Workplace literacy programmes: satisfying a dual agenda for policy-makers

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Abstract
Workplace literacy and numeracy programmes have gained prominence in countries such as New Zealand for their ability to contribute to a dual agenda of improving productivity and providing educational opportunity for non-traditional learners. This paper will report on the findings of a large workplace literacy and numeracy project involving 18 course evaluations and over 1000 interviews and assessments during a three year period. The results show that the programmes can achieve positive outcomes not only for the course participants, but also the companies that host the courses.

Introduction – the productivity debate
Even before the recent Global Financial Crisis (GFC), New Zealand government and its agencies had been investigating ways to improve economic productivity both at company-level and nationally (Department of Labour, 2009). New Zealand currently stands 24th in the World Competitiveness Yearbook (http://www.imd.org/research/publications/wcy/upload/scoreboard.pdf), well behind our traditional rivals such as Canada (6th), Australia (15th) and Ireland (20th). Like many economic debates, there is little agreement as to what productivity is, let alone how to improve it. In New Zealand, there are two significant documents that have endeavoured to identify the key factors, especially with a long-term aspiration of becoming a knowledge economy, which is the inevitable aspiration of most modern economies. The government Treasury (Harvey & Harris, 2008) identified:

- Innovation
- Skills
- Investment
- Access to natural resources.

While their counterparts at the Department of Labour identified:

- Building leadership and management capability
- Creating productive workplace cultures
- Encouraging innovation and the use of technology
- Investing in people and skills
- Organising work
- Networking and collaboration
• Measuring what matters.

The argument for including ‘Investing in people and skills’ is justified because it enables innovation, makes workers more capable with new technology, reduces mistakes and inefficiency, workers require less supervision by accepting more responsibility, they communicate better and companies are able to pay higher wages, leading to lower staff turnover (Harvey & Harris, 2008, p. 16). All of which are seen as important in contributing to greater productivity within companies and cumulatively, the country.

Most analysts agree that the paramount factor for better productivity is greater investment, but also that skills are a necessary, but not sufficient condition in the mix (Keep, Mayhew, & Payne, 2006; Leitch, 2006; Mayhew & Neely, 2006). Furthermore, they argue that there is a distinct lack of rigorous research on the topic, especially at the micro level of what happens in companies. Even so, some writers (Keep et al., 2006; Leitch, 2006) still caution that ‘skills deficits’ are an easy scapegoat in these debates and are often seen as an easy policy lever for policy makers, especially in comparison with other factors such as increasing capital investment.

Some of the need for higher skills is satisfied in the longer term by improving the schooling system and post-school qualifications, but there is still the question of how the current workforce (and especially those in semi- and unskilled jobs) moves on to higher levels of skill. New skilled immigrants can go some way towards solving the issue, although their utilisation is not straightforward, especially with those whose languages do not match that of the host country. Inevitably therefore, the challenge is predominantly to upskill workers currently working and to a lesser extent (in terms of numbers) those not in employment.

Few dispute whose skills should be upgraded, but identifying the skills to be taught is less straightforward. For while there is strong support for including skills development in efforts to improve productivity, it is interesting to note that few writers spend much time addressing the question of ‘which skills?’ Even in major documents such as the OECD’s Towards an OECD Skills Strategy (2011), scant attention is given to specifically identifying skills beyond an initial definition: “the bundle of knowledge, attributes and capacities that enables an individual to successfully and consistently perform an activity or task, whether broadly or narrowly conceived, and can be built upon and extended through learning” (p. 7). Implicit in many of these documents is a two-way differentiation between:

1. Specialised technical skills such as operating machinery or instruments
2. Broader, generic skills such as communication or literacy and numeracy.

While it is obvious that learning new technical skills (e.g. using a new piece of machinery) are necessary in economies that are increasingly mechanised and automated, the arguments to include literacy and numeracy are less obvious because their impact may well be less apparent and immediate. Furthermore, work issues that are related to literacy issues are not necessarily identified as such by employers or supervisors; rather, these issues are seen as being related to general incompetence or the result of personal traits such as laziness (Schick, 2005).

While government activity around improving productivity was in progress around this time, there was also a parallel debate underway in educational circles that came to be aligned with the productivity debate.

Introduction – the adult literacy debate

Prior to 1996, there was very little systematic knowledge about the incidence of literacy skills in the New Zealand adult population. Anecdotes abounded, but the research on this issue had been very limited in number, quality and coverage – with very limited funding, most had relied on self-report and used small samples of specific populations such as prisoners (Mudford, 1993), unemployed (Irwin, 1988), and specific industry groups (Moore & Benseman, 1993). This lack of authoritative proof about literacy and numeracy levels in the national adult population undoubtedly hindered the recognition of the issue by government and its various agencies at this point.

The country’s participation in the second round of the International Adult Literacy Survey (IALS) sponsored by the OECD (1997) proved to be a significant turning point for literacy advocates, practitioners and the learners concerned (Benseman, 2008). A random national sample of 4,223 adults aged 16 to 65 took part in this initial survey. The results showed that approximately one fifth of New Zealand adults scored at the lowest levels across all three domains; this proportion amounts to approximately 536,000 in the total population (Culligan, Arnold, Sligo, & Noble, 2005). A further third of the sample scored at Level 2, equating to 800,000 of the total
adult population. Sub-groups shown to have disproportionately higher representation in Levels 1 and 2 included: non-native English speakers (the test was done in English), Pasifika, Maori, unemployed and low-skilled workers, older adults and low-income people. New Zealand’s results broadly matched those of comparable countries such as Australia and the United States.

While there was some challenging of the survey’s results in the media (Elley, 1999), these were insubstantial and short-lived. In government circles, there was considerable interest shown, which eventually resulted in a number of policy documents and other responses, which are discussed below. A second national survey in 2006 (Satherley & Lawes, 2009) showed similar results, albeit with a small reduction of those at the two bottom levels and the top (Level 5).

The results of these two national surveys were significant for a number of reasons:

- The findings challenged the assumption that because New Zealand had achieved very well in child-based studies such as PISA, it would also have a low incidence of adult literacy problems in the adult population
- The survey helped break down the traditional dichotomy of literate/illiterate by assessing literacy and numeracy skills along a continuum
- It also showed literacy and numeracy skills across three domains, underlining the variable nature of literacy and numeracy demands
- While it showed some groups to be disproportionately represented among those with low literacy and numeracy skills, it also showed representation of adults from all groupings in the lowest levels – in other words, literacy and numeracy skills are an issue for all sectors of society, though to varying degrees
- The findings helped make sense of some public controversies such as academics periodically criticising the academic literacy skills of tertiary students.

These studies subsequently spawned several key policy documents to address the adult literacy issues that had been reported: More than words (Ministry of Education, 2001), subsequent Tertiary Education Strategies (Ministry of Education, 2005, 2007), including the lower levels of the tertiary system (TEC, 2009; Tertiary Education Commission, 2009, 2010). Alongside these policies, attention also turned to addressing literacy issues in the workforce (Tertiary Education Commission, 2008), especially in ‘research-informed’ ways.

**Evaluating workplace literacy programmes**

In order to develop workplace literacy and numeracy provision based on research, a literature review was firstly carried out (Gray, 2006) that showed a dearth of rigorous research. Based on these findings, a large-scale evaluation programme of 18 workplace courses was run with 15 companies throughout New Zealand. Each of these courses was evaluated and the results cumulated in an overall evaluation report (Department of Labour, 2010). This paper reports the findings from these 18 evaluations and provides some general conclusions about the meeting of the twin agendas of improving productivity and raising adult literacy and numeracy skills in the workplace context.

In brief, the evaluations aimed to answer two broad questions:

- What impact do workplace literacy and numeracy programmes achieve for the learners and the companies they work for?
- What is the most effective way to organise and run workplace literacy and numeracy programmes?

The courses being evaluated were diverse in terms of the industries involved, company size, geographical location, programme formats, duration and types of learners. While the courses varied in approach and length, all had been tailored to the needs of the company. A third of them were block courses and the others were run for one to two hours weekly. There was a mix of small group and one-to-one tutoring.
Methodology

A comprehensive, multi-method evaluation programme was carried out over a three-year period. The evaluations sought a wide range of both quantitative and qualitative data to identify outcomes for the course participants, their workplace practices, the companies they work for and their lives outside work. Data sources included:

- company literacy needs analyses (undertaken by the course providers)
- course planning documents
- interviews (pre- and post-course) with course participants, supervisors, managers, provider managers, tutors
- learner assessments for literacy and numeracy skills (pre- and post-course)
- observation of teaching sessions
- supervisor assessments (pre- and post-course)
- provider records (e.g. attendance and periodic reports), resources (e.g. course manuals) and evaluations.

Reading and writing skills were assessed using Go!, an assessment tool developed by the National Foundation for Education Research in the UK. The results were moderated within the research team and by an external literacy expert. Overall, a total of 491 course participants were interviewed and assessed pre-course and 343 (69.8%) of these participants were also interviewed and assessed post-course; most of those who missed the post-course interviews had left their companies in the period following the initial interviews.

Findings

Reading

Of the 278 participants who were re-tested for reading at the end of their course, 86% showed an improvement in their reading scores, while the reading scores for 4% remained the same and decreased for 10%. Average reading scaled scores increased by 10.1 points out of 100. There was variation in changes in reading scores across courses from zero to 16 points, with 5 courses achieving an average improvement of less than 8 points, and 5 courses achieving an improvement of 12-16 points. Greater gains in reading score were made by women, participants with higher qualifications compared to those with no qualifications and participants taught by providers with high levels of literacy and workplace training experience.

The relationship between teaching hours and reading gain was not statistically significant; the reason for this finding is not immediately clear. A limitation of the study is that while it was possible in most cases to find out how many total teaching hours were received by each course participant, it was not always possible to measure the number of hours of learning that focused specifically on reading skills or the quality of the teaching.

When the Go! scores are transferred to the UK literacy levels, excluding those assessed at UK level 2 (ALL Level 3) in the pre-course assessments:

- 44.1% of the participants increased their literacy level
- 54.8% of the participants stayed at the same literacy level
- 1.1% of the participants decreased their literacy level.

When the reading scores are related to the ALL levels, 30.6% of the participants moved up a level, 69.1% of the participants stayed at the same level and 0.4% of the participants went down a level.

When asked how much the course had improved their reading skills, 23% of participants said their reading skills had improved ‘a lot’ as a result of the course, 36.1% said ‘a bit’ and 40.9% said ‘not at all’. The participants who had received more hours of teaching thought that they had improved the most.
Spec[ification] 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.

Oh, reading blueprints is a whole lot easier. I look at it and go ahead with it. It was great when I clicked on to it, it all seemed so obvious.

Participants’ average self-assessed reading score increased slightly from 4.3 to 4.5 on a 1-6 scale. Without being reminded of their pre-course ratings, 34.9% of participants rated their reading skills more highly after the course, 45.7% rated their reading skills the same and 19.4% rated their reading skills less highly. There was no association between actual improvement in reading score and self-assessed improvement.

Writing

The Go! assessment was also used for writing. Around two-thirds (66.1%) of participants made gains in their writing score. Overall the participants increased their scores from 15.6 to 18.1 out of 29. Increase in writing scores varied significantly by course. There was no statistical relationship between hours of learning and degree of improvement in writing scores. Changes in reading and writing scores were weakly related with writing scores tending to increase as reading scores increase.

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.

Numeracy

There was a limited amount of numeracy teaching in Upskilling. Twelve of the 18 courses taught no or little numeracy; five taught some and only one a lot of numeracy. Where numeracy was taught on a course it was not necessarily to all of the participants and focused on very particular numeracy skills required for worker’s jobs. All course participants (343) were asked to self-assess their maths skills, pre- and post-course. Their average rating increased from 3.6 to 4.1 on a six point scale.

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

I’ve got a clearer idea of plans, survey pegs and a whole pile of those sorts of things; it nailed it home really. I use correct terminology now and I’m a whole lot more efficient now.

Due to the limited amount of numeracy taught and difficulties identifying these learners at the beginning of programmes, only seven numeracy learners completed pre- and post-course numeracy assessments. Results from the Mathematics Competency Test (Vernon, Miller, & Izard, 1996) showed that these seven learners increased their average score from 12.1 to 15.3 out of 46. This means that before the course most of the seven were below average and after the course most were above average.

Speaking and listening

Course participants were asked, pre-course and post-course, to rate their confidence on a 1-6 scale (1 = low) in speaking to a workmate or supervisor one-to-one; a small group; a large group; and someone they don’t know, such as a new customer. There were small but consistent increases across all four workplace speaking contexts, especially in speaking one-to-one to people they don’t know. Around three-quarters of participants (73.1%) reported that their speaking skills had improved as a result of the course, and 77% said their listening skills had done so.

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.
Managers identified speaking and reading as the two skills where most progress was made, followed by listening. Providers identified speaking as the area of greatest improvement, followed by reading, writing and listening.

**Impact on workplace practices**

*The course participants’ view*

Overall, 80% of course participants reported doing their job better as a result of the course with most of them providing examples of the sorts of things they were doing better. Examples of these changes included reading blueprints, learning company policies, reading maps and street signs, doing paperwork such as hazard reports and accident reports. Those who said they were more confident about doing their job were more likely to report they were doing their job better and those who said their literacy skills had improved were more likely to report they were doing their job better. There was a positive statistical relationship between improved reading scores and improvement in self-assessed job performance.

Ninety-seven percent of the comments made about the course were positive. Participants gave many examples of the positive impact of their course on their workplace practices. Most frequently, they reported that the course had had a favourable impact on work tasks requiring reading and writing. Improved oral communication skills for those with English as an additional language was the second most frequently mentioned theme and improved communication skills for those with English as their first language was the third most common theme.

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.

*The supervisors’ perspective*

In 12 of the 18 courses, supervisors rated the course participants across a range of elements covering their daily work practices (attitude towards work, ability to use initiative and work without supervision, willingness to attempt tasks, ability to work as part of a team, and completion of paperwork) on a 1−10 scale (1 = low) both before and after the course. Around 60% of all supervisor ratings of the participants increased. The greatest increase in average ratings was for completion of paperwork.

There was no statistical relationship between participants’ improvement in reading or writing scores and improvement in their supervisors’ ratings – those whose reading and writing scores improved the least experienced the same improvement in supervisor ratings, as those whose scores improved the most. It may be that the improvement in supervisors’ ratings happened as a result of the new workplace knowledge and skills rather than the literacy and numeracy skills. There was some relationship between participants’ self-assessed speaking and listening skills and their supervisors’ ratings.

*Employers’ and providers’ perspectives*

From a list of possible outcomes given to them, employers and providers were asked to rate the impact of a range of outcomes for the participants. Providers reported that the most notable outcomes for their course participants were increases in personal confidence and job confidence, improved communication with other workers and a greater interest in training. These four outcomes were also in the top five outcomes reported by managers most of whom also commented that communication between management and workers had improved. Another important outcome identified by providers was improved speaking skills for those with English as a second language.

When reflecting on the impact of their course on the literacy and numeracy skills of the course participants, both providers and employers judged that their course had had most impact on speaking, listening, reading and writing skills. Providers reported that the greatest impact was on speaking and employers on speaking and reading.
Course providers tended to report more positive outcomes than the employers, with more providers reporting a greater impact on skills than employers did. The discrepancy between their views is most marked for writing and ESOL. This is probably because providers had worked closely with participants from the early diagnostic assessments through to end of course assessments.

**Conclusion**

These workplace courses had a strong impact on participants’ reading skills, with 86% of them making gains in their reading score. Overall, 44% of participants moved up a UK reading level and 30.6% an ALL level. Participants at lower skill levels made the most improvement in reading. Improvements in writing were not as great as those in reading. Around two-thirds (66.1%) of participants made gains in their writing scores. These improvements are important given the priority of improving workers’ paperwork.

Participants reported that the courses also had an impact on how they do their work. Assessment of qualitative evidence collected from participants shows the courses had a high work impact on 45.5% of the participants, a medium work impact on 35% and a low work impact on 19.5%. It also showed that courses had a high personal impact on 30% of participants, a medium impact on 46%, and a low impact on 24%.

To understand how workplace literacy and numeracy courses can contribute towards labour productivity, it is necessary to be able to show the improvements in employees’ skills and changes in their work practices back on the job. The evaluation found that workers’ skills had mainly increased and that these courses had had a largely positive impact on workplace practices. The contribution that the skills developed through workplace literacy and numeracy courses make to productivity occur in small ways that include:

- more accurate completion of forms such as incident reports and timesheets
- improvements in specific literacy and numeracy skills such as measuring
- better following of policies and procedures
- improved oral communication
- increased confidence in work roles, and in taking initiative
- less frustration with workmates and supervisors.

The courses have been successful in reaching workers with low literacy and numeracy skills who often do not have access to other forms of training, or would not otherwise usually participate in adult learning provision such as men, those with limited schooling, those with no qualifications and Pasifika. This form of workplace training has given workers with low literacy and numeracy skills the opportunity to develop skills and knowledge that allow them to perform their jobs more effectively, efficiently and independently, and in turn has improved both the quantity and quality of their work.

Research has shown that workers need not only the necessary skills and knowledge, but also the motivation to work well and opportunities to exercise their improved skills (Benseman, 2010). This last change, the opportunity to practise skills, has implications for employers and managers. They need to ensure that they create environments that are open to the use of their new skills.

**References**


