

Pan-Commonwealth Forum, 9-12 September 2019, Edinburgh, Scotland.

Foundation Level Workplace Training Programmes

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Abstract

This paper outlines the scale of the adult literacy and numeracy issue in New Zealand and describes a policy intervention designed to upskill employees in workplaces to help resolve the issue for them. This is the Workplace Literacy and Numeracy (WLN) Fund which enables around 7000 employees a year to complete a 25 to 80-hour learning programme, usually in their workplace and in work time. The paper also describes what happens in workplaces while programmes are underway and the short-term wellbeing, social, and economic outcomes that occur for individual employees.

In this context, literacy and numeracy relates to the way in which adults use skills that involve reading, writing, speaking, listening, and mathematics in everyday life. It also includes digital skills in relation to how adults engage and interact with Information and Communication Technologies (ICT). Overall these skills are those that individuals need for learning, life, and work in the 21st Century.

Skills in New Zealand

In the 2014 Survey of Adult Skills, part of the Programme for the International Assessment of Adult Competencies (PIAAC), New Zealand ranks relatively highly. Here we are fourth in literacy; 13th in numeracy; and fifth in problem solving in technology-rich environments (Ministry of Education & Ministry of Business, Innovation & Employment, 2016). However, these rankings hide the fact that around a third of our working-age population (approximately 1.5 million people) has skill levels 1 and 2 as measured in this survey.

This means these people are able to, for example: read and understand short texts and make some inferences; conduct basic mathematical processes and interpret simple graphs; and are either not be able to use computers or where they can, they can cope with simple tasks and use minimal functions in generic computer programmes (Ministry of Education & Ministry of Business, Innovation & Employment, 2016). This is problematic for employment given that analysis of skills profiles conducted in Canada shows most jobs require Level 3 or higher skills, with virtually no jobs requiring Level 1 skills. This is coupled with the fact that most of the new jobs created in the last 20 years require Level 3 skills (Lane & Murray, 2018).

Low literacy and numeracy skills impact on people's work and life opportunities. Research shows those with lower skills: are less likely to be in employment and when employed to have lower wages; are less likely to own their own home; have poorer mental and physical health; and are less likely than their higher-skilled counterparts to participate in their communities and wider society (Bynner & Parsons, 2006; Schagen & Lawes, 2009; Murray & Shillington, 2012). In addition to poor outcomes for individuals the Bynner and Parsons (2006) study also found intergenerational impacts, whereby children whose parents were at the equivalent of Level 1 in OECD's international surveys were, "quite seriously disadvantaged and likely to fall behind their peers" (p. 31).

The Workplace Literacy and Numeracy Fund

Policy interventions that reach lower-skilled employees in workplaces are important for reasons that include:

- the need to upskill workers throughout their working lives, particularly as the age of the working population increases
- the need to bring equity to training delivery so that lower-skilled workers have access to training in the way their counterparts with higher skills do
- the need to mitigate against the barriers (financial, time, opportunity cost) that lower-skilled workers face in accessing education outside of work (Martin, 2018).

New Zealand's Tertiary Education Commission (TEC) provides and administers the WLN Fund, the purposes of which are to increase the literacy and numeracy skills of lower-skilled employees and to contribute to

productivity through the provision of programmes in a workplace context.^{1 2} The Fund is divided into two strands. One strand (provider-led) directly funds tertiary education providers to market and deliver programmes in workplaces. The other (employer-led) is contestable funding that is applied for by employers who then generally contract an education provider to run programmes for their employees. Employees are eligible for funding if they have low or no qualifications, or low literacy and numeracy skills as measured against the Adult Learning Progressions.³

Evidence of the reach and impact of the WLN Fund has been gathered since 2014 (Alkema, 2015a; Alkema, 2016; Alkema, 2017; Skills Highway, 2018; Alkema and Murray, 2019). Over time data have been gathered from a variety of sources outlined in the table below. It includes data on just under 29,000 employees and from around 119 employers who have been funded through the employer-led strand.

Table One: Data Sources

Report	Quantitative Demographic Data	Document Analysis	Other Data
Alkema, 2015	2425	10 employer reports	Survey with 15 education providers; interviews with eight stakeholders and eight employers; literature review; seven site case studies
Alkema, 2016	2099	30 employer reports	Literature review
Alkema, 2017	11,000	18 employer reports	Literature review
Skills Highway, 2018	6983	29 employer reports	Five site case studies
Alkema and Murray, 2019	6382	32 employer reports	Literature review; seven site case studies

Reach of the WLN Fund

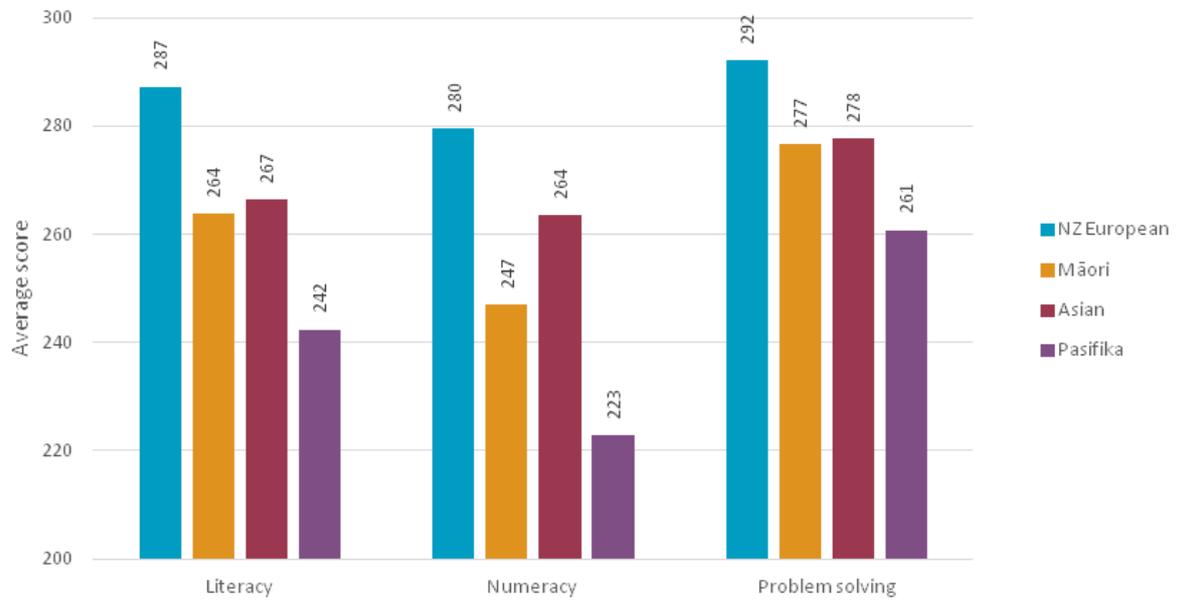
Reports from The Survey of Adult Skills (PIAAC) show data from several perspectives, including ethnicity, gender, qualifications, and industry. These data are important for the New Zealand context as they indicate who the target audiences should be for funded programmes. The figure below shows New Zealand scores by ethnicity in 2014 and highlights that the average scores for Māori, Pasifika, and Asian populations sit at Level 2 and below for literacy and numeracy and Level 1 for problem-solving in technology rich environments (Ministry of Education & Ministry of Business, Innovation & Employment, 2016).

¹ From *Determination of design of Funding Mechanism: Literacy and numeracy provision*. Accessed at <http://www.tec.govt.nz/assets/Funding-mechanisms/2017-Literacy-and-Numeracy-funding-mechanism.pdf>

² Further information can be found at <https://www.tec.govt.nz/funding/funding-and-performance/funding/funder/employer-led-workplace-literacy-and-numeracy-fund/>

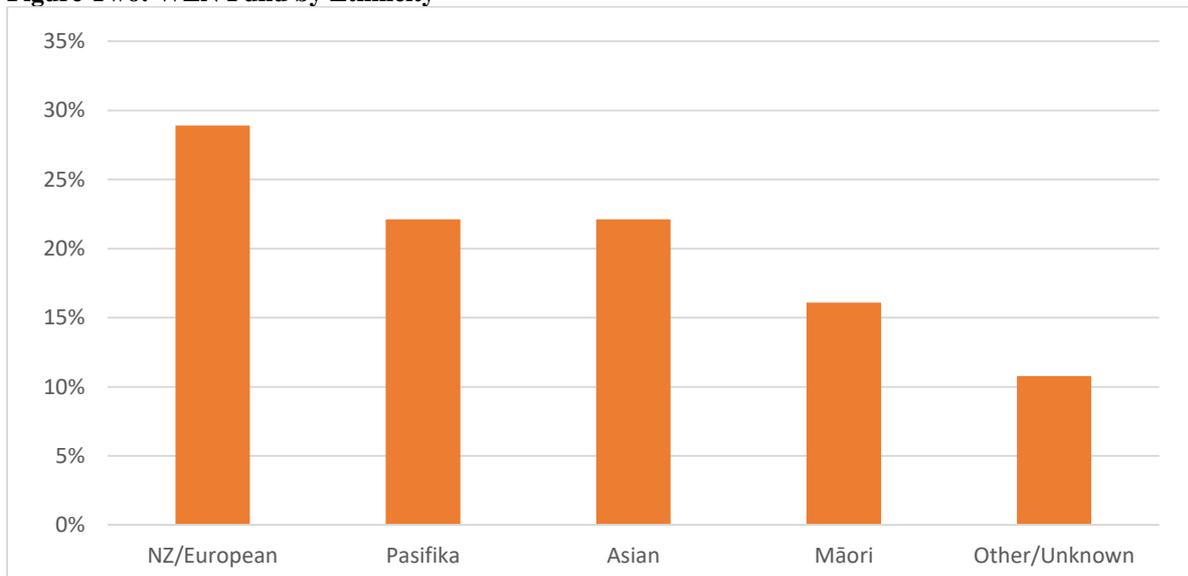
³ These progressions provide a six-step framework of progress showing what adults “know and can do”. Steps on the framework are measured by the Literacy and Numeracy for Adults Assessment Tool (LNAAT). Further information on the progressions can be found at <https://ako.ac.nz/knowledge-centre/learning-progressions-for-adult-literacy/>; on LNAAT at <http://assessforadults.nzcer.org.nz/support/solutions/articles/4000121824-what-is-the-assessment-tool-lnaat-what-was-it-designed-to-do->; on LNAAT comparisons to PIAAC on <https://www.educationcounts.govt.nz/publications/80898/comparing-literacy-and-numeracy-scales-in-the-assessment-tool-and-survey-of-adult-skills>

Figure One: New Zealand Adult Skills Results by Ethnicity



The intent of the WLN fund is to reach those who have lower skills and data collected from just under 29,000 employees show that 60 percent of the fund is getting to the demographic groups with the lowest skills as shown in Figure One above. The most represented industries are manufacturing, health care and social assistance, and retail trade and accommodation.

Figure Two: WLN Fund by Ethnicity



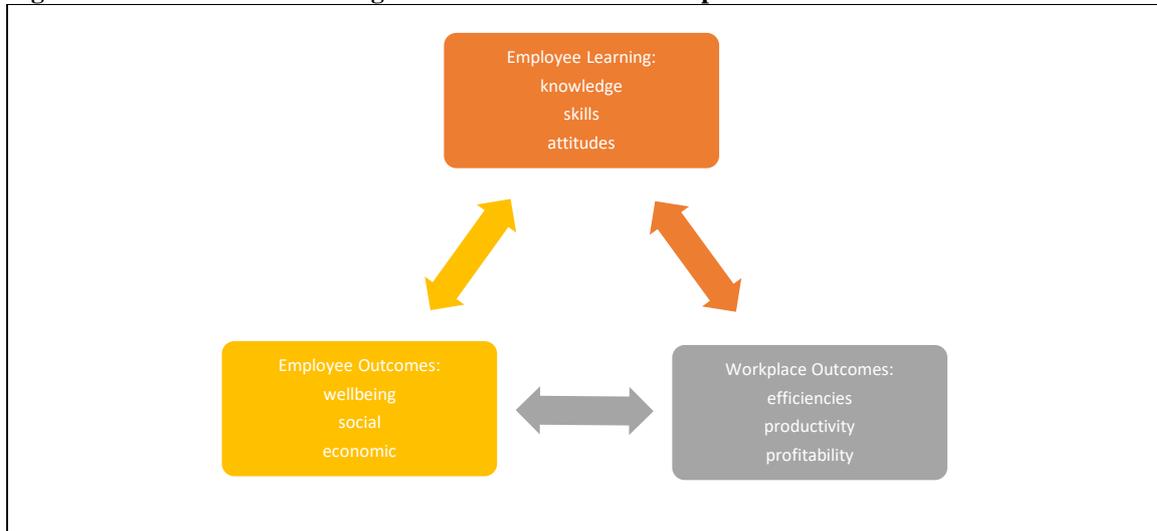
While the figure above shows the **reach** of both strands of the WLN fund, the **impact** is shown, in the main, by reports from 119 employers who have run programmes funded through the employer-led strand for over 6000 employees since 2014. These programmes have been run for 20 or more employees in workplaces.

Impact of the employer-led strand of the WLN Fund

Skills are a vital ingredient for economic success and individual and social well-being, now more than ever before as the Fourth Industrial Revolution gets into its stride and ageing populations and workforces become the new norm (Martin, 2018).

The analysis framework for this paper is based on the Alkema and Murray (2019) report that built from Alkema and McDonald (2018). (See Appendix One for this Framework.) Here the focus is on what employees learn and the subsequent short-term wellbeing, social, and economic outcomes that occur for them; and in turn, the changes that occur in the workplaces during the time that programmes are run.

Figure Three: Iterative Learning and Outcomes in the Workplace



Widening the impact scope to include wellbeing, social, and economic outcomes is important for gaining a wider understanding about what happens as a result of literacy and numeracy tuition. Expanding outcomes thinking is also timely in New Zealand given the New Zealand Treasury's (2018) approach in relation to the Four Capitals that includes social and human capital, with the latter incorporating wellbeing. Alkema and Murray (2019) cite the Treasury (2017) in relation to the importance of social capital which,

... has a large and well-evidenced impact on economic performance, democratic functioning, public safety, educational outcomes, labour market outcomes, and individual health and wellbeing. The particular risk is that government agencies take it for granted because it is rarely measured. Potentially detrimental effects include increased income inequality, poverty, housing mobility and ownership rates, family and whānau wellbeing, institutional quality, educational outcomes and individual health and wellbeing.

The connection between literacy and numeracy and these outcomes is made in a number of research reports. Alkema and Murray (2019) cite analysis of the Adult Skills Survey data in Canada (Council of Ministers of Education, 2018) that reports on the connection between literacy and numeracy skills and social and civic outcomes. They also cite other research in the literacy and numeracy field that shows the links between literacy and numeracy and wider outcomes that improve the ways individuals participate at home, in their communities, and at work. (Balatti, Black & Falk, 2007, 2009; Leach, Zepke, Haworth, Isaacs, & Nepia, 2009; Vorhaus, Litster, Frearson, & Johnson, 2011).

What employees learn

Programmes are bespoke and tailored to the needs of employees and the knowledge and skills they require to do their jobs. This provides employees with the opportunity to engage in authentic learning experiences that have literacy and numeracy integrated into them. Examples of content includes health and safety policies and practices; problem-solving techniques; understanding Standard Operation Procedures (SOPs); and form filling. Over the last two to three years there has been an increase in the number of programmes with a digital literacy focus as firms digitise communication and reporting, for example, payslips, timesheets, job reporting, and health and safety reporting.

Given that this is a workplace literacy and numeracy fund there is an expectation that employees' literacy and numeracy proficiency will improve. This is tested at the start and end of programmes using the Literacy and Numeracy for Adults Assessment Tool (LNAAT). Collated data from the tool are not publicly available and not all employers report the results and of those that do, the results show very few employees make statistically significant gain. This is in keeping with Reder's (2009) findings where he found little connection between participation in adult education programmes and literacy and numeracy gain. However, what Reder did find is

an increase in engagement with literacy and numeracy practices and suggests that programmes would be better to measure practices than proficiency.

Practices are important because of the contribution they make to the development of literacy and numeracy proficiency. This is shown by OECD (2013) who found that adults who practise their literacy skills nearly every day tend to score more highly than their counterparts regardless of education levels. However, more needs to be known about this. In New Zealand we now have the opportunity to do this with the newly developed practice measures and indicators developed by Whitton (2018).

Engagement with literacy practices is clearly seen in the reports where employers note, for example, an increase in employees speaking up at meetings, proactively participating in solving workplace problems, completing forms, and communicating within and between teams. It is also seen when employees talk about using their new practices in their home and community lives.

Many employees also expressed an understanding of the communication process ... This has helped change the workplace culture and created positive communications up and down the hierarchy. (Employer)

We have a lot of paperwork and some used to struggle with it ... It was okay when there was a form they were familiar with, but if there were any changes it was an issue. The other week one of the workers was able to fill out a completely new form. (Employer)

I never had a library card. My wife and I go heaps now. (Employee)

Wellbeing Outcomes

Alkema and McDonald (2018) describe wellbeing as how people think and feel about themselves and their lives. They aligned this with the Treasury's thinking on "subjective wellbeing" (King, Huseynli, & MacGibbon, 2018). Included in their list of wellbeing outcomes, Alkema and McDonald (2018) built from Eldred, Ward, Dutton and Snowden (2004) and started with confidence and self-esteem. Then working from other literature, including, (Tett, Maclachlan, Hall, Edwards & Garside, 2006; Literacy Aotearoa, 2013; Gymarti, Leckie, Dowie, Palameta, Hui, Dunn & Hébert, 2014; ACE Aotearoa, 2014; Alkema, 2015b; Schueler, Stanwick & Loveder, 2017) they developed seven wellbeing outcomes that can accrue to foundation level learners: confidence, self-efficacy, independence, belonging, resilience, cultural identity, and self-determination.

In terms of wellbeing, over time employers have most often reported on increases in employees' confidence and self-esteem. Alkema and Murray (2019) state that while confidence is important in its own right in terms of the contribution it makes to how people feel about themselves, it is also important because of the connection between confidence and learning and between confidence and the actions and behaviours that occur when employees feel confident. This translates to employees feeling able to, for example, speak up at meetings, complete paperwork, and solve problems. Here they show they are willing to 'give things a go' and to use skills they have not had the confidence to use previously.

There is improved confidence at toolbox meetings. ... Staff take time to listen to each other - hear each other out before speaking. The outcome has been increased respect for each other. (Employer)

In a word, confidence. This is what my people have taken from the course and with new-found confidence they are finding everything else coming easier. Like communication and even the way they articulate with one another. (Employer)

Participants have been taught how to use the [company] Online Learning Site. This site houses additional training modules ... The programme has given the staff the confidence to continue to upskill through independent learning on site. (Employer)

Once employees start to participate more in their workplaces and become more engaged, they start to feel more valued and listened to and in turn develop a more positive attitude to work. It is a seemingly virtuous cycle of confidence building and practice. Vorhaus et al., (2011) found similar evidence of changed workplace practices and were not able to determine whether it is the improvement in confidence or skills that comes first.

Social Outcomes

As can be seen from the wellbeing outcomes described above, social outcomes occur in the form of increased work, community, and family participation and engagement. These outcomes are also found in other research. Here Alkema and McDonald (2018) cite the work of Tett et al., (2006), Vorhaus et al., (2011), Windisch (2015), Grotlüschen, Mallows, Reder, and Sabatine, (2016), and Schueler et al. (2017) who report evidence of social impact. These researchers found evidence of,

...better communication; wider social networks that are linked with improved involvement and relationships with others (including family); higher levels of trust; participation in voluntary work and higher levels of civic engagement and political efficacy; reduction in social isolation; and improved behaviour at work. The researchers also acknowledge that it takes time for these outcomes to emerge (p.21).

Across the years employers consistently report on the ways in which employees change the ways they think about their work and the business once they have more understanding about how it operates. This in turn can lead to greater engagement and participation when employees are afforded the opportunities to do this. In workplaces this translates to ways of working that are more collaborative, involve more communication along with an openness to new ways of working.

Affordances (Billett, 2001) are key to allowing employees to develop as problem-solvers and active participants in their workplaces. Programmes help with this when they use authentic improvement problem-solving projects as a focus for teaching. This allows employees to undertake research and present cases for solving real workplace problems. An example here was the development of a “Visual Management System” for a building site.

This helped us with time management and planning ...It stops everyone coming and asking me questions all the time. ... It allows people to see what's going on, as it provides a written record of what's happening and increases communication. (Employee)

The projects are an important legacy of the programme because they remind everyone that engaged staff make the workplace safer, more efficient and when everyone commits to continuous improvement business builds capability and sustainability. (Employer)

Social outcomes also spill over into family and community lives whereby some employees' engagement and participation grows. Where programmes have included connections to local libraries there has been an uptake of use in employees' own time for them and their families. In a few cases there are also examples of employees taking up volunteer activities.

[He] has become a young man who will ask about anything. He is now living independently. His confidence is up and he engages well in community activities, chatting easily and teaching others karate. He joined the local volunteer fire brigade and with support has successfully completed the paper-work side of things. (Employer)

Economic Outcomes

The Survey of Adult Skills (PIAAC) highlights the lower employment rates and income returns that those with lower literacy and numeracy skills have compared to their higher-skilled counterparts (Ministry of Education & Ministry of Business, Innovation & Employment, 2016). However, Alkema and McDonald (2018) report that while there is evidence of social and wellbeing outcomes from programmes such as those funded through the WLN fund, economic outcomes are more contested. Here, they report that Vorhaus et al., (2011), Reder, (2014), and Cerqua and Unwin, (2017) concluded that over time there were economic returns. These were more likely to accrue when learners were in longer programmes and were labour market dependent.

Given that WLN programmes run for between 25-80 hours, limited economic outcomes are expected for individuals. But employers do report that some employees take on increased responsibilities which has the potential to increase their wages. Some also progress to further study for qualifications which can also lead to higher pay rates. Turning up for work more often also leads to increased economic returns, especially for those working in contracted roles.

Seventy-five percent of the first group went on to Health and Wellbeing Level 2 ... [and] the good news is that some are discussing going on to Level 3 when we run it next year. It is a fantastic win for folk that were very reluctant to study to start with. (Employer)

In addition, when financial literacy has been included in programmes there have been changes in employees' financial behaviours. The context for teaching this in programmes is often driven by getting employees to understand their payslips and associated budgeting. This then turns to supporting employees to do some longer-term planning so they have less anxiety around money and debt.

The outcomes mean staff are not asking for payday loans from the company as they are managing their income and know how to access support to better manage personal debt. It also means better outcomes for the family... (Employer)

By knowing the value of money, they understand the importance, not only to their personal lives, but also for the greater good of the company. Having their financial situations in order makes them feel more confident... they are happy to work, knowing the money they receive will pay bills and be used for saving. (Employer)

Workplace Outcomes

While funding is provided for training there are costs incurred by employers as they free up staff from production lines and service delivery to attend programmes. The logistics of this, along with lost production are openly acknowledged by employers, most of whom, in spite of the challenges, see the value for companies of running programmes of this kind.

As is shown above wellbeing, social, and economic outcomes accrue to individuals which in turn contribute to outcomes for workplaces in terms of efficiencies, productivity, and profitability. Over the time period of the reports for this paper, there has been an increase in the number of employers who are using 'hard metrics' to report improvements that have happened while programmes have been underway. It is worth noting here that companies often have other initiatives underway, for example, lean manufacturing, that will also contribute to business improvements, so workplace outcomes cannot solely be attributed to workplace literacy and numeracy programmes.

However, in saying that, employers report several changes that happen during the time of these programmes. They have talked about how changes in employees' knowledge, skills, and behaviours have led to improved outcomes for business. These include for example: an increase in problem-solving skills that led to a decrease in production bottlenecks; the application of numeracy skills that results in higher accuracy counts and a reduction in dispatch errors; an increase in form filling by shop-floor staff, rather than leaving forms to be filled out by supervisors; the use of oral literacy skills that result in better communication with customers and a reduction in customer complaints. All of these contribute to increased efficiencies in the workplace.

We had metrics for productivity and there has been an increase in batches right the first time by six percent; an increase in documents right the first time by 32 percent; a decrease in wastage by 34.1 percent; and an increase in the reporting of hazards by 16 percent. (Employer)

Conclusion

The evidence from employers shows that outcomes for employees and their firms accrue from funded WLN programmes. These outcomes are not linear, rather they are iterative and interconnected and emerge over time. The evidence shows that at the time of programmes employees start by learning new knowledge and skills, and when afforded the opportunity to try them out develop in confidence which in turn leads to further skills development.

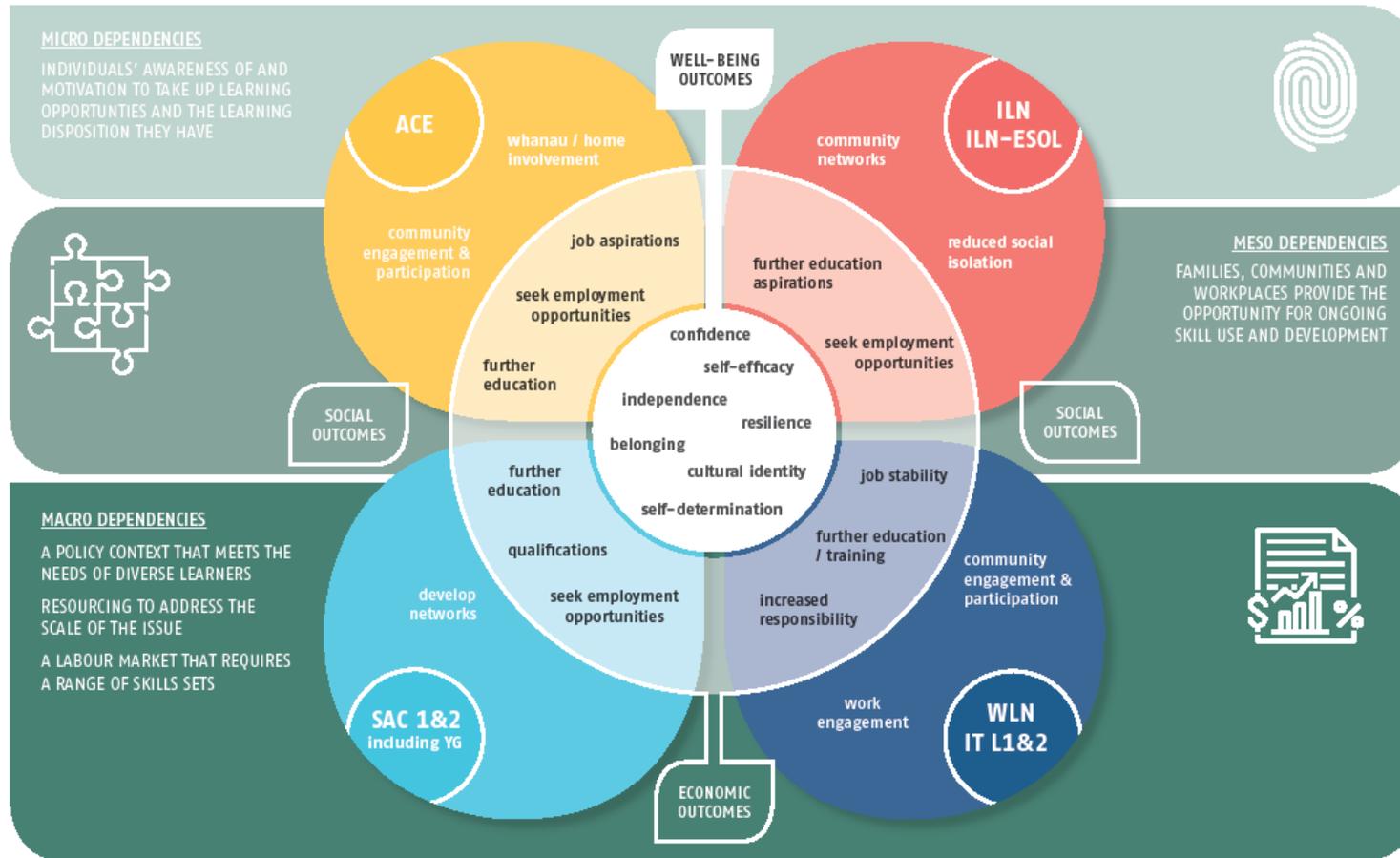
Getting programmes underway can be challenging as employers work through the logistics of scheduling, but the value for them comes when they see the impact it has on individual employees and the ways in which they work. They appreciate the greater levels of engagement and participation in work activities which can lead to an improved culture in workplaces. They also appreciate the increased efficiencies that occur when new skills are utilised in the workplace which in turn has the potential to lead to increased profitability and productivity.

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Appendix One: Outcomes Framework (Alkema & McDonald, 2018)



FOUNDATION EDUCATION OUTCOMES FOR LEARNERS