It may be that collectively the courses were not long enough or did not focus sufficiently on reading and writing skills to achieve an improvement in reading and writing skills of a substantial proportion of participants, beyond what may be a re-activation effect. [55] Further improvements in skills may occur over time, as some participants continue to develop their skills through practice or by pursuing further training.[56] Alternatively if a small amount of tuition was sufficient to 'reactivate' skills, or improve attitudes or confidence, substantially more hours of tuition did not result in any additional improvement in reading and writing scores on average. Further research is needed to more fully evaluate the impact of workplace literacy training on LLN skills.

Self-assessed measures of skills

Speaking and listening skills were not assessed with a specific assessment tool as was the case for reading, writing, and numeracy. Participants were asked to rate their skills in the pre- and post-course interview, and many were also asked whether they thought their skills had improved.

Many participants reported improvements in their LLN skills. Those who spoke English as a second language were much more likely to think their skills had improved. Around 90 percent thought their reading, writing, spelling, speaking, and listening skills had improved. In comparison, around 40 percent of those who spoke English as a first language thought their reading and writing skills had improved and 55 percent thought their listening and speaking skills had improved. Many participants also thought their maths skills had improved.

Participants reported an increase in confidence speaking in a range of workplace situations. Those who spoke English as a second language reported the greatest increase in confidence when speaking to work mates/supervisors, someone they did not know, and small groups of people. Those who spoke English as a first language reported the greatest increase in confidence when speaking to someone they did not know and large groups of people.

No statistical association existed between improvement in reading scores and self-assessed improvement in reading skills or between improvement in writing scores and self-assessed improvement in writing skills.

[55] Some courses may have improved literacy skills on average, but the number of participants selected and successfully followed up was too few to provide conclusive evidence of this.

[56] Improvements in reading practices and participation in further training or self-study over a sustained period have been linked to improvements in skills in the longer term (Reder, 2009).

5 IMPACT ON WORKPLACE PRACTICES

This section considers the impact of the Upskilling Partnership Programme on the course participants as employees. It focuses on evaluating the programme at level 3 of Kirkpatrick's evaluation model, the level of transfer or application of learning (Kirkpatrick, 1994). In the case of the Upskilling Partnership Programme, evaluation at this level measures how well participants transferred the knowledge and skills they acquired on their courses into performance in the workplace.

Measuring the effectiveness of training programmes at Kirkpatrick's level 3 is difficult, not least because it is often difficult to predict when changes in behaviour will occur or for how long any reported changes will be sustained. In this study, participants were interviewed around one month after their course had finished. In most cases they had been participating in their course for some time (typically, for six to nine months, but up to a year in some cases), which meant there had been a reasonable amount of time for learners to apply what they had learnt on their course in their jobs.

The various aspects of workplace practices to be evaluated and the timeframe for measuring them were determined at the start of the evaluation. However, some fine-tuning took place as the evaluation proceeded, which resulted in questions being added to the post-course questionnaire and the collection of information from supervisors. Hence, this information is not available for all courses. The sources of data used for the evaluation of course participants' workplace practices were:

- pre- and post-course interviews with course participants
- supervisor assessments of changes in various aspects of participants' work practices (pre- and post-course)
- pre- and post-course interviews with company managers on the impacts of the course overall
- pre- and post-course interviews with training providers and tutors
- company and provider documentation
- a final questionnaire survey that went out after the completion of programmes to company managers and training providers.

Further details about the overall evaluation methodology are in section 2.

5.1 Self-assessed improvement in job performance

Participants were asked questions relating to the potential impacts of the course on their work practices and attitudes. Questions related to:

- the relevance of the course to their work
- whether they were doing their jobs better as a result of the course
- the application of skills and knowledge from the course to their jobs.

Relevance of the course to participants' work

Nearly all course participants reported that the course was relevant to their work: 59 percent reported that the course was related to their job a lot, 35 percent said a bit, and only six percent said the course was not at all related to their job. These results reflect the high degree of contextualisation with the courses' teaching content.

Whether participants were doing their jobs better as a result of the course

Participants were asked to what extent they thought they were doing their jobs better because of the course. Forty percent of participants reported doing their jobs a lot better as a result of the course, 40 percent felt they were doing their job a bit better, and 20 percent felt they were doing their jobs the same as before. No participant reported doing their job worse because of the course.

Application of skills and knowledge from the course to participants' jobs

Participants were also asked to identify specific things they had learnt on the course that they had been able to apply to their job. In total, 249 (70 percent) of the 343 participants made a comment, with 288 positive comments made by 239 respondents and 10 negative comments made by 10 respondents. Seventy percent of participants identified something they had learnt on the course that they had been able to, or expected to be able to, apply.

Positive comments about course impact

Looking first at positive comments, several themes emerged from the participants' responses. Table 5.1 shows the number of comments made by course participants that relate to each theme. Examples of the kinds of comments made about each theme are given in the sections following the table.

Table 5.1: Things learnt on course that had (or could be) applied at work (N=288)

Area of learning	Percentage of all comments	Number of comments
Tasks involving writing and reading	30.2	87
Oral communication in the workplace (speakers of English as a second language)	21.5	62
Oral communication in the workplace (speakers of English as a first language)	15.3	44
Relationships at work, including managing people and teamwork	11.8	34
Tasks involving numeracy skills	9.4	27
Understanding and following policies and procedures	4.2	12
Performing tasks with increased confidence	1.7	5
Problem solving	1.4	4

Other	4.5	13

Reading and writing

Comments about the positive impact of the course were most frequently made about the performance of work tasks involving the completion of forms (reading and writing) or writing in general.

> Writing emails—instead of raving on, I get straight to the point. I use full-stops not commas if the sentence is too long.
>
> The course helped with learning company policies and understanding them—seeing that they actually work.
>
> Presentation of material—like for the audit. The auditors were pleased with [the qualifications] register—it's now on the computer.
>
> Spec. forms—I used to be hesitant and make mistakes as I didn't read the specs right. Now, I've got a better understanding of the specs and confidence to ask.
>
> How to fill in Incident Forms. I do them properly now. Rather than just writing 'broke toe', I give them the full details and a photo too! With the Incident Forms, I fill them in properly and I'm able to help the new guys now.

Oral communication for speakers of English as a second language

Around 40 percent of participants spoke English as a second language. The course helped many of these participants with understanding verbal instructions, explaining, understanding work-related vocabulary, asking questions, taking part in meetings, speaking on the telephone, and talking to workmates.

> I used to not understand what my supervisor told me to do. Now I do—not everything, but a lot more than before.
>
> My formal English for meetings improved; I speak regularly at meetings.
>
> Telephone skills—listening exactly to people especially when they are foreign language people.
>
> The course really helped me to understand team briefings.
>
> I learn new words for my job about machinery, cleaning and health and safety.

Improved oral communication for speakers of English as a first language

Fifteen percent of comments related to improvements in oral communication skills brought about by applying communication techniques learnt on the course. Participants commented on how they were using these techniques to improve communication at work with both colleagues and clients of the company.

> We have tools from [tutor] to refer to when we don't know what to say to people on the phone, especially if they are being difficult.
>
> I learnt to slow down, take time, make sure what I ask is presented properly so they get it. I used to say 'do you understand?' Now, I say 'what did I want to happen when this was done?'

> Oh, communicating—being able to talk to customers. Knowing what I'm doing fully—not just pretending! Speaking up now and then at [company meeting], I never used to speak up at all.

Managing relationships—leadership and teamwork

The next most frequent set of comments was around improvements in relationships with other people at work. Improvements were noted in managing people, working as a team, getting the best out of people, sharing responsibility, disciplining staff, and organising work.

> I have the course book in my wagon to refer to—I use it heaps to help me sort myself out first before yelling and screaming at the guys. It helps me heaps, 'cos when I blow off me head it's quite scary. The guys have noticed I'm a lot more calm and collected. I told them a bit about the course and that I would be trying the course way until this date. On that date the guys started whispering 'don't tell him it's the day' another told me it was, but I said I wouldn't go back to the old way.

Workplace tasks involving numeracy skills

Most courses included none or only a little maths.[57] Despite the general lack of numeracy teaching in the programmes, nine percent of positive comments related to improvements in carrying out work tasks requiring numeracy skills.

> I don't have to use my fingers. I can work out how many there are on a pallet [multiplying rows of products].

> I understand daily production figures now [percentages].

> Measuring, especially how to measure in millimetres.

> I'm now working out the volume of concrete. The engineers used to come out, now they just double-check it.

Policies and procedures

Twelve comments related to a greater understanding and application of policies and procedures, especially around health and safety.

> Health and safety, like dealing with chemicals; writing memos; dealing with absenteeism.

> I know now why procedures like SOPs [standard operating procedures] are in place and how things are dealt with; the course gave me a good look at how things should be done—it's two worlds, how they should be done versus how they are done.

Problem solving, confidence, and other changes

Other comments related to improvements in problem-solving abilities, increased confidence, improved attitude to the job, better time management, greater

[57] Only one training programme taught a lot of maths, five taught some maths, and 10 taught a little maths. Two training programmes taught no maths at all. Even where maths was taught on a programme, it was not necessarily taught to all the participants. For example, the course that included a lot of maths taught maths skills to less than half of the participants in the programme; the remaining participants focused on other skill areas.

understanding of the company's business, greater appreciation of the participant's own strengths and weaknesses at work, making progress with using computers, and trying to improve all aspects of work performance.

> I have more confidence to speak up at meetings. I've been a union delegate for the last couple of months.
>
> I understand customer expectations better from the course.
>
> It's about the attitude you take on to the job.
>
> My time management's improved.

Negative comments about course impact

Participants made 10 negative comments (three percent) about the course in relation to their work. Four participants reported that the course taught them nothing they did not already know. Three said the course had not made any difference to them yet, but they might be able to apply what they had learnt to their jobs later; two of these comments related to computer skills learnt on the course. The remaining three participants reported that what they had learnt was not useful for their job.

5.2 Other impacts on participants' work practices

Participants were asked a range of other questions related to the impacts of the course on their work. These impacts included:

- attitudes to work
- job satisfaction and confidence
- confidence communicating at work
- communication between workers and managers
- job ambitions
- interest in training and further learning plans.

Attitudes to work

Improving attitudes to work was one of the key outcomes many companies sought. Just over half of the participants (51 percent) reported that their course had changed how they felt about their jobs. Sixty percent made additional comments describing the nature of the changes. Their comments are summarised in Table 5.2.

> Yes, I look at it a different way. I didn't understand instructions before, I feel a lot easier. I can do maps now and street signs, I can work them out.
>
> It's made my job more interesting. It used to be limited, but now I can do things, it's a lot more positive.
>
> There is more to my job than I thought. Apply things more, enforcing policies and procedures as they work. I'm not worried about talking to bosses, 'cos using right language.

Table 5.2: Reported change in attitudes to work (N=109)

Nature of work attitudes	Percentage of all comments	Number of comments
Job-specific confidence with new skills	26	28
General confidence making job easier	17	18
Clarifying work aims	16	17
Better understanding of job	13	14
Seeing their jobs in a new way	12	13
Greater empathy with workmates/managers	10	11
New sense of independence	6	8

Job satisfaction and confidence

Respondents were asked to rate their job satisfaction and confidence on a 1–6 scale (1 = low).[58] There were small positive improvements in average ratings. The average pre-course rating for job confidence was 5.1 and post-course it was 5.4. The pre-course average rating for job satisfaction was 4.8 and post-course it was 5.1.

From participants' perspectives, job confidence and performance were associated. Those who thought they were doing their job a lot better were more likely to report increased job confidence (a mean change of 0.27, reflecting change on a 1–6-point scale) than those who thought they were doing their job the same (mean change of 0.07), although this was not statistically significant (p=.14).

Confidence in communicating at work

The course had a positive effect on learners' confidence in speaking in a range of workplace situations. This included speaking to colleagues or supervisors, to small and larger groups of people, and to people they did not know. Average ratings improved between 0.3 and 0.5 points on a 1–6-point scale.

Communication between workers and managers

A small improvement in communication between workers and managers was reported. Participants were asked to rate communication between workers and managers at their workplace on a 1–6-point scale (1 = low). Before the course, the average rating was 4.0, and after the course the average rating was 4.2.[59]

Job ambitions

Participants were asked pre- and post-course what they thought they would be doing in their work in five years' time. While the proportions wanting to go into another type of job within the same company and those planning to leave their company remained similar, the proportion planning to take on a leadership role in their company decreased and the proportion planning to stay in the same job

[58] In all these pre- and post-course ratings, participants were not told their pre-course rating.

[59] With the second rating, participants were not told their first rating.

or retire or who did not know increased. Overall, participation did not lead to much change in participants' job ambitions.

Interest in training and future learning plans

Participants were asked whether they planned to undertake further courses or learning.[60] A few were carrying on with their trade qualifications, a third said they had no plans for further study, around half expressed interest in continuing training in some way, and the remainder were unsure. Of those who expressed an interest in continuing training, only a third identified a specific course, another third identified a specific course *and* provider, and the rest did not identify a course or provider. By far the most frequent subject that interviewees said they wanted to learn about was computers.

Participants were also asked to rate their degree of interest in training on a 1–6-point scale (1 = low) both pre- and post-course. Interest in training decreased slightly from an average rating of 5.0 to 4.9. This result is somewhat inconsistent with the responses given about future learning plans. One explanation for this discrepancy is that 'training' is seen as being of a specialised vocational nature, while the previous question about 'courses or learning' is more generic and open to broader options.

5.3 Impact on workplace practices: supervisors' and managers' perspectives

Participants' immediate supervisors were asked to what extent participants' workplace practices had changed. Supervisors were asked to rate each participant on six aspects of work practices on a scale of 1–10 (1 = low) before and after the course. Supervisor ratings were recorded for participants in 12 out of the 18 courses. Table 5.3 shows the change in average ratings and the effect size.

Overall, supervisor ratings were more positive after the course than before. The size of the effects was moderate. Ratings increased for around 60 percent of participants, remained the same for 35 percent, and decreased for five percent. Those who spoke English as a second language experienced a similar improvement in ratings as those who spoke English as a second language. The greatest increase was for completion of paperwork.

[60] This question was asked in 13 of the 18 courses, a total of 199 responses.

Table 5.3: Supervisor ratings of participants' workplace practices

Workplace practice	Average pre-course rating	Average post-course rating	Average change	Effect size
Attitude	7.4	8.2	0.8	0.56
Team player	7.5	8.3	0.8	0.51
Taking initiative	6.8	7.8	1.0	0.57
Ability to work without supervision	7.2	8.0	0.8	0.48
Willingness to attempt new tasks	7.3	8.1	0.8	0.50
Completion of paperwork	7.0	8.0	1.0	0.59

Statistical variation in supervisor ratings

A regression analysis of the change in supervisor ratings showed there was variation by course, provider experience and gender.[61] Variation by ethnicity, age, highest school qualification, level of tertiary qualification, prior reading level, and attendance were not significant.

Four of the 12 courses had a mean improvement in ratings of 1.0 or more and four had an average improvement in score of less than 0.6. Females experienced a larger improvement in average supervisor ratings (mean change of 1.16) than males (0.72). Supervisor ratings improved more for participants in courses run by providers who had experience in workplace training, but little experience in LLN (1.11) than those run by providers with experience in LLN, but little experience in workplace training (0.65) or those run by providers with experience in both LLN and workplace training (0.77).

Managers' perspectives

The manager overseeing the course in each company was asked about impacts of the course overall.[62] Nearly all managers reported positive impacts on personal confidence, communications with other workers, interest in doing further training, positive attitude to work, improved understanding health and safety, and improved communication with managers. Around half of the managers reported some impacts on accuracy of paper work, speaking at meetings, taking initiative, problem solving, and providing feedback.

Comparison of supervisors' and participants' views

No statistical association was found between participants' assessment of improvement in their job performance and their supervisors' ratings of their work practices. The average supervisor rating (averaged across all six measures) improved 0.85 points for those who thought they were doing their job much better compared with 0.88 for those who thought they were doing their job a bit better and 0.80 for those who thought they were doing their job the same. This suggests participants and supervisors have different perspectives on work

[61] Course - F=2.63, df=11, p=.0039; provider experience - F=3.81, df=2, p=.024; gender - F=5.10, df=1, p=.025.

[62] Fourteen managers responded.

performance. Some supervisors may also lack awareness about learners' progress or there may have been little opportunity or encouragement for some learners to apply their newly acquired skills in the workplace.

5.4 Links between improved literacy, language, and numeracy skills and workplace practices

In the previous section, it was shown that most participants reported improvements in their job performance. Two-thirds identified things they had learnt on the course that they had been able to do at work. Many of these examples related to improved oral communication, literacy, or numeracy skills. The supervisors of participants also reported improvements in various aspects of workplace practices.

This section examines the extent to which improved LLN skills and improved workplace practices were linked, including:

- changes in reading and writing scores and self-ratings of job performance
- changes in reading and writing scores and supervisor ratings
- changes in self-rated LLN skills and self-rated job performance.

As discussed in section 4, it is not clear the degree to which the overall improvement in participants' work-related scores reflects an improvement in LLN skills. If the LLN skills of the vast majority of learners did not improve, it would be unlikely to find a relationship between improved test scores and improved work practices. In addition, changes in reading and writing test scores reflect both changes in participant's skills and the reliability of the test instrument (ie, in the absence of any change in skills, testing the same person on two different occasions can lead to different test scores.) The later component appears to be quite substantial, so that even if a relationship existed between improvement in scores and improvement in work practices it may not be observed in the data.

Changes in reading and writing scores and self-rated job performance

Statistically, a weak association existed between improvement in reading scores and self-rated improvement in job performance. Those who thought they were doing their job a lot better had a larger average improvement in reading scale scores (12.2) than those who thought they were doing their job a bit better (9.3) or those who thought they were doing their job the same (8.5).[63] There was no statistical association between improvement in writing scores and self-rated improvement in job performance.

Changes in reading and writing scores and supervisor ratings

No statistical association existed between changes in reading and writing scores and supervisor ratings.[64] In fact, those who experienced the greatest improvement in reading scores (greater than 15 points) received the lowest average improvement in supervisor ratings (averaged across all six measures). Their average improvement in supervisor ratings was 0.62 points. This compared with 1.06 for those whose reading scores improved 5–15 points and 0.89 for

[63] $F(2,373)=3.9$, $p=.021$.

[64] Available for 12 of the 18 courses.

those whose reading scores improved less than five points.[65] There was also no association between changes in reading scores and any of the six individual supervisor ratings. No association existed between changes in writing scores and changes in supervisor ratings (averaged across all six measures) or any of the six individual supervisor ratings.[66] Supervisor ratings improved 0.88 points for those whose writing scores improved by five or more points. This compared to 0.85 for those whose writing scores improved 1–4 points, and 0.93 for those whose writing scores were the same or lower after the programme finished. Again, average ratings before programme were very similar for the three groups.

Changes in self-rated literacy, language, and numeracy skills and self-rated job performance

A weak relationship existed between self-rated improvement in LLN skills and self-rated improvement in job performance. Those who thought their LLN skills had improved the most, were more likely to think they were doing their job better than those who thought their LLN skills had not improved. Those who spoke English as a second language were more likely to think their LLN skills and job performance had improved.

From learners' perspectives, there was a stronger link between speaking and listening skills and improved job performance than between reading skills and improved job performance. The relationship was strongest for listening, speaking, and writing and weakest for reading and maths. This is supported by the examples learners gave of things they had learnt on the course that they could apply in their jobs.

5.5 Conclusion

This section of the report presented findings on the impact of the Upskilling Partnership Programme courses on participants' work practices. It also explored the links between improvements in LLN skills and improved work practices.

Most participants reported that the courses had had a positive effect on their job performance. Eighty percent of participants reported they were doing their jobs better as a result of their course. When participants were asked about specific things they had learnt on the course that they had been able to (or expected to) apply to their jobs, most participants identified things related to improved LLN skills. Most frequently, they reported tasks requiring oral communication skills and tasks requiring reading and writing (mainly related to filling in forms). Other examples commonly reported were improved relationships at work and tasks requiring numeracy skills. Overall, 70 percent of participants identified something they had learnt on the course that been able to apply to their job, and around three-quarters of these examples related to LLN skill areas.

Overall learners reported small improvements in job confidence and job satisfaction, and larger improvements in their confidence speaking in a range of workplace situations. They also reported a small improvement in communication

[65] These differences were just significant (p=.04).

[66] A regression analysis of change in average supervisor ratings, identified a relationship with change in reading scores that was slightly negative (β= -0.006, p=0.38). The relationship with improvement in writing scores and supervisor ratings was close to zero (β= 0.006, p=0.74).

between managers and staff. Half of the participants reported that their course had changed how they felt about their job.

Information collected post-course from supervisors provided another perspective on the impact of the courses on learners' work practices. However, the information was collected for only two-thirds of courses. Overall, supervisors reported that around 60 percent of participants showed improvement in each aspect of work practices assessed. These included team work, attitude, initiative, ability to work without supervision, willingness to attempt new tasks, and completion of paperwork. Average ratings improved by around one point on a 10-point scale.

The importance of communication skills in workplaces was highlighted by a 2007 survey by the Industry Training Federation and Business New Zealand (Green et al, 2008). It was also reflected in the outcomes most sought by Upskilling Partnership Programme managers—improved communicating with other workers and supervisors. In this regard, there was reasonable evidence that the courses improved communication in the workplace. For example, learners' confidence speaking in different workplace situations improved; when asked what things they had learnt on the course that they had been able to apply in the job, many gave examples related to oral communication skills. The company managers overseeing the course also reported positive impacts on communication with other workers and improved communication with managers.

There was a lower degree of impact on other work practices. Around half the managers reported no improvement in taking initiative, problem solving, accuracy of paperwork, or providing feedback, and participants reported that the courses had very little impact on their job satisfaction, job ambitions, or likelihood of remaining with their current employer.

There was very little evidence of a statistical link between improved LLN skills and improved work practices. There was no relationship between improvement in reading and writing scores and improvement in supervisor ratings of learners work practices. The lack of association between learners' improvements in reading or writing scores and improvements in supervisor ratings suggests it is the acquisition of other skills and knowledge (not closely related to reading and writing skills) led to improved work performance from supervisors' perspectives.

A relationship existed between improvements in reading scores and self-rated job performance, although this was weak, and there was no relationship with writing scores. There was no consistency between self-rated job performance and supervisors' assessments of improvement in learners' work practices. Reading and writing scores improved overall and work practice improved overall, but they did not tend to improve together.

From learners' perspectives, a much stronger link existed between improved speaking and listening skills and improved job performance than between improved reading and writing skills and improved job performance. Learners who thought their LLN skills had improved were more likely to think they were doing their job better. This relationship was strongest for listening, speaking, and writing and weakest for reading. This finding is supported by the examples learners gave of things they had learnt on the course that they could apply in their jobs. It could be that other job-specific skills and knowledge learnt on the

course, not related to LLN, resulted in improved work practices. This could not be evaluated due to a lack of information about the LLN and other content of the courses.

Implicit in the Upskilling Partnership Programme model has been the assumption that a direct and immediate link exists between improving LLN skills and improving workplace practices. The evaluation has found some evidence supporting this link between language and communication skills, but the relationships between reading and writing was less clear[67]. It may have been the acquisition of other skills and knowledge (not related closely to reading and writing skills) that led to the improvement in supervisors' rating of learners' work practices. While a statistical link between improved reading and writing scores and work practices could not be found, and it is not clear which were the skills acquired by learners that led to improved work practices, practices did improve quite substantially from the perspective of learners, supervisors, and managers. The impact of improved LLN skills on work practices is an area that requires further research.

Course participants, managers, and supervisors attributed some notable and positive changes in workplace practices to the Upskilling Partnership Programme courses. However, as the literature on productivity (Ryan, 2007) shows, greater knowledge and improved skills on their own may not be enough to lift employees' performance at work. Further research is needed on the relationship between the various factors that influence the speed and degree of transfer of new skills into learners' jobs, including the level of skills, the nature of the skill acquired, motivation to improve work performance, opportunities to use new and developing skills, and supervisor support and awareness of the learner's progress.

[67] The evidence of the links between improvement in LLN skills and improvement in workplace practices comes from improvements in skills and work practices self-reported by participants, rather than reading and writing test scores or supervisors' assessments.

6 COMPANY PERSPECTIVES

This section looks at what motivated the companies to participate in the Upskilling Partnership Programme and what they expected to gain from it, the outcomes they experienced, and the lessons they learned. It also describes subsequent developments in the companies.

It focuses on evaluating at level 4 of Kirkpatrick's evaluation model (Kirkpatrick 1994). Level 4 concerns the degree to which targeted outcomes occur as a result of the learning event and subsequent reinforcement. The drivers and outcomes sought by companies varied to some extent. Managers' motivations for involvement in LLN were driven more by the desire to solve everyday issues than about a strategic focus on productivity or profitability, which is consistent with research findings in this area (Bryson et al, 2008). They wanted to improve communications between workers and between workers and their supervisors, retain workers, improve attitudes towards work and training, and improve health and safety practices. From a productivity perspective, reducing cost by reducing errors and re-runs was a more common driver than having to cope with new and existing technology and encouraging innovation. Managers wanted to improve the oral communication and literacy skills of their employees, improve paperwork and problem solving, and increase self-confidence.

6.1 Drivers of project participation and expectations

To understand the nature of successful initiatives to build demand for LLN skills, it is necessary to identify the factors that drive companies to commit to running LLN courses and what they expect their workers to gain from these courses. Early in the project, the participating companies completed a brief questionnaire that covered these aspects. The questionnaire was completed by the chief executive of the company or by the manager responsible for the course.[68] Twelve managers completed the questionnaire.

Company drivers for involvement in Upskilling Partnerships Programme

Managers were asked to rate a series of motivations commonly identified by companies that undertake LLN courses (rating each one as very important, quite important, or not important). The drivers rated most highly were improving communication, staff retention, cost savings, improved attitudes to work, and improved health and safety. These drivers were rated by more than half the mangers as very important, and can be seen as solving immediate issues in companies. The sixth- and seventh-ranked drivers were improving productivity and increasing profitability, indicating recognition of long-term aims. Improving employee loyalty, attendance, and working as teams were rated by 40 percent of mangers as very important.

The three factors that were rated least important were coping with existing technology, coping with planned technology, and encouraging innovation. This shows that the managers who were part of the Upskilling Partnerships

[68] Referred to as managers in the remainder of the report. The results reported here reflect these managers' viewpoints and are not necessarily the official positions of their companies.

Programme did not consider LLN as particularly important in relation to technology and innovation. Nearly half of the managers said these factors were not important. However, this may also reflect that many of these learners' jobs involved little technology.

Expected outcomes

The 12 managers then rated a list of outcomes they wanted their workers to achieve as a result of the course. The top four outcomes related to improved oral communication skills (listening skills, communicating with managers, communicating with workers, and speaking skills), which were rated as very important by around 10 of the 12 managers. These outcomes were followed by reading, self-confidence, accurate paperwork, problem solving, maths, and confidence speaking in group situations. These were rated as very important by around eight of the managers. The bottom-ranked outcomes were better use of technology, better use of computers, and greater community involvement. These were rated as very important by just one of the 12 managers.

The results suggest managers were primarily concerned with improving communication between staff and their supervisors—especially through improvements in oral communication skills and reading, but also writing and maths. Underpinning these skills is the recognition that their workers need to gain confidence in conjunction with transferring their improved skills into their paperwork and problem solving. Technology-related skills rated poorly against these other more immediate outcomes.

6.2 Outcomes

After their courses had finished, managers were asked to assess the main outcomes for the company and to reflect on their experiences with the Upskilling Partnerships Programme course. They were asked to what extent the course had achieved several possible outcomes. The response categories were none, some, and a lot. This questionnaire was completed by 14 managers.

Impacts on participants' work practices

Three-quarters of the managers said the course had increased participants' personal confidence, communications with other workers, interest in doing training, job confidence, attitudes towards work, communication with managers, and team work. Two-thirds said the course had increased participants' understanding of health and safety, quality of work, compliance with health and safety, and completion of paperwork. Around a half of the managers said the course had increased participants' ability to work independently, improved attendance at work, efficiency, accuracy of paperwork, initiative, inter-cultural understanding, and speaking at meetings. One-third said the course had improved participants' problem-solving skills and ability to provide feedback. In most cases, managers said there had been some impact rather than a lot of impact.[69] The exceptions were in the areas of personal confidence and

[69] Seven of the 14 managers said that personal confidence had improved a lot and five said there had been some improvement. Six of the 14 managers said that communication with other workers had improved a lot, and seven said there had been some improvement. Four of the 14 managers said

communications with other workers, where around half said the course had a lot of impact.

> There have been very slight changes in a positive direction overall. Those that appreciated the training have made progress, those that saw it as a chore and distraction have not progressed well at all. A case of 'you get out what you put in'.
>
> Some of the improvements such as [work] attendance have only just started to occur very recently [six months after the course finished].

Impacts on the company

Managers were also asked to assess the impact of the course on aspects of their company's performance (staff morale/satisfaction, work quality, internal promotion, work throughput, participation in training, staff retention, communication with clients, and company competitiveness). Most of the employers were very positive about the impact they had seen from the courses, although some felt it was too early to see the effects.

> Changes are evolving—can't point to any specifics, however all of these are addressed in our ongoing work around foundation skills.

They were also clear that not all employees had benefited from the courses.

> The outcome of the training varied across employees. Some employees made great improvements and were promoted into more responsible positions. Others made smaller progress steps.

Six of the 14 managers did not know whether there had been any impact on internal promotion, participation in training, staff retention, and communication with clients, and 11 did not know whether there had been any impact on the company's competitiveness.

In terms of impact on their companies' performance, eight of the 14 managers reported impacts on work quality, work throughput and participation in training and seven reported impacts on staff morale/satisfaction and staff retention. Five reported impacts on internal promotion and communication with clients. Two of the 14 managers said there had been some impact on the company's competitiveness. In nearly all cases, managers said there had been some impact rather than a lot of impact. Around a third felt able to comment in each case, with nearly all unable to comment on the impact of the course on company competitiveness.

> We have decided to take on a [full-time] literacy specialist.

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that attitudes towards work had improved a lot and seven said there had been some improvement. Two of the 14 managers said communications with managers had improved a lot and 10 said it had improved a bit.

> Although I don't appear to be putting high scores, or raving about the successes of the course, I would like to say that I am a huge supporter of this initiative. We have experienced a few excellent results, some small shifts, and some learned nothing. Mostly this is due to the commitment of the individuals and our own ability to put time into developing their skills. We are in a very busy, timeline driven environment. The focus on efficiency means that we run fairly lean—so do not have a lot of time for training and development.
>
> Improvement in a participant's ability to read, write and speak definitely improves individual productivity and contributes to a more positive attitude about themselves and their job.
>
> Extolling the benefits not only in the workplace but also how the learning can impact on their daily lives works wonders!

Changes made in the workplace

Improving LLN in workplaces has two key components: it requires not only the improvement of workers' LLN skills, but also that employers become more aware of LLN in the working environment and committed to improving LLN-related aspects of the workplace such as signage and documentation. The employers were asked if they had changed things to improve the readability of LLN-related aspects of their operations. Around half reported that they have made some changes to health and safety, signage, orientation material, and other training material. Some managers made additional comments about these changes.

> We have certainly recognised we need to reduce complexity of written instructions.
>
> We have decided to take on a full-time literacy specialist.

Changes in participants' literacy, language, and numeracy skills

Many managers said that participants' LLN skills had improved. In relation to reading, writing, speaking, and listening skills, seven to nine of the 14 managers said each skill had improved. Five of the six managers who had staff with English as a second language reported a positive impact on those staff. In most cases, they said there had been some change in skills rather than a lot of change. Two or three out of the 14 managers did not know whether the course had had any impact on reading, writing, speaking, and listening skills, and three or four did not think skills had improved.

6.3 Lessons learned

The managers were asked what they had learned as a result of their involvement in the Upskilling Partnership Programme in terms of providers and tutors, course content, publicity and recruitment, the choice of course participants, course timing and length, and the role of supervisors and managers in the courses. Overall, managers were relatively positive about these aspects, but some expressed reservations. From a manager's perspective, the features identified as important are:

- course publicity that is clear and well coordinated

- recruitment that is based on clear criteria and on both the individuals' and company's needs
- good quality providers who are flexible and understand the company's business and its demands—providers need to be a good fit
- tutors who are experienced teachers of workplace LLN, understand the company they work in, and can relate to the workers
- courses that are well planned, well prepared, and underpinned by clear communications among all key stakeholders
- courses that are contextualised, of a practical nature, and applicable in participants' jobs
- course times that are flexible and fit in with the demands of the workplace
- course lengths that match the needs of the individual learners.

Most employers were initially reluctant to use LLN-related terms because they believed it might deter employees who are embarrassed by their LLN skills. However, in many cases, avoiding the use of these terms meant the purpose and nature of the courses was unclear to potential participants. In some cases, the purpose of the course was not communicated at all. The experience with Upskilling Partnership Programme courses shows that the use of LLN terminology becomes less of an issue as courses progress and most managers reported openly using LLN terminology by the end of their course. The purpose of the course became well understood by most of those involved, and in most cases learners and companies became more comfortable about using LLN terms.

Managers were also asked to identify the most important things they had learned from running the courses. They re-iterated the importance of high-quality providers and tutors who were flexible and able to contextualise the course content to the learners' work. The other key aspect was the need for support at all levels in a company—from the chief executive through to supervisors—including practical support, such as providing extra cover for staff so they could attend sessions.

Finally, managers were asked if they had any additional comments. One comment was particularly relevant to this evaluation:

> The key to getting the training programme up and running was the funding provided by the government. Also, the competency of the trainers has laid a solid foundation for us to continue. The challenge is to continue the training programme and build in in-house literacy skills as part of our day-to-day training.

6.4 Subsequent developments in companies

This section looks at the main developments for the companies in the Upskilling Partnership Programme in relation to LLN since the initial courses, including their broader LLN policies and strategies. These developments were reported to the

research team[70] or as part of the contractual arrangements the Department of Labour had with companies for the Upskilling Partnership Building Fund.[71]

While further courses and related developments have not been formally evaluated,[72] the information gathered about them contributes to the evidence about the viability and sustainability of workplace literacy programmes. For example, it is interesting to know the extent to which companies went beyond one-off courses and were able to build LLN into the organisational development and training policies and planning. It is clear from the UK literature (Finlay et al, 2007; Wolf and Evans, 2009) that workplace LLN programmes are often not sustained beyond an 'initial flowering in the desert', as Finlay et al (2009) termed it.

Literacy, language, and numeracy developments in partnership companies

The work that companies undertook after their initial courses can be categorised in as:

- no further courses (three partnerships)
- continuing with further courses, usually with modifications (four partnerships)
- continuing with further courses and wider organisational development work. (eight companies).

Three partnerships (including two that began as clusters of several companies and one local partnership that included two companies) had decided not to continue with LLN training or were undecided what to do next. The reasons given for this decision were:

- dissatisfaction with the provider, persisting high rates of absenteeism, and lack of supervisor buy-in
- detrimental effects of the economic downturn and looking to connect to an industry training organisation
- dissatisfaction with the provider and wanting their next course to be significantly different and to include supervisors
- seeing the first course as having potential, but not getting the results wanted.

Four companies are continuing with LLN courses using funding from the Tertiary Education Commission's Workplace Literacy Fund. Three of these companies are large companies that initially ran courses in one part of their organisation. The subsequent developments in these companies were:

- One company ran another course, but reported a lack of buy-in from senior managers. The managers running the course believe senior managers have

[70] The companies were visited on a rolling basis, according to when the various courses finished.

[71] This fund provided support to employers to introduce an organisational approach to addressing the LLN issues of their own workforce.

[72] As the follow-up courses and related LLN developments have not been formally evaluated, it is not possible to comment on how well these subsequent developments have worked or to detail what additional issues arose in these later developments.

not made the connection between communication and productivity. The interest in LLN training has decreased as the labour market has eased, and the company feels it can more easily employ people with good English language skills.

- One company ran a second course and was looking to train internal trainers to embed LLN into the company's qualifications training.
- One company ran another course, but changed to a provider that could provide vocational training as well as LLN training.
- One company changed provider and continued with the original course, but was hard hit by the economic downturn and is not sure whether it will continue in the medium term.

Eight companies, one of which had three courses operating, continued with LLN courses and moved on to undertake wider organisational development work. These are all large companies. They received funding from Tertiary Education Commission's Workplace Literacy Fund for LLN courses and funding from the Department of Labour's Upskilling Partnership Building Fund for organisational development work. The work they have undertaken includes the following.

- One company has widened course delivery to five sites and is working on a company-wide LLN strategy.
- One company is running another LLN course that includes unit standards and extending the LLN course to other sites. The company has developed a competency framework that includes communication and has reviewed and revised company training documents to make them easier for staff to understand.
- One company is running a second course, with tighter entry criteria, and is working on a company-wide strategy to address LLN issues across a range of roles.
- One company ran a second course, analysed career pathways and the literacy requirements for roles, and benchmarked training materials against the Tertiary Education Commission's Learning Progressions. This company is also planning to revise its induction and internal policy manuals.
- One company is running another course and developing a literacy and numeracy strategy and action plan. The company is hoping to conduct the LLN training internally, but still requires government funding to support this. The company plans to introduce LLN training to other parts of the business.
- One company will run embedded courses as needed. It has not continued with the non-embedded course due to logistical difficulties caused by changeable work schedules. The company has developed a literacy and numeracy strategy and is looking to bring training in-house (as are two other companies).
- One company is continuing a course with new learners. It is undertaking a range of LLN assessment activities that will lead to the development of an LLN training and development plan.
- One company has changed the course, is now running it internally, and extended it to other sites. It has developed new materials to support the course and a quality assurance framework.

Only one of the companies had experience in running LLN courses before the Upskilling Partnership Programme. As the companies began the process of introducing their LLN courses, most of the companies came to see that the need was greater than they had expected. They recognised that it would take more than a single course to resolve the issues their business had to deal with because of the low LLN skills of their staff. They have also achieved a better understanding of where the areas of greatest LLN need are in their companies and which workers are most likely to benefit from the courses.

It is clear that in most cases, the companies and their providers strongly believe that they have learned how to run the courses better as a result of their experience with the first generation of courses.

> We learned from the first course and implemented changes for the next intake.

In most cases, the companies and their providers have identified the key problems and devised responses to reduce these problems. Although none of these subsequent courses or any strategic developments have been formally evaluated, the feedback from the companies and providers indicates that, in their view, most of these changes have been reasonably successful. As one manager said, 'we've learned how to do it now'.

In a few cases companies chose not to change things that were known issues, and in general the results have been similar the second time round. For example, when attendance problems were identified as related to participants having to come in on their day off, the company concerned chose not to change this arrangement, as they wished to minimise disruption to work schedules, with the result that there was no improvement to subsequent attendance levels. Other companies that did alter the attendance arrangement achieved better attendance rates in later courses by running them during work time.

Variation between companies

As can be seen in the section above, there has been considerable variation between companies for several reasons, including:

- the extent to which the LLN skills courses were seen as successful by management affected their level of commitment to the Upskilling Partnership Programme
- the relationship and degree of satisfaction with the provider varied and has affected future developments
- the culture of learning and development within companies, both before and as a result of the Upskilling Partnership Programme, discouraged or facilitate further developments
- the distribution of funding through the Upskilling Partnership Building Fund meant the companies that accessed this funding were able to progress work more quickly than those that did not
- in some cases, events within the companies unrelated to the courses have impinged on further developments (eg, key managers responsible for training have left and are yet to be replaced, and the economic downturn affected some companies' operations and training courses).

It is still early days for some companies, but some of those whose courses finished early in the project have gone on to develop company-wide LLN strategies that have been incorporated into wider organisational development and action plans. This has enabled companies to think about aspects such as LLN assessment at induction, the LLN requirements of specific jobs and how they relate to career progression, and the need to rewrite company documents so employees can easily understand them.

> The organisation as a whole needs to respond to the literacy needs of their workforce. It's not just a matter of developing employees, but also the company taking a proactive approach to ensuring their communications and material are written in a way which is easy to understand.
>
> We have certainly recognised we need to reduce complexity of written instructions.

The economic downturn had a significant impact on some of the Upskilling Partnership Programme partners over the period of the evaluation, and there are likely to be further impacts on companies' future plans regarding LLN. Most are proceeding cautiously with one eye to the economic horizon and the other on their own operations.

Funding to support subsequent developments

According to company managers, government funding was a key factor in decisions about whether to run LLN courses; three-quarters of the company managers said government funding was very important and one-quarter said it was quite important. Government funding was also important for the development and integration of LLN into companies' ongoing policies and operations. In most cases, the integration of LLN into a broader sphere has been done using funding from the Upskilling Partnership Building Fund. It is clear that without government funding, many of these courses and wider organisational developments would not have occurred.

6.5 Conclusion

This section looked at what motivated the companies to participate in the Upskilling Partnership Programme and what they expected to gain from it, the outcomes they experienced, and the lessons they learned. The section concluded by looking at the developments in companies since running their Upskilling Partnership Programme courses.

Managers' motivations for involvement in LLN were driven more by the desire to solve everyday issues than concerns about productivity or profitability. They wanted to improve communications between workers and between workers and their supervisors, retain workers, improve attitudes towards work and training, and improve health and safety practices.

From a productivity perspective, reducing cost by reducing errors and re-runs was a more common driver than having to cope with new and existing technology and encouraging innovation. Managers wanted to improve the oral

communication and literacy skills of their employees, improve paperwork and problem solving skills, and increase self-confidence.

Three-quarters of the managers' said the course had increased participants' personal confidence, communications with other workers, interest in doing training, job confidence, attitudes towards work, communication with managers, and team work. Two-third said the course had increased participants' understanding of health and safety, quality of work, compliance with health and safety, and completion of paperwork. Around a half said the course had increased participants' ability to work independently, improved attendance at work, efficiency, accuracy of paperwork, initiative, inter-cultural understanding, and speaking at meetings. One-thirds said the course had improved participants' problem solving and ability to provide feedback. In most cases, managers said there had been some impact rather than a lot of impact. The exceptions were in the areas of personal confidence and communications with other workers, where around half said the course had a lot of impact.

In terms of impact on their companies' performance, around half of the 14 managers' reported impacts on staff morale/satisfaction, work quality, work throughput, participation in training and staff retention. Slightly fewer reported impacts on internal promotion and communication with clients. Two said there had been some impact on the company's competitiveness. In nearly all cases there had been some impact rather than a lot of impact. Around a third felt unable to comment in each case, with nearly all unable to comment on the impact of the course on company competitiveness. It is clear that companies expected to observe a more direct impact on employees than on company performance.

Managers were also asked to identify the most important things they had learned from running the courses. They stressed the importance of high-quality providers and tutors who were flexible and able to contextualise the course content to the learners' work, and the need for support at all levels in a company, including practical support, such as providing extra cover for staff so they could attend sessions.

The companies have taken different paths since the initial courses. Factors influencing company decisions, included the extent to which the LLN skills courses were seen as successful, the companies' degree of satisfaction with the provider, and the culture of learning and development in the company. In some cases, events within the companies that were unrelated to the courses have impinged on further developments. For example, key managers responsible for training have left and the economic downturn adversely affected some company operations and training courses.

Most of the companies acknowledged that the level of LLN need in their companies was greater than they had originally thought. Three-quarters have gone on to run further courses and most have fine-tuned how they are run and how to select the employees best suited to them. Some have integrated LLN into their ongoing operations and training course, including reviewing company documentation and processes such as induction training. In cases where companies went beyond simply running another course, additional funding from the Upskilling Partnership Building Fund was used to support wider

organisational development, including the appointment of staff with expertise in training and the development of strategies and frameworks for addressing LLN.

The companies that have not gone on to do anything further did so for a variety of reasons. These companies' courses were generally much less successful than those where further developments have occurred. In one case, the company is considering running a further course, but on a smaller scale and involving a different provider. The other companies seem unlikely to run another course in the foreseeable future.

7 PERSONAL IMPACTS

This section considers the impact the courses had on participants on a more personal level, outside of work, on their relationships with family members and on the activities they were involved in within their communities.

International research has shown that impacts generated in one context can bring about changes in other aspects of peoples' lives (Sticht, 2002; Sabates, 2008). Now the impacts outside work are examined.

Qualitative data was collected from participants in pre- and post-course interviews on:

- whether the course had changed the way they thought about themselves
- their relationships with families and friends
- their leisure activities
- their involvement in children's school lives (for those with children)
- computer ownership and access.

In several of the early courses, participants were not asked all of these questions. For this reason, the number of participants in the findings reported here varies. Typically, information was gathered from about three-quarters of participants.

7.1 Personal impacts

How participants thought about themselves

Participants were asked if the course had changed the way they thought about themselves. Of the 312 participants who were asked this question, 196 (63 percent) said that it had, and 102 participants went on to describe the nature of the changes.

Around one-third of comments about these changes related to increased personal confidence, one-quarter related to a sense of a satisfaction with LLN skills, one-tenth related to feeling better about their jobs, and similar proportions said the change reflected improved work relationships, improved relationships outside work, and assertiveness skills. A few learners said the change related to a general sense of accomplishment, new aspirations, and anger management.

Those who spoke English as a second language were slightly more likely to think the course had changed the way they thought about themselves. Sixty-eight percent of those who spoke English as a second language said the course had changed how they thought about themselves, while 54 percent of those who spoke English as a first language said the course had changed how they thought about themselves.

Comments made by those who spoke English as a second language included:

> I'm so interested. I feel better because I can do things better.
>
> I notice when I'm feeling a bit stuck, knowing when to spot things and can then do something about it.

> I feel a little bit better about myself, now that I understand more about my job.
>
> I'm more confident because I hear the instructions. She used to shout at me.
>
> I know there's more to my job than I thought. I apply things more, enforcing policies and procedures as they work. I'm not worried about talking to bosses—I'm using the right language to talk to them now.

Relationships with family and friends

Post-course, 234 participants were asked if the course had changed the way they relate to family and friends. Of this group, 52 (22 percent) said the course had changed the way they related to family and friends a lot, 72 (31 percent) said a bit, and 110 (47 percent) said not at all.

Those who spoke English as a second language were more likely to think the course had changed the way they related to friends and family. Around 60 percent of those who spoke English as a second language said the course had changed how they related to friends and family. In comparison, around 45 percent of those who spoke English as a first language said the course had changed how they related to friends and family.

For those who spoke English as a second language, the changed relationships with their family and communities usually came about as a result of improved speaking and listening skills and the confidence that they had gained as a result of this change.[73]

> I can speak English more fluently, so I can now talk to my children in English better and it's improving my children's English too.
>
> Everything has changed. I have better understanding of English … more confident. I'm going to help old people in community understand English—every Sunday.
>
> I'm using English more with my family to explain things and it's easier to talk to white people at banks.
>
> I was a very quiet person and now they hear what I think. I give them input to all decisions in the family.
>
> I can do more now. I used to get my wife to do things. Now I am more confident about dealing with people and speaking on the telephone.
>
> With friends it used to be hard to talk to them at barbeques. Now I speak English. I used to not talk at parties, now I talk.

Although improved communication as a result of better speaking skills came through as a theme for those who spoke English as a second language, improved communication also came through for those who spoke English as a first language. This change appears to have occurred for three reasons. First, some people learned how to communicate better in the work place and transferred these skills over to other aspects of their lives:

[73] The importance of English language in the successful settlement on new immigrants has been well documented (NIACE, 2006).

> The course has changed how I speak to my missus. I used to speak to her as I would to my mates. Now I don't swear as much and I talk more.
>
> We were fighting a lot, but now the comms part has really helped that.
>
> I'm talking to my son [who is at polytech] and am not afraid to try and help him with things.
>
> Yes, my whole attitude has changed, everything has changed; I communicate better.
>
> Well, I've got a better relationship with my partner. She told me that things have got better over the last year; I think it's because of the course as everything else is the same.

Secondly, increased confidence was mentioned as a reason for changes in relationships with partners, family, and friends:

> I'm much more confident in what I say. My wife tells me that I'm talking more about work—I just used to grunt when she asked me about my day.
>
> It's boosted my confidence so I've opened up. It's amazing what a course like this can do!
>
> I now talk to my ex-wife about the kids and making arrangements and just staying in touch.
>
> I'm able to plan and organise better. A bit of it [what was learned on the course] went home with me. I got told a couple of times it was really appreciated [by his partner].

Finally, the new skills participants had learned for their jobs left them feeling less stressed or frustrated about their work, which enabled them to be less stressed in their wider lives:

> It's made me a better person. I can walk away from arguments rather than walk into them (tutor told me to). I'm not so angry.
>
> I'm a bit more mellow … not as hard on my kids … [tutor] told me it's important to leave them with a bit of mana … I give them more space and let them speak. I'm helping them more with their homework too.
>
> I'm not taking my problems home now.

Leisure activities

Some participants had gone on to do something different outside of work or take on increased responsibility within groups they were already involved with. Although these may appear to be small changes to people's lives, they need to be put into the context of what the courses were expected to deliver and the lives that people lead outside of work:

> I'm now the Commodore of my Cossie Club, I plan to stand for President this year. I used to be in the background before.
>
> I can read the Bible at church in front of heaps of people.

> I sometimes gather together in the evening with my family and try to tell them all the things I learn here. I teach my grandchildren and children. They are eager to learn from me.

Many learners reported leading busy and physically demanding lives, and felt they had little time or energy for taking on new things or directions in their lives. They said their jobs involved working long hours and often involved hard physical labour. Some also worked more than one job. These demands mean that for some, spare time is used to 'eat and sleep'. Pasifika participants, especially the women, also had considerable extended family and church commitments.

Involvement in children's school lives

Many of the 161 participants with school-aged children said they were already involved in their children's schools before the course. While there was little change in this involvement post-course, most of the change reported was by participants who spoke English as a second language. For example, one participant said she felt she was now communicating better with her child's teacher as she was able to respond in writing to written notes that were sent home by her child's teacher. Another learner who spoke English as a second language felt she could communicate better with her child's teacher because of her improved English skills. Other participants who spoke English as a second language made the following comments about increased involvement with their children's schools and school work:

> I go to interviews and help a bit more with homework.
>
> Yes, better conversation with my kids [they don't speak Pacific language], also parent meeting and interviews, more understanding.
>
> Teaching son times tables and spending more time helping him with school work.
>
> The kids ask for help with homework and [now] I can help with the maths.
>
> My 16-year-old is talking to me now, asking for help—he used to say 'you don't know'.

The role of LLN skills in parental involvement in the educational lives of their children has been confirmed in several research projects.[74]

[74] Research shows that there is a very strong relationship between parents' education levels and the reading levels of children (Mullis et al, 2007). Other studies (Bynner and Parson, 2006; Bynner et al, 2008) show the link between low basic skills of parents and the cognitive development of their children. De Coulon, Meschi, and Vignoles (2008) in their UK study show a measurable positive correlation between parents improving their literacy, language, and numeracy skills and higher achievements by their children. These studies note that parents with UK entry level (1, 2, or 3) skills were the least able to support their children's educational development. However, they strongly suggest that interventions that help parents to raise their skills can help to break intergenerational cycles of disadvantage and support interventions for underachieving children.

Computer ownership and access

One particular point of interest in this evaluation was the high rate of computer ownership and home internet connection among the participants. Around two-thirds of the participants said they owned a computer, with most of these people also having internet access (usually broadband).

Although there was high computer ownership, the actual use of computers by participants was limited—'the kids use it' was a common comment. Where respondents did use a computer, most used it for accessing the internet—with *Trademe* quoted as a popular site—email, and music. However, many participants showed considerable, albeit cautious, interest in learning more about the computer.[75]

Given that computer skills were only a very small part of the courses, it is not surprising that patterns of computer use changed little post-course. However, where computing skills were taught, the impact on a few individuals was marked:

> It's broadened my perspective. It has opened up the net for me.
> I wouldn't have done this without the course.

7.2 Links between literacy, language, and numeracy skills and learners' personal lives

Those who reported that their reading and writing had improved were more likely to say the course had had a positive effect on how they thought about themselves.

Around three-quarters of those who thought their reading and writing had improved also thought the course had changed how they thought about themselves. In comparison, around half of those who thought their reading and writing had not improved, thought the course had changed how they thought about themselves.

Those who spoke English as a second language and who thought their speaking had improved were more likely to say the course had changed how they thought about themselves and how they related to friends and family.

Eighty-six percent of those who thought their speaking had improved a lot also thought the course had changed how they thought about themselves. In comparison, 58 percent of those who thought their speaking had improved a bit or not at all, thought the course had changed how they thought about themselves.

There was no relationship between improvements in reading or writing scores and whether the course had changed how participants thought about themselves or how they related to friends and family. As discussed in section 4, while reading and writing *scores* improved on average, is not clear whether these

[75] International research shows that information and communication technologies are a powerful motivator in engaging adult learners (Mellar et al, 2004). In addition, Bynner et al (2008) have highlighted the importance of computer skills to employability. Their evidence shows that lack of access to computers together with poor literacy skills have a negative impact on adults' employability.

reading and writing *skills* actually improved overall. If these skills did not improve for a substantial minority of learners, a relationship between reading and writing test scores and degree of personal impacts would be unlikely.

Although there was no statistical relationship between improvement in reading and writing scores and the degree of personal impact, there were relationships between self-reported improvements in LLN skills and degree of personal impacts.

Overall, however, the links between self-reported improvement in LLN skills and impacts in learners' person lives were generally modest.

7.3 Links between impacts in learners' work and impacts in their personal lives

Participants who said the course had changed how they thought about themselves were more likely to think they were doing their job better and vice versa. Ninety percent of those who said the course had changed how they thought about themselves also thought they were doing their job better. In comparison, 60 percent of those who said the course had not changed how they thought about themselves thought they were doing their job better. Three-quarters of those who thought they were doing their job better thought the course had changed how they thought about themselves. In comparison, one-third of those who thought they were not doing their job better thought the course had changed how they thought about themselves.

7.4 Conclusion

Although the main purpose of the evaluation was to find out more about changes in the workplace, wider social outcomes were also investigated. The impacts on individuals and the links between improved LLN skills and outcomes such as increased confidence are important, as they are likely to underpin broader behavioural changes.

The most commonly reported change in how participants thought about themselves was related to increased self-confidence.[76] Increases in confidence are probably the most frequently reported outcome in LLN evaluations, irrespective of their context. It is not clearly understood how confidence is developed[77] or which specific aspects of LLN promote confidence, but Eldred (2002, p 22) notes that 'any gains, no matter how small, in literacy skill, knowledge, understanding or application appear to contribute to confidence'. Conversely, Westell (2005, p 8) concludes from her review of the literature that 'it is clear that self-confidence [is] crucial to learning'.

A broad body of research shows a strong interconnectedness between soft outcomes and other spheres of people's lives.[78] While it is true that personal impact does not always generate commensurate impact elsewhere, it is difficult

[76] Participants were asked how confident they were about doing their job, but were not specifically asked about levels of personal self-confidence. Levels of confidence at work improved slightly.

[77] Eldred (2002) quotes Covington (1992) whose research shows that key to confidence building is the need to avoid earlier failures, which probably resonates with LLN learners in particular.

[78] Bynner et al (2001); Schuller et al (2004).

to envisage people changing their behaviour unless it is accompanied by changes at a more personal level. As one learner commented:

> I'm confident now. Before that someone told me something I didn't understand I would just ignore them, but now I can ask them to explain.

Since completing their courses, some learners have gone on to do different things outside work or to take on increased responsibility within groups they were already involved with—changes that in some cases were identified as linked to improved LLN skills or confidence. These may be small changes to people's lives, but they need to be put into the context of their demanding jobs and the busy lives people lead outside of work.

In many cases, learners believed the courses helped to improve their relationships with family and friends. Participants reported they used their improved oral communication skills to better engage, listen, and speak to their children and partners and to participate more confidently in their wider communities.

There were statistical links between self-reported improvement in LLN skills and impacts in learners' personal lives, and those who said the course had changed how they thought about themselves were more likely to think they were doing their job better.

Overall, the impact of the courses on a personal level outside work and on participants' relationships with family members and their activities in their communities could be viewed as modest. However, when considered alongside the changes in their work practices, the findings support other research that impacts generated in one context can bring about changes in other aspects of people's lives.[79]

[79] Sticht's (2002) double-duty dollars and Sabates' (2008) public-value pay-offs.

8 SUMMARY

The Upskilling Partnership Programme was a three-year initiative of the Department of Labour between July 2006 and June 2009. It was designed in response to New Zealand's low productivity by OECD standards and international survey evidence about the high numbers of working-age adults without the level of literacy and numeracy skills to fully meet the demands of sustained employment and active participation in society. The programme was developed to increase the engagement of employers in workplace literacy programmes and to evaluate the impact of these programmes.

The Department, through the Upskilling Programme Office, established 15 partnerships with companies throughout New Zealand, covering a variety of industries, locations, programme types, and learners. Eighteen workplace literacy courses across the 15 partnerships were included in the evaluation.

The courses were delivered by providers external to the companies and were tailored to the needs of the company. Most participants attended their courses in work time; the remainder were evenly split between attending outside work time and attending both during and outside work time. Most were paid to attend. The courses varied in the number of hours of instruction offered to participants from 20 to 100 hours. On average, participants received around 35 hours of instruction.

The programme was to be fully evaluated. The objectives of the overall evaluation were initially to:

- test the viability of a range of approaches to set up and run LLN programmes in New Zealand workplaces
- monitor the relationship between changes in learner LLN skills and downstream changes in the workplace
- evaluate the effectiveness, costs, and benefits of these approaches
- assess these programmes' potential to contribute to New Zealand's productivity agenda.

As with most longer-term evaluations it became clear that some objectives were not achievable due to the limitations of available methodologies and changes to the evaluation approach in response to challenges that emerged as the evaluation progressed. The evaluation addressed the first three objectives.

Running effective LLN programmes in workplaces is challenging for a variety of reasons that reflect the complexities of workplaces and the nature of LLN skill development. These challenges included but are not limited to:

- obtaining key stakeholder commitment
- locating high-quality course tutors who can deliver appropriate teaching content in effective ways
- overcoming the stigma associated with LLN for individuals, and identifying appropriate publicity and selection processes
- fitting course logistics around the demands of workplaces, while achieving consistent course attendance

- transferring newly acquired skills into participants' jobs.

Large multi-method evaluation

A large scale multi-method evaluation was undertaken over a three-year period. This was an ambitious study in the international context, given the limitations of existing knowledge about the impact of workplace literacy provision. Course participants' reading and writing skills were assessed before and after the course using the National Research and Development Centre for Adult Literacy and Numeracy's *Go*! instrument designed to measure changes in the skills of learners with low level literacy skills. Very few participants had their numeracy skills assessed due to a lack of numeracy content in the courses. Of the 491 participants interviewed and tested pre-course, 343 were re-interviewed post–course, and the 280 whose reading skills were assessed pre-course as being at IALS/ALL level 2 or below were re-tested. Information on course attendance was also gathered. The assessments were supplemented with detailed quantitative and qualitative information gathered through interviews with course participants, supervisors, and managers.

Limitations of the evaluation

The study had considerable methodological strengths, including the large number of participants recruited for the evaluation and the large proportion that was successfully re-interviewed and assessed. However, some factors limited the ability to analyse, draw conclusions, and attribute changes to specific features of the course or to the programme overall. First, it was not feasible to accurately determine the specific LLN content or quality of each course to enable the relationship between the specific literacy intervention and outcomes to be investigated across all courses. Secondly, it was not feasible to include control groups, and instead a 'quasi' experimental method was used to try to establish that the courses improved skills. Thirdly, because the courses generally involved too few learners (less than 30),[80] it was not possible to reliably estimate the impact of individual courses on participants' LLN skills. As a consequence, the main results have been reported only at the overall programme level.

Little conclusive empirical evidence that the courses improved reading and writing skills

Overall, small and medium statistically significant improvements in participants' average writing and reading scores were found. Very little of the variation in the change in pre- and post-course score could be attributed to the observed characteristics of participants or courses; nearly all demographic groups improved significantly, as did participants in most courses on average.

In the absence of information on the LLN content and quality of courses, the outcomes of those who received very little tuition (which in most cases was due to low attendance) was compared to those who received more. The reading and writing scores of those who received less than 20 hours (individuals from 10 courses, who received an average 12 hours' tuition) were found to have improved as much as those who received more tuition (an average 40 hours).

[80] Although these numbers were well above average for typical workplace LLN programmes at the time.

This was the case for those both who spoke English as a first language and those who spoke English as a second language. There was only a very weak association between improvement in writing and reading scores.

It seems unlikely that the reading and writing skills of those who received very little tuition would have improved[81] and the significant improvement in test scores of those who received a small number of hours is puzzling. Given that the scores of those who received many more hours improved no more on average than those who received very few hours, it appears that although average test scores improved overall, the reading and writing skills of learners may not have improved.

One possible explanation for the improvement in scores among those who received very little tuition, is that even small amounts of tuition are sufficient to re-activate dormant or rusty skills. If this is the case, then it those who received substantially more tuition did not improve any more, and courses where learners attended an average of 12 to 20 hours were as effective as those where learners attended an average of 40 to 60 hours.

Findings consistent with international evidence

Internationally, there have been few other studies on the impact of workplace LLN training on learners' LLN skills. The most recent comparable research is that by Wolf and Evans (2009) who found only small improvements in average reading scores one to two years post-course completion. They concluded there was no evidence that participation had improved reading skills. The improvement observed for those who spoke English as a first language was small and not statistically significant, and the larger gain among those who spoken English as a second language could not be clearly attributed to participation in the programme. The intervention differed from the Upskilling Partnership Programme in that the learning material was not contextualised to the workplace and literacy skills were re-assessed 12 and 30 months post-course completion, rather than around one month post-course.

Many participants reported improved literacy, language, and numeracy skills

Reading and writing skills were the only outcomes to be tested with a formal quantitative assessment tool. Participants were asked to rate their reading, writing, speaking, and listening skills in the pre- and post-course interviews and many were also asked whether they thought their skills had improved.

Many participants reported improvements in their LLN skills. Those who spoke English as a second language were much more likely to report their skills had improved. Around 90 percent reported their reading, writing, spelling, speaking, and listening skills had improved. In comparison around 40 percent of those who spoke English as a first language reported that their reading and writing skills had improved, and 55 percent said their listening and speaking skills had improved. Many participants also reported their maths skills had improved even though there was very little focus on numeracy in the courses.

[81] The consensus in the literature is that around 100 hours of literacy tuition is generally needed before a majority of participants show material progress in reading comprehension skills.

There was no statistical association between improvement in reading scores and self-assessed improvement in reading or between improvement in writing scores and self-assessed improvement in writing.

Participants were positive about the course and its wider impacts

Eight in 10 participants reported that the courses had a positive effect on their job performance. Seventy percent of participants identified something they had learnt on the course that they had been able to apply to their job and around three-quarters of these examples related to LLN skill areas. Most frequently, they reported tasks requiring oral communication, reading, and writing (mainly related to filling in forms) skills. Other common examples given were improved relationships at work and tasks requiring numeracy skills (although not a specific focus of the courses).

Overall, learners reported small improvements in job confidence and satisfaction and larger improvements in their confidence speaking in a range of workplace situations. They also reported a small improvement in communication between managers and staff. Half of the participants reported that their course had changed how they felt about their job.

While the main purpose of the evaluation was to find out about changes in the workplace, other outcomes were also explored. The impacts on individuals and the links between improved LLN skills and outcomes such as increased confidence are important, as they are likely to underpin broader behavioural changes, including self-belief in being able to complete tasks.

Some learners have gone on to do something different outside of work or to take on increased responsibility within groups they were already involved with. In some cases, learners linked these changes to improved LLN skills or confidence. Many learners said the courses had helped to improve their relationships with family and friends.

There were links between self-reported improvement in LLN skills and impacts in learners' personal lives, and those who said the course had changed how they thought about themselves were more likely to think they were doing their job better.

Participants were asked whether they planned to undertake further study or training. A few were carrying on with their trade qualifications, around half expressed interest in further training, a third said they had no plans for further study, and the remainder were unsure. Of those who expressed an interest in further training, only a third had identified a specific course and provider.

Supervisors were mostly positive about the course

Information collected post-course from supervisors provided another perspective on the impact of the courses on learners' work practices. However, the information collected was limited and not collected for all courses. Overall, supervisors reported that around 60 percent of participants showed improvement in each aspect of work practices assessed, including team work, attitude, initiative, ability to work without supervision, willingness to attempt new tasks, and completion of paperwork. Average ratings improved between pre- and post-course interviews by around one point on a 10-point scale.

Managers reported the course had positive impacts

Managers' motivations for introducing LLN courses were driven more by the desire to solve everyday issues than directly by concerns about productivity or profitability. They wanted to improve communications between workers and between workers and their supervisors, improve attitudes towards work and training, and improve health and safety practices. Reducing cost by reducing errors and re-runs was a more common driver than having to cope with new and existing technology and encouraging innovation. In terms of more specific LLN related objectives, managers wanted to improve the oral communication and reading and writing skills of their employees, improve paperwork and problem solving, and increase self-confidence.

There was strong support from managers who generally said the course had increased participants' personal confidence, communications with other workers, interest in doing training, job confidence, attitudes towards work, communication with managers, and team work. Two-thirds said the course had increased participants' understanding of health and safety, quality of work, compliance with health and safety, and completion of paperwork. Around a half said the course had increased participants' ability to work independently, improved attendance at work, efficiency, accuracy of paperwork, initiative, inter-cultural understanding, and speaking at meetings. One-third said the course had improved participants' problem-solving ability and ability to provide feedback. In most cases, managers said there had been some impact rather than a lot of impact. The exceptions were in the areas of personal confidence and communications with other workers, where around half said the course had had a lot of impact.

In terms of impact on their companies' performance, around half of the managers reported impacts on staff morale/satisfaction, work quality, work throughput, participation in training, and staff retention. Slightly fewer reported impacts on internal promotion and communication with clients. Two said there had been some impact on the company's competitiveness. In nearly all cases, they said there had been some impact rather than a lot of impact. Around a third felt unable to comment in each case, with nearly all unable to comment on the impact of the course on company competitiveness. It is clear companies expected to observe a more direct impact on employees than on company performance.

Managers were also asked to identify the most important things they had learned from running the courses. They stressed the importance of high-quality providers and tutors who were flexible and able to contextualise the course content to the learners' work and the need for support at all levels in a company, including practical support, such as providing extra cover for staff so they could attend sessions.

Managers said the government funding available through the Tertiary Education Commission was an important factor in their decision to run programmes. Several commented that they would not contemplate running these programmes without it.

Outside the formal evaluation, researchers noted the different paths that companies took after the initial courses. Several factors influenced company

decisions, including the extent to which the LLN courses were seen as successful, companies' degree of satisfaction with the provider, and the culture of learning and development in the company. In some cases, events within the companies that were unrelated to the courses have impinged on further developments. For example, key managers responsible for training left and the economic downturn adversely affected some company operations and training programmes.

Most of the companies acknowledged that the level of LLN need in their companies was greater than they had originally thought. Three-quarters have gone on to run further courses, and most have fine-tuned how they are run and the selection of employees best suited to them. Some have integrated LLN into their ongoing operations and training programme, including reviewing company documentation and processes, such as induction training. The companies that have not gone on to do anything further had a variety of reasons. Unsurprisingly these companies' courses were generally considered less successful by managers than those where further developments have occurred.

Little relationship between test results, participants and supervisors' assessments

There was no association between measured improvements in reading and writing scores and supervisors' ratings of job performance. There was only a weak relationship between improvements in reading scores and self-rated improvements in job performance, and no relationship with increases in writing scores. There was no link between self-reported job performance and supervisors' assessments. This may reflect that the participants and supervisors were focused on different outcomes.

More is known about literacy, language, and numeracy programmes in workplaces

The evaluation successfully addressed three of the initial research objectives to varying degrees.

Viability of different approaches for setting up and running literacy, language, and numeracy courses in workplaces

The Upskilling Partnership Programme involved a wide variety of employers, courses, and participants. The evaluation found that no one model of LLN provision fits all companies, but workplace LLN courses are generally viable in New Zealand across a variety of industries and company types. Clearly, some courses ran more successfully than others. The factors important in ensuring the success of LLN courses are:

- a strong commitment from the company at all levels, especially from supervisors
- a solid understanding by all involved of the course aims, how the course works, the outcomes expected, and the course demands on a daily basis
- joint planning processes between the company and the provider from the outset
- clear delineation and understanding of everyone's roles and responsibilities; companies need a manager of sufficient status and mana within the

workplace to take prime responsibility for the programme and be the main point of contact with the provider

- ongoing and frank communication between the company manager responsible for the programme, the provider, and the tutors
- a flexible provider and tutor(s) who provide relevant and focused teaching content
- regular, two-way feedback between the company and the provider/tutor(s) on the course's progress and liaison with supervisors about skills learned on the course and their utilisation in the workplace.

When courses have adhered to all or most of these principles and strategies, they have run reasonably smoothly, even against a background of the considerable and often unpredictable demands of everyday life in workplaces. Courses lacking in these qualities have struggled with low attendance rates, and poor learner motivation, and achieved low levels of impact.

Effectiveness of different approaches

Overall test scores for reading and writing showed moderate and small statistically significant improvements. Courses varied markedly in key dimensions such as the focus, content, length, format, and provider experience. Participants also varied considerably in terms of their demographic characteristics, with around one-third speaking English as second language. Very little of the variation in changes in test score could be attributed to the observed characteristics of participants, with nearly all groups showing significant improvements in reading and most showing improvement in writing.

Some of the courses may have increased the reading and writing skills of participants more than the average. However, because the number of participants in each course was small, the impact of individual courses could not be reliably estimated.

Relationship between changes in learner literacy, language, and numeracy skills and downstream changes in the workplace

Course participants, supervisors, and managers were all generally positive about the impacts of the courses. In particular, improvements in communication skills were widely reported. Most participants reported that the courses had had a positive effect on their job performance, with 70 percent able to identify something they had learnt on the course that they had been able to apply to their job, and around three-quarters of these examples related to LLN skill areas.

Implicit in the Upskilling Partnership Programme model has been the assumption that a direct and immediate link exists between improving LLN skills and improving workplace practices. This evaluation has found some evidence supporting a link between self-reported improvement in language and communication skills,[82] but very little evidence of a link between improved reading and writing skills and work practices. While reading and writing scores

[82] The evidence of the links between improvement in LLN skills and improvement in workplace practices comes from improvements in skills and work practices self-reported by participants, rather than reading and writing test scores or supervisors' assessments.

improved and work practices improved overall, they did not tend to improve together. It may have been the acquisition of other skills and knowledge (not related closely to reading and writing skills) that led to the improvement in supervisors' rating of learners' work practices. While it is not clear which were the skills acquired by learners that led to improved work practices, practices did improve from the perspective of learners, supervisors, and managers.

9 GLOSSARY

ALL—Adult Literacy and Life Skills Survey; a national language, literacy, and numeracy survey conducted by 12 countries between 2003 and 2009.

Contextualised courses—course content based on issues, examples, and documents from the learner's everyday contexts, predominantly from the workplace, but also from outside work.

Effect size—(Cohen's *d* effect size) a way of quantifying the size of the difference between two groups. It is particularly useful for quantifying the effect of an intervention relative to a comparison. The average effect size for educational interventions is 0.4 (Hattie, 2009).

Embedded language, literacy, and numeracy —where the course's prime focus is on a specific body of knowledge or skills (eg, supervision) and the tutor incorporates language, literacy, and numeracy into all aspects of the teaching as appropriate.

Formative evaluation—the critical review of programmes while they are being planned and developed; the feedback is given to the programme planners and tutors to improve their programmes as they run.

IALS—International Adult Literacy Survey; a national language, literacy, and numeracy survey conducted by 23 countries and regions between 1994 and 1998.

Literacy—"the written and oral language people use in their everyday life and work; it includes reading, writing, speaking and listening. Skills in this area are essential for good communication, critical thinking and problem-solving including building the skills to communicate (at work) for speakers of other languages" (TEC, 2008, p 6). Often used as a synonym for literacy, language, and numeracy.

Literacy needs assessment—a process (usually carried out by the provider) of assessing key processes in a company that involve language, literacy, and numeracy demands and assessing the workers' skills in relation to these processes. This assessment provides the basis for planning an language, literacy, and numeracy course.

Low literacy—**IALS** or **ALL** level 1 or level 2

LLN—literacy, language and numeracy (includes listening, and spoken and written language).

Numeracy—the bridge between mathematics and real life. It includes the knowledge and skills needed to apply mathematics to everyday family and financial matters, work and community tasks.

Oracy—by analogy with literacy, 'oral literacy'. The ability to speak and understand spoken language; a measure of this ability.

Outcomes—the changes that occur in participants resulting from the programme activities; they are usually categorised in terms of knowledge, skills,

or attitudes and can be initial, intermediate or long-term according to the amount of time since the programme.

Partnership programme—refers to all workplace language, literacy, and numeracy initiatives (including courses, but not limited to them) organised by the Upskilling Programme Office based in the Department of Labour.

Process evaluation—the monitoring of key events in a programme against what was planned originally; helps to inform why programmes produce the results that they do.

Productivity—the amount of output produced from a given set of inputs; drivers of increased productivity include labour and skills, innovation, technology, and workplace organisation.

Programme—a broad range of educational initiatives including courses, but also broader aspects of training policy, assessment processes and managing language, literacy, and numeracy related issues (eg, company documentation).

Provider—the organisation or institution that plans, organises, and teaches courses. Providers can be government agencies (eg, institutes of technology and polytechnics) or private organisations (e,g, private training establishments or private companies), although the latter may still receive government funding.

Reading levels—in this report two types of reading level are referred to: **IALS** and **ALL** (based on the OECD national surveys done in 1996 and 2006—full information about these studies can be found at: www.educationcounts.govt.nz/publications/assessment/16731 and the UK levels. These levels cover the same ranges, but are titled differently: UK Level 1 = IALS/ALL level 2 and UK Level 2 = IALS/ALL level 3. IALS/ALL level 1 is broken down into three UK sublevels: Entry level 1, Entry level 2 and Entry level 3. With IALS/ALL levels the following is the case.

- Level 1 literacy tasks require the ability to read simple documents and accomplish literal information-matching with no distractions. This equates to very low skills and problems even with simple and familiar documents.
- Level 2 literacy tasks demand the capacity to search a document and filter out some simple distracting information and make low-level inferences. This equated to low skills and problems with unfamiliar text, but an ability to read straightforward and familiar documents.
- Level 3 literacy tasks involve more complex information-filtering, sometimes requiring inferencing. This is the minimum level needed to fully meet all the everyday demands of modern work and life.
- In brief, people at IALS/ALL levels 1 and 2 are likely to have difficulty with aspects such as reading and understanding written instructions, using training manuals, filling in forms, understanding basic graphs and charts, and reading measurements.

Statistical significance—several statistical processes can be used to determine statistical significance. The F statistic is calculated in an analysis of variance (ANOVA). ANOVA is a way of looking to see whether statistically significant differences exist between the means of two or more groups on a particular variable (or group of variables). If there is only one variable and two groups, it is

the equivalent of a t-test. The null hypothesis is that there is no difference between the means of the groups. With a $p < 0.05$, we reject the null hypothesis and say that this outcome (eg, the increased scores) is likely to have been the result of the intervention and not a chance event or a result of noise in the data.

Summative evaluation—the measurement of the outcomes or effects that a programme achieves after it is completed.

Workplace practices—how participants carry out their jobs on a day-to-day basis, including completion of paperwork, other work tasks requiring numeracy skills, communicating in the workplace, working as a team, managing other staff, and following health and safety procedures.

APPENDIX: SUPPORTING INFORMATION

Table A1: Description of the 18 courses evaluated

No.	Description of course
1	The 13 participants worked in the payroll and human resources department and received emails and phone calls with queries about pay and related matters. Two-thirds of participants were female and had an average age of 41. Participants were from a variety of ethnic backgrounds and eight spoke English as a second language. All but one had a school qualification and nine had a tertiary qualification, including seven with a degree. The course aimed to increase the level of employees' oral communication skills; develop job-related writing skills in relation to email etiquette, grammar, sentence construction, and the use of formal vocabulary; and develop employees' ability to communicate clearly over the telephone. The 24-week course was held in work time and ran for one hour per week. Teaching sessions were a mix of one-to-one sessions and groups of two or three learners. Participants attended for an average of 20 hours.
2	The 21 participants worked in a variety of occupations. Their duties include care giving, housekeeping, nursing, reception, and housekeeping duties. Participants were all female with an average age of 46. Around 60 percent spoke English as a second language. Two had school qualifications and seven had tertiary qualifications, including two with a degree. The course aimed to improve the writing of progress notes, incident reports, and care plans; improve interactions between staff and clients; and improve knowledge and use of the company's computer-based management system. The course was run in four 10-week blocks for one hour a week. Sessions were one-to-one tuition, and sessions were taught half in work time and half in the participants' own time. Participants attended for an average of 38 hours.

No.	Description of course
3	The 10 course participants were employed as supervisors, carpenters, machine operators, and general labourers, and one was an apprentice. Participants were all male with an average age of 43. Seven participants were Māori and three were New Zealand European. Four participants had a school qualification, and three had a tertiary qualification at certificate level. The course aimed to improve supervisors' communication skills so they could give more accurate and clearer instructions; develop supervisors' confidence in their decision-making ability; reduce the number of timesheets inaccurately filled in; and improve numeracy skills to enable workers to carry out workplace tasks involving numeracy. The course provided two hours of learning per week over 35 weeks. Participants had one-to-one teaching or were taught in groups of two or three. Teaching took place in work time. No attendance data was supplied for this course.
4	The eight participants were employed as labourers, machine operators, butchers, meat packers, meat graders, freezer workers, and labellers. Six participants were female. Participants had an average age of 40. Seven participants were Māori and one was New Zealand European. Four participants had a school qualification and three had a tertiary qualification. The course aimed to increase employees' understanding of their responsibilities and how they contribute to the company, particularly in relation to reducing remakes; increase understanding of quality assurance and health and safety; and improve literacy and numeracy skills to ensure employees were working efficiently. The course was taught in work time and provided two hours of learning per week over 35 weeks. Most teaching was one to one. No attendance data was supplied for this course, but the provider estimated an overall attendance rate of 65 percent or 45 hours on average.

No.	Description of course
5	This course involved a cluster of three companies in the same city and was coordinated by an industry-specific non-profit organisation set up to address the workforce and skills needs of its members. The programme was delivered by the same training provider at each site. The 10 participants were employed as a machine operator, a printing assistant, a printing apprentice, a trainee dye-setter, a storeperson, an apprentice engineer, and a leading hand. Seven participants were male and there was an average age of 32. Six spoke English as a second language. Seven participants had a school qualification and three had a tertiary qualification. The course aimed to improve employees' literacy, numeracy, and communication skills, so they could carry out workplace tasks effectively and efficiently; increase effective communication in the company; improve critical thinking and problem-solving abilities; help learners to complete New Zealand Qualifications Authority standards. Learners were taught one to one, on-site for one hour per week for 48 weeks. Two companies ran the programme during work hours and the third ran it mainly outside work hours. Participants in the third company were initially paid to attend class, but later were not paid. Participants attended for an average of 32 hours.
6	This course was developed to help overseas-trained nurses improve their English as a step towards achieving registered nurse status in New Zealand. Most of the 32 participants worked as caregivers and healthcare assistants. Twenty-five were women and the average age of participants was 40 years. Participants all spoke English as a second language. Sixteen were Samoan, nine Fijian, four Tuvaluan, and three Tongan. All of the participants had trained and qualified as registered nurses in a Pacific Island. The course aimed to improve the participants' English skills, so they could meet the English language requirements of the New Zealand Nursing Council. A polytechnic delivered the course at the polytechnic. Sessions were for four hours over 14 Saturdays with optional tutorials on two evenings a week. The participants were taught in two classes. Participants attended for an average of 52 hours.

No.	Description of course
7	The 26 participants consisted of 15 women and 11 men and had an average age of 40. Their occupations included machine operator, packers and process workers. Participants came from nine different ethnic backgrounds and just over half were Pasifika. Nineteen participants spoke English as a second language. Six participants had a school qualification and 11 had certificate-level qualifications. The course aimed to improvement in basic competencies at work; general English skills (ESOL), literacy and numeracy and general communication skills. The course ran on-site in work time for 52 weeks (one hour per week), but learners attended the course only for the number of weeks it took them to achieve their learning goals. The average number of hours offered was 37 and the participants attended 28 hours on average. Learners were taught one to one, in pairs, or in groups of three or four.
8	The 17 participants were employed in a meat processing and packaging plant, and consisted of 15 men and two women and had an average age of 34. Seven participants were Pasifika, six were New Zealand European, and four were Māori. The seven Pasifika participants spoke English as a second language. Nine participants had school qualifications. The company targeted two groups of workers for the course; Samoan employees for whom English was a second language and leading hands or similar. Course aims for the Samoan group were to improve foundation skills, improve construction of email messages, understand error messages on machinery, and build capability and confidence. Course aims for the leading hands were to improve communication skills, improve leadership skills, and learn strategies for encouraging training and development of employees in their teams. The course provided two hours' teaching twice a week for 28 weeks (a total of 112 hours), and learners were taught in small groups. Initially, the course was taught on-site but later it was taught in a rugby club hall. Participants attended mainly on their days off, and were paid for attending. Participants attended for an average of 44 hours.

No.	Description of course
9	The 14 participants consisted of ten men and four women with an average age of 33. Five participants were Pasifika, two were Māori, one was New Zealand European, and six were from other ethnic groups. Nine participants spoke English as a second language. Most participants had school qualifications, and one had a tertiary qualification. They worked in a wool-processing plant, and their jobs involved dyeing, carding, spinning, and finishing wool. This course had two parts: a computer course and an LLN course. The course aimed to increase staff satisfaction and loyalty; help staff progress in the company; give staff basic computer skills; improve oral communication skills of staff for whom English was a second language; improve communication generally; develop numeracy skills; and assist staff with industry training courses. The course was offered partly in work and partly outside work hours. The course involved one hour per week in work time and one-hour per week outside work time. Six participants were offered 70–85 hours, five were offered 40–50 hours, and the three on the computer course were offered around 12 hours. An average 44 hours were offered and participants attended an average of 42 hours.
10	Of the 12 participants, seven were men and five were women. Participants had an average age of 32. Ten participants were Brazilian and two were Korean. All participants spoke English as a second language. Nine participants had a school qualification. Three participants had a degree, three had a vocational qualification, and three had started but not finished a degree. The participants did a variety of jobs in a seafood-processing company, including working on the production line, grader driving, and cleaning. The course aimed to improve participant's ability to read job-related information; communicate key information in writing and orally; perform numerical job-related tasks; and understand and follow instructions. The course ran in work time for 21 weeks with two hours' tuition per week. Learners were taught in small groups. Participants attended an average of 23 hours.
11	Six participants were interviewed before and after the course. Participants were five women and one man, who worked in different roles in the hospitality sector. Participants had an average age of 30. Four participants were Māori and two were New Zealand European. The course had the LLN content embedded into the teaching of hospitality skills relevant to the participants' work roles. The course aimed to improve LLN skills, increase confidence at work, obtain New Zealand Qualifications Authority qualifications, improve safety at work, and increase participants' ability to take responsibility in their work. The course was taught in small groups or one to one, on-site, for an hour once a fortnight over 40 weeks. No attendance data was supplied.

No.	Description of course
12	Thirty-one participants were female and seven were male. Participants had an average age of 47. Thirty-five participants were Pasifika, two were Indian, and one was New Zealand European. Participants were predominantly speakers of English as a second language. About a third had a school qualification. They were mainly employed as supervisors in a laundry services company. This course consisted of two phases: a supervisory course with embedded LLN and a LLN training course. The LLN course aimed to improve communication skills, reading, writing (vocabulary, spelling, grammar, and sentence structure) and numeracy. It was designed to include three units standards (reading texts, write an incident report, simple calculations). The course was delivered to small groups of up to eight learners. In the first phase, training was delivered in 10 modules of 3.5 hours by in-house trainers. The second phase ran for two hours a week for 28 weeks, and was taught by external LLN training providers. Training was in paid work time and on-site. Participants attended an average of 59 hours.
13	Fifty participants were men and eight were women. Participants had an average age of 43. Thirty-two participants were New Zealand European and 26 were Māori. Forty-one participants had no school qualifications. Participants were predominantly supervisors or leading hands, seen as potential supervisors. The main focus of the course was leadership skills with literacy, language and numeracy skills embedded into the content and to help participants to achieve unit standards. The course was an embedded LLN course that consisted of two full days, then six to eights weeks' project work, then a further two days. Participants were taught in small groups of six during work time. Participants attended an average of 31 hours.
14	Thirty-one participants were included in the before- and after-course interviews. All but two participants were male. Participants had an average age of 43. Twenty-four participants were New Zealand European and seven were Māori. Twenty-two had no school qualification. The course was aimed at front-line staff employed as drivers, labourers, drain-layers, hammer-hands, and carpenters. The course was an embedded LLN course which aimed to build individual communication and personal awareness skills. As part of the course, participants were enrolled in an industry-specific national certificate course. The course was taught in small groups and involved four full days over a 3-week period. (Days 2 and 3 were taught on consecutive days a week after day 1, and day 4, two weeks later.) On average participants attended 29 hours.

No.	Description of course
15	The 17 course participants worked for a roading company. Their occupations included driver, labourer, drain-layer, hammer-hand, and carpenter. Sixteen participants were male and one female. Participants had an average age of 37. Four participants spoke English as a second language. Thirteen participants were Māori, two were Pasifika, and two were from other ethnic groups. Ten participants had no school qualifications. The course aimed to develop employees' ability to communicate clearly with team members and customers, improve team leaders' skills, develop employees' ability to anticipate problems and identify solutions, increase accuracy and reduce errors made in forms, and improve literacy and numeracy skills. The course took place during work time, and involved one-to-one teaching for one hour a week for 26 weeks. Participants attended an average of 12 hours.
16	This course took place in a manufacturing company, where participants worked for a plastics manufacturing company, sorting plastics, processing, and operating machinery. All of the eight participants were male with an average age of 54. Five participants were New Zealand European and three were Māori. Five participants had no school qualifications. The course aimed to improve communication among staff (listening and speaking), reading and writing skills (understanding policies, complete incidence forms, charts and production sheets), awareness and compliance with health and safety. The course was for 31 weeks, and involved one-to-one tutoring for an hour once a week. The course was delivered on-site in paid work time. Participants attended an average of 18 hours.
17	The 15 course participants were all male and had an average age of 29. Six participants were New Zealand European, five were Māori, and four were Pasifika. Three participants spoke English as a second language. Eight participants had no school qualifications. Participants worked as a carpenter, apprentice carpenter, labourer, driver, hammer-hand, and drain-layer. The course aimed to build workplace numeracy skills, build workplace vocabulary, increase understanding of purpose of forms and how to fill them in correctly, improve understanding of workplace health and safety, and help employees to complete unit standards. The course was taught in small groups and ran during work time for two hours a week for 20 weeks. Participants attended an average of 33 hours.

No.	Description of course
18	The seven participants worked in the tourism industry, four were women and three were men. Participants had an average age of 40. Six participants were Māori and one New Zealand European. Two participants had no school qualifications. The course aimed to develop the foundation skills (including literacy and numeracy) necessary for employees to do their jobs effectively; identify and develop the specific literacy skills required for promotion and to fill in for absent staff; help them develop appropriate skills, so they could work towards industry training organisation training programmes or higher qualifications; improve understanding of health and safety requirements; improve computer literacy skills; and record maintenance correctly. The course involved on-site group sessions in te reo Māori at two levels, computer or 'digital literacy' off-site at the training provider's premises, and one-to-one tutoring for individual literacy or numeracy needs which varied in duration. Participants attended an average of 17 hours.

Table A2: Pre- and post-course interviewees compared with pre-course only interviewees

Characteristic	Pre-course	Pre- and post-course	Pre-course only	Difference
Number	491	343	148	
Average rating of the company	4.75	4.83	4.55	Those re-interviewed were more likely to rating the company more highly (p=.008)
Average age (years)	39	40	38	
		Percentage (%)		
Age				
16–24 years	12	9	20	Those re-interviewed were older on average (p = 0.028)
25–34 years	21	22	19	
35–44 years	29	32	21	
45–54 years	22	24	16	
55–64 years	9	8	9	
65+ years	1	1	1	
Missing	6	3	14	
Ethnicity				
Māori	32	28	41	Those re-interviewed were less likely to be Māori (p=.026)
Pasifika	27	29	24	
New Zealand European	26	27	23	
Asian	8	9	7	
Other	6	7	5	
Tertiary qualifications				
None	49	43	61	Those re-interviewed were more likely to have tertiary qualifications (p=.011)
Incomplete	8	7	9	
Certificate	8	9	6	
Diploma	9	11	4	
Trade	7	6	8	
Degree	5	6	4	
Missing	14	17	7	
Previous workplace training in the last 2 years				
None	22	17	34	Those re-interviewed were more likely to have had workplace training in the last 2 years (p <.0001)
Induction training only	12	13	12	
Other training	22	23	20	
Induction and other training	42	45	34	

Table A3: Regression analysis of factors influencing change in reading score

				Regression							
Characteristic	**N**	**Mean**	**Standard error**	**Adjusted mean**	**Standard error**	**Estimate**	**Standard error**	**t value**	**Pr > |t|**		**Significant difference**
Intercept				0.0	0.0	1.2	5.2	0.24	0.8133		
Prior reading level											
UK level E1	31	11.5	1.5	12.5	1.8	0.3	2.1	0.12	0.9043	F(3,364) =6.5 p=.0003	Those at UK Entry level (IALS level 1) improved more than those at UK level 1 (IALS levels 2 and 3)
UK level E2	29	13.8	1.6	14.9	1.8	2.6	2.1	1.23	0.2210		
UK level E3	74	12.5	1.1	12.4	1.1	0.0	.	.	.		
UK level 1	144	8.0	0.9	7.5	0.8	-4.7	1.4	-3.35	0.0009		
Ethnic group											
Asian	27	13.4	1.7	10.7	1.9	0.7	2.2	0.31	0.7593	F(4,264) =3.9 p=.004	Those in the Other ethnic group improved less than Māori, New Zealand Europeans, Pasifika, and Asian
New Zealand European	62	8.6	1.5	12.1	1.4	2.0	2.1	0.99	0.3231		
Māori	77	8.6	1.2	11.1	1.2	1.5	1.8	0.85	0.3936		
Other	19	4.8	1.2	1.0	2.4	-8.9	2.6	-3.45	0.0007		
Pasifika	93	12.6	0.9	9.8	1.2	0.0					
Gender											
Female	107	12.5	0.9	12.2	1.1	3.6	1.5	2.49	0.0134	F(1,264) =5.5 p=.020	Females improved more than males
Male	171	8.7	0.8	8.9	0.8	0.0					

				Regression							
Characteristic	**N**	**Mean**	**Standard error**	**Adjusted mean**	**Standard error**	**Estimate**	**Standard error**	**t value**	**Pr > |t|**		**Significant difference**
School qualification											
None	141	8.7	0.9	8.9	0.8	-2.4	1.4	-1.67	0.0956	F(3,264) =3.6 p=.015	Those with higher school qualifications improved more than those with no school qualifications
School Cert / NCEA level 1	82	12.0	1.1	11.1	1.1	0.0					
Higher school qualification	37	11.8	1.8	14.3	1.7	3.4	2.0	1.71	0.0882		
Missing	18	10.3	1.7	7.4	2.4	-3.8	2.6	-1.46	0.1457		
Provider experience											
H LLN, H WP	69	12.3	1.2	12.1	1.2	12.3	4.9	2.50	0.0130	F(3,264) = 2.8 p=.038	Those in courses run by providers with experience in LLN and WP training improved more those run by providers with little experience in LLN
H LLN, L WP	124	11.1	0.9	10.5	1.0	10.6	4.9	2.18	0.0302		
L LLN, H WP	85	7.1	1.1	8.6	1.3	8.8	4.9	1.79	0.0741		
L LLN, L WP	s	S	s	s	s	0.0					

Note: H = high; IALS = International Adult Literacy Survey; L = low; LLN = literacy, language, and numeracy training; NCEA = National Certificate of Educational Achievement; s = suppressed; UK = United Kingdom; WP = workplace training.

Table A4: Characteristics of those who received less than 20 hours tuition and those who received 20 or more hours

Characteristic	Less than 20 hours	20 or more hours	Difference
Number	42	208	
Average pre-course reading scaled score	32.3	33.5	
Average pre-course writing score	13.2	15.6	
Average age (years)	38	40	
Average number of years in current job	2.8	3.4	
Average number of years with company	4.9	5.4	
	Percentage (%)		
Male	76	60	Those who received less than 20 hours were less likely to be male (p=.049)
Ethnicity			
Māori	45	20	Those who received less than 20 hours were less likely to be Māori (p=.0009)
Pasifika	19	38	
New Zealand European	12	25	
Asian	10	11	
Other	14	6	
Speak English as a second language	43	54	
School qualifications			
None	60	53	
School Certificate/NCEA Level 1	24	34	
Higher	17	14	
Tertiary qualifications			
None	64	59	
Certificate/Diploma/Trade	31	33	
Degree	5	9	
Previous workplace training in the last 2 years			
None	14	14	
Induction training only	24	12	
Other training	12	24	
Induction and other training	50	49	

Table A5: Covariate adjusted mean change in average reading scores by the number of hours of teaching received

	Total		
Hours	N	Mean	SE
1–9	16	9.7	2.5
10–19	26	10.9	2.0
20–29	30	12.1	1.7
30–39	93	10.6	1.3
40–49	26	7.3	2.0
50–59	28	9.3	2.2
60+	23	11.8	2.3

REFERENCES

Alamprese, J. A. 2009. Developing learners' reading skills in adult basic education programs. In *Tracking Adult Literacy and Numeracy Skills: Findings from longitudinal research*. S. Reder and J. Bynner (eds). London: Routledge, pp 107–131.

Ananiadou, K., Emslie-Henry, R., Evans, K., and Wolf, A. 2004. *Identifying Effective Workplace Basic Skills Strategies for Enhancing Employee Productivity and Development: Scoping and pilot study report.* London: National Research and Development Centre for Adult Literacy and Numeracy and Institute of Education, University of London.

Ananiadou, K., Jenkins, A., and Wolf, A. 2003. *The Benefits to Employers of Raising Workforce Basic Skills Levels: A review of the literature*. London: National Research and Development Centre for Adult Literacy and Numeracy.

Basic Skills Agency. 2000. *Progress in Adult Literacy: Do learners learn?* Summary report of National Foundation for Educational Research study. London: Basic Skills Agency.

Benseman, J. 2001. *Making Learning Happen: A study of teaching effectiveness in Training Opportunities*. Wellington: Skill New Zealand.

Benseman, J., and Sutton, A. 2005. *Summative Evaluation of the Manukau Family Literacy Project (2004)*. Auckland: The University of Auckland and Auckland Uniservices.

Benseman, J., Sutton, A., and Lander, J. 2005. *Working in the Light of Evidence, as well as Commitment: A literature review of the best available evidence about effective adult literacy, numeracy and language teaching*. Auckland: Auckland UniServices and The University of Auckland.

Benseman, J., and Sutton, A. 2007. *A Synthesis of Foundation Learning Evaluation and Research in New Zealand since 2003*. Wellington: Department of Labour.

Brinkerhoff, R. 2003. *The Success Case Method.* San Francisco, CA: Berrett-Koehler Publishers.

Brinkerhoff, R. 2005. *Telling Training's Story: Evaluation made simple, credible and effective.* San Francisco, CA: Berrrett-Koehler Publishers.

Bynner, J., McIntosh, S., Vignoles, A., Dearden, L., Reed, H., and van Reenen, J. 2001. *Improving Adult Basic Skills: Benefits to the individual and to society.* Norwich: Department for Education and Employment.

Bynner, J., and Parson, S. 2006. *New Light on Literacy and Numeracy.* London: National Research and Development Centre for Adult Literacy and Numeracy.

Bynner, J., Reder, S., Parson, S., and Strawn, C. 2008. *The Digital Divide: Computer use, basic skills and employment. A comparative study in Portland USA and London, England*. London: National Research and Development Centre for Adult Literacy and Numeracy.

Comings, J. 2003. *Establishing an Evidence-Based Adult Education System.* Cambridge MA: Harvard Graduate School of Education.

Comings, J. 2009. Student persistence in adult literacy and numeracy programs. In *Tracking Adult Literacy and Numeracy Skills: Findings from longitudinal research*. S. Reder and J. Bynner (eds). London, Routledge, pp 160–176.

Daloz, L. 1986. *Effective Teaching and Mentoring.* San Francisco, CA: Jossey-Bass.

De Coulon, A., Meschi, E., and Vignoles, A. 2008. *Parents' Basic Skills and Their Children's Test Scores.* London: National Research and Development Centre for Adult Literacy and Numeracy.

Department of Labour. 2004. *The New Zealand Settlement Strategy in Outline*. Retrieved 4 February 2008 from www.immigration.govt.nz/NR/rdonlyres/7137ABC7-9569-4BAE-BB09-227914CECE50/0/NZImmigrationSettlementStrategyOutline.pdf.

Earle, D. 2009. *Skills, qualifications and wages: An analysis from the Adult Literacy and Life Skills survey*. Wellington: Ministry of Education.

Eldred, J. 2002. *Moving on with Confidence: Perceptions of success in teaching and learning adult literacy*. Leicester: National Institute of Adult Continuing Education.

Feinstein, L., Budge, D., Vorhaus, J., and Duckworth, K. 2008. *The Social and Personal Benefits of Learning: A summary of key research findings*. London: Centre for Research on the Wider Benefits of Learning, Institute of Education, University of London.

Finlay, I., Hodgson, A., and Steer, R. 2007. Flowers in the desert: The impact of policy on basic skills provision in the workplace. *Journal of Vocational Education and Training* 59(2): 231–248.

Gray, A. 2006. *Upskilling through Foundation Skills: A literature review*. Wellington: Department of Labour.

Gray, A., & Sutton, A. 2007. *The Workplace Literacy Fund: A review*. Wellington: Gray Matter Research.

Hattie, J. 2009. *Visible Learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.

Heimlich, J. E., and Norland, E. 1994. *Developing Teaching Style in Adult Education.* San Francisco,CA: Jossey-Bass.

Kirkpatrick, D. 1994. *Evaluating Training Programs: The four levels*. San Francisco, CA: Berrett-Koehler.

Kirkpatrick, J., and Kayser Kirkpatrick, W. 2009. *The Kirkpatrick Four Levels: A fresh look after 50 years, 1959–2009*. Retrieved August 2009 from www.managesmarter.com/managesmarter/images/pdfs/trg_20090417_kirkpatrickwhitepaper.pdf.

Lazar, M. K., Bean, R. M., and Horn, B. V. 1998. Linking the success of a basic skills program to workplace practices and productivity: An evaluation. *Journal of Adolescent and Adult Literacy* 41(5): 352–362.

Looney, J. 2008. *Teaching, Learning and Assessment for Adults: Improving foundation skills*. Paris: Centre for Educational Research and Innovation, Organisation for Economic Co-operation and Development.

Mellar, H., Kambouri, M., Sanderson, M., and Pavlou, V. 2004. *ICT and Adult Literacy, Numeracy and ESOL.* London: National Research and Development Centre for Adult Literacy and Numeracy.

Merrifield, J. 2008. *International Workforce Literacy Review: England.* Wellington: Department of Labour.

Mullis, I., Martin, M., Kennedy, A., and Foy, P. 2007. *PIRLS 2006 International Report: IEA's Progress in International Reading Literacy Study in primary schools in 40 countries*. Chestnut Hill, MA: TIMSS and PIRLS International Study Center, Boston College.

Murray, T. S., McCracken, M., Willms, D., Jones, S., Shillington, R., and Strucker, J. 2009. *Addressing Canada's Literacy Challenge: A cost/benefit analysis*. DataAngel Policy Research.

NIACE. 2006. *NIACE Committee of Inquiry on English for Speakers of Other Languages: Executive summary*. Leicester: National Institute of Adult Continuing Education.

NIACE. 2006. *'More than a Language'*. NIACE Committee of Inquiry on English for Speakers of Other Languages. Leicester: National Institute of Adult Continuing Education.

OECD. 2000. *Literacy in the Information Age: Final report of the International Adult Literacy Survey*. Paris: Organisation for Economic Co-operation and Development and Statistics Canada.

Parsons, S., and Bynner, J. 2007. *Illuminating Disadvantage: Profiling the experiences of adults with entry level literacy or numeracy over the life course*. London: National Research and Development Centre for Adult Literacy and Numeracy.

Pye, J., and Hattam, C. 2008. *Workplace Basic Skills Training Impact Evaluation.* Report for the Leonardo da Vinci WoLLNET project. Marchmont Observatory.

Reder, S. 2009. The development of literacy and numeracy in adult life. In *Tracking Adult Literacy and Numeracy Skills: Findings from longitudinal research*. S. Reder and J. Bynner (eds). New York, Routledge, pp 59–84.

Ryan, R. 2007. *Why Workplaces Matter: The role of workplace practices in economic transformation.* Wellington: Department of Labour.

Sabates, R. 2008. *The Impact of Lifelong Learning on Poverty Reduction.* London: National Institute of Adult Continuing Education.

Salomon, M. 2009. *Workplace Literacy and Essential Skills: What works and why?* Montreal: Centre for Literacy/Le Centre d'alphabetisation.

Satherley, P., Lawes, E., & Sok, S. 2008. *The Adult Literacy and Life Skills (ALL) Survey: Overview and International Comparisons*. Wellington: Ministry of Education.

Satherley, P., Lawes, E., & Sok, S. 2009. *The Adult Literacy and Life Skills (ALL) Survey: Education, Work and Literacy*. Wellington: Ministry of Education.

Schuller, T., Preston, J., Hammond, C., Brassett-Grundy, A., and Bynner, J. 2004. *The Benefits of Learning: The impacts of formal and informal education on social capital, health and family life*. London: Routledge Falmer.

SPEaR. 2008. *SPEaR Good Practice Guidelines 2008*. Wellington: Ministry of Social Development.

TEC. 2008. *Literacy, Language and Numeracy Action Plan 2008–2012: Raising the literacy, language and numeracy skills of the workforce. Ako Tuāpapa.* Wellington: Tertiary Education Commission.

Westell, T. 2005. *Measuring Non-academic Outcomes in Adult Literacy Programs: A literature review*. Retrieved 21 February 2007 from www.nald.ca/ppr/Finalprogresslitreview.pdf.

White, H. 2010. A contribution to current debates in impact evaluation. *Evaluation* 16(2): 153–164.

Wolf, A., and Evans, K. 2009. *Enhancing 'Skills for Life': Adult basic skills and workplace learning: Full research report.* ESRC End of Award Report, RES-139-25-0120. Swindon: ESRC.

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