

# Training Opportunities

*Exploring what happens two months  
later*

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**Author**

Paul Mahoney, Senior Research Analyst  
Email: paul.mahoney@minedu.govt.nz  
Telephone: 04-4632891

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# TRAINING OPPORTUNITIES

## EXPLORING WHAT HAPPENS TWO MONTHS AFTER

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### KEY FINDINGS

- Labour market outcomes two months after people finish Training Opportunities placements are highly influenced by external factors such as the strength of local and regional labour markets, and the prior employment experience of learners, as well as whatever training occurs in the programme
- There is some evidence that learners who participate in courses in fields related to particular industries do better in the labour market two months after leaving placements than others
- Training Opportunities participation is likely to increase in the current economic environment. But because of the factors mentioned above, employment outcomes are likely to continue to decline.

## Introduction

This paper builds on previous statistical analysis published by the Ministry of Education on Training Opportunities, a programme designed to help people get into the labour force through providing training and foundation skills.<sup>1</sup>

Training Opportunities is funded by the government and is targeted at MSD beneficiaries at risk of long-term unemployment. It aims to help them to move into sustainable employment and/or higher levels of tertiary education.

This paper describes the results of statistical modelling that sets out to predict the factors associated with outcomes for trainees two months after they leave placements, using the Training Opportunities administrative dataset.<sup>2</sup> This data is collected by the TEC to assess the performance of training delivered by training providers. Training providers are generally required by TEC to ensure that at a certain proportion of placements result in a ‘positive’ outcome, which includes either employment, further training or a return to Training Opportunities within two months of leaving a placement. The complement is a ‘negative’ outcome, meaning further labour market inactivity (i.e. unemployment or having ‘out of the labour force’ status) within two months of leaving a placement.

The logic of this contract management approach is that funds provided by TEC are used to purchase quality training, which results in a ‘positive’ outcome for the learner. This paper looks at the factors associated with two month labour market outcomes, and provides a non-exclusive hierarchy of the factors associated with each type outcomes.

In previous analyses (Mahoney, 2009a) we have shown the observed labour market outcomes of Training Opportunities. However, these observations are not likely to show the full picture of what happens for each category of trainee because of the cumulative effects of different

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<sup>1</sup> See Mahoney (2009a) for a full description of the Training Opportunities programme, including participation and outcome trends derived using the administrative dataset.

<sup>2</sup> This analysis refers to what happens when trainees leave Training Opportunities placements. As learners may undertake a number of placements, over a period of time, a ‘leaving placements’ analysis is not the same as a ‘leaving Training Opportunities’ analysis, that is, what happens when learners leave Training Opportunities placements for the last time.

variables. This is where statistical modelling becomes useful. It enables us to determine the strength of the relationship between individual variables and the labour market outcome while controlling for all the other variables.

## Model specifications

Using multinomial logit analysis, it is possible to calculate the contribution of each variable to the labour market outcomes. The dependent variable in this case is the category of outcome two months after each placement, and the independent or explanatory variables are individual and programme related factors collected for administrative purposes.

Logits were calculated for all variables in the model with respect to their contribution to a negative (*other*) outcome over other outcomes. This makes it possible to calculate an odds ratio for each value of the variable for each possible outcome. For example, for the year variable, the logit shows how much more or less likely learners leaving placements in one year are likely to attain one type of labour market outcome compared with an *other* outcome. An *other* describes a non-positive event, such as unemployment or out of the labour force status for the learner two months after leaving a placement, and is the base category for which all odds ratios are calculated in this analysis.

The advantage of this approach is that it enables control of all the other variables within the model so that the contribution of each variable to the attainment of each labour market outcome can be accurately assessed. Simply put, we can show how powerful each variable is in predicting outcomes. We can also calculate the odds of a positive outcome over a ‘negative’ outcome for any single variable value. For example, we can assess the likelihood of an outcome for a person in their third Training Opportunities placement, controlling for the fact that they are also male, European, and for their previous qualifications and employment experience. This is important because any number of possible combinations of these variables are possible and various interactions between them may change the final result. For instance, young learners who are males in Auckland may have different outcomes from young people who are female in the Southern region. If we calculate the odds for each iteration of each variable, while controlling for all other possible iterations of other variables, we can be more sure of what’s driving the placement outcome attainment than by just looking at the observed results.

The model is limited by the data that is available to it, so its explanatory power may be relatively low.<sup>3</sup> However, this is common where analyses of education programmes are concerned. It is simply not possible to account for every variable that may have an effect on the outcome of Training Opportunities. But, the administrative dataset is a rich source of information, and by performing this analysis we are able to show with some confidence what some of the more powerful predictors of each outcome may be.

It is also not possible to include all of the administrative variables within the model, primarily because of collinearity issues. For example, trainee weeks and credit attainment are highly correlated, as are learner age and educational attainment. Where collinearity is indicated, one or more correlated variables are excluded to increase the precision of model estimates.

## Summary of effects

Table 1 shows the summary of the model. The variables are ranked in the order of the amount of variation in the model each accounts for. The closer the variable is to the top of the list, the more important it is in terms of explaining differences in outcomes. In this case, the most important predictor is the variable that records the number of credits attained per week. This

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<sup>3</sup> A pseudo R Square statistic for the model was not produced.

explained 25 percent of the variance accounted for by the variables in the model. The second largest effect was Region, which explained 17 percent. The employment history of the learner accounted for 12 percent of the observed variance, while the course major field of study was the next most powerful predictor.

The model suggests that the number of credits attained in each placement, regional conditions and differences, the employment history of learner and the course content have the most influence on learners' destinations two months after leaving a placement. The education history of the learner before entering Training Opportunities is also important. In fact, all of the variables tabulated show statistical significance; that is they are shown to have an influence on outcomes. However, some (those closer to the top of the table) are more influential than others.

Table 1 – Model specifications by variable

Variable	Degrees of Freedom	Chi-Square	% Variance explained	Pr > ChiSq)
Credits achieved per week	12	3,958.2	25.4	<.0001
Region	27	2,702.6	17.4	<.0001
Employment history	9	1,836.3	11.8	<.0001
Course Major Field	27	1,815.8	11.7	<.0001
Education history	6	1,154.3	7.4	<.0001
Year	27	1,133.4	7.3	<.0001
Ethnicity	9	1,109.1	7.1	<.0001
Training provider type	12	823.3	5.3	<.0001
Placement order	9	726.9	4.7	<.0001
Gender	3	300.9	1.9	<.0001

The tables in the remainder of this paper compare the likelihood of different outcomes from Training Opportunities. They do this by comparing the probability of an outcome category with the probability of the outcome being unemployment/out of the labour force (which is referred to as an *other* outcome). This gives an 'odds ratio'. If the odds ratio of an outcome category is *greater* than 1, this means that the outcome is *more* likely than unemployment/out of the labour force. If the odds ratio of an outcome is *less* than 1, then the outcome is *less* likely than unemployment/out of the labour force.

## Credit attainment per week

The rate of National Qualification Framework (NQF) credits attained in each placement, measured by the average number of credits attained each week they participate, was the largest predictor of programme outcome. The more credits learners attain on average each week, regardless of the length of time they are placed, the greater propensity they have to move into employment or further training.

This variable illustrates the effect of a change in the category of credits attained on two month outcomes. It is the most important influence on outcomes. Learners who participate in Training Opportunities attain an average of 1.5 credits per week involved. We could speculate that the credit attainment variable may capture a number of things. It may reflect the ability of learner, at least in part.<sup>4</sup> It may also reflect the quality of teaching in Training Opportunities, that is, the

<sup>4</sup> it is hoped that other variables in the model, such as prior education attainment, would capture the bulk of ability effects.

way that teaching can enable skills acquisition to occur. Unfortunately, a principal cause cannot be inferred from this analysis, as this sort of inference is beyond the scope of a simple model. All this variable can impart is what may occur, for whatever reason, when a certain level of skills are attained, in a set period of time.

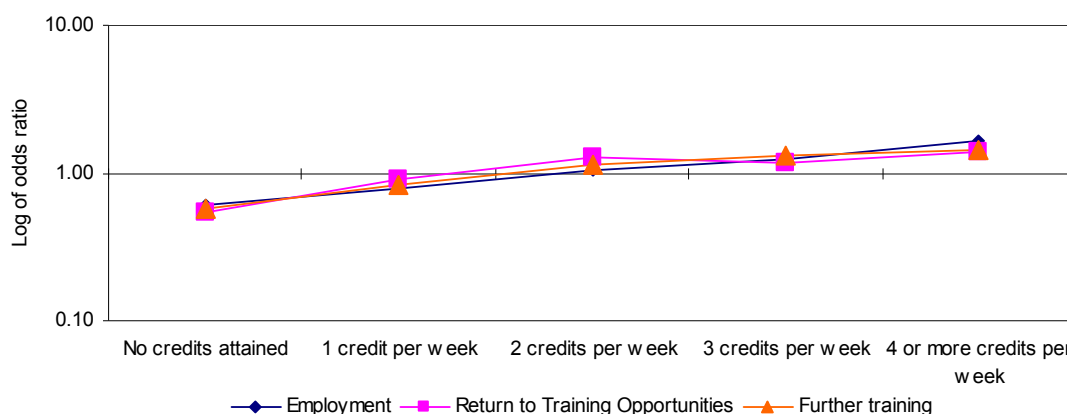
Slower skills acquisition is associated with a lower level of ‘success’ two months after leaving the programme. The corollary of this is that the more credits attained each week, the higher the odds that a ‘positive’ outcome will occur over a ‘negative’ outcome.

Figure 1 shows that for learners who attained no credits, or 1 or fewer credits a week on average over the length of their placement, an *other* outcome (i.e. unemployment/out of the labour force) was the more likely to occur over any of the other outcome categories.

For learners gaining 2 credits a week on average, the odds of any outcome are higher than the odds of an *other* outcome. The odds of further progressive training are higher than the odds of employment or a return to Training Opportunities.

Learners who gained 3 credits per week on average in their placement were most likely to go on to further training, followed by employment and a return to Training Opportunities. Learners attaining 4 or more credits on average per week were most likely to be in employment within two months of leaving Training Opportunities, and the odds of a further training outcome or a return to Training opportunities over an *other* outcome are approximately even.

Figure 1 – Odds ratio of labour market outcome to *other* outcome category by average credits attained per week on placement



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Region

Learners differed by geographical location in the likelihood of attaining each labour market outcome. An *other* outcome (i.e. unemployment/out of the labour force) is the most likely outcome in the Northland and Nelson/Marlborough/West Coast regions. A return to Training Opportunities is most likely outcome in the Southern and Canterbury and the odds of further progressive training over *other* outcomes are highest in the Central and Wellington regions.

Learners in the Bay of Plenty and Eastern Coast regions are most likely to be employed two months after leaving Training Opportunities.

It is not entirely clear whether this variable is showing a geographic isolation effect, an administration effect or a regional labour market effect. Generally learners placed in programmes in areas that are less densely populated have a higher propensity to gain an

employment or further training outcome over an *other* outcome than those placed in metropolitan areas. This points to a partial isolation effect, but one that operates differently for employment than for training outcomes.

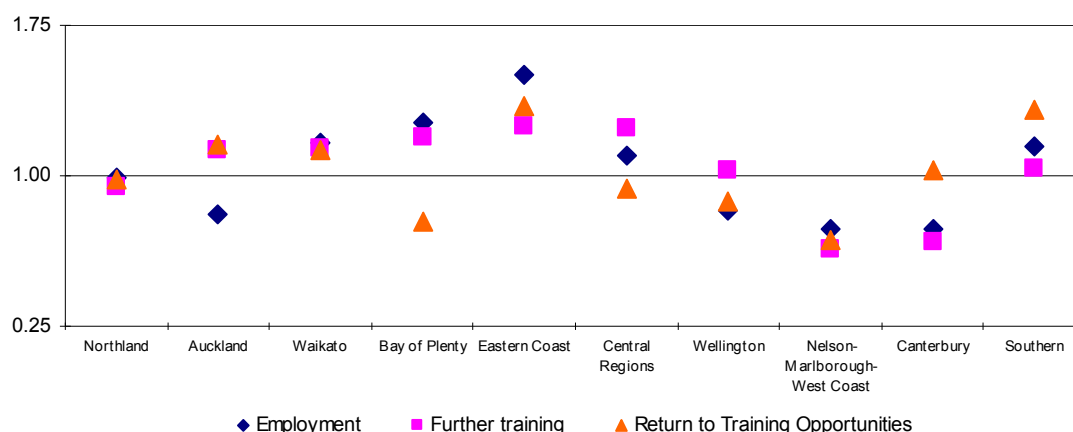
It may be that Training Opportunities participants in some more densely populated areas face stiffer competition for jobs than learners in less densely populated areas; an effect that does not seem to apply to learners in the South Island, however.

Regional effects may also reflect the different concentrations of various industries within them, and differing work patterns. For example, some regions have high concentrations of agricultural and horticultural work, and employment in those regions may be more casually and seasonally-based as a consequence, as well as being more susceptible to cycles in world commodity markets.

There is bound to have been some difference in the strength of the labour market between regions across the time period, and this is also likely to have contributed to the variance explained by this variable. It would be worthwhile modelling regional unemployment rates by year as a predictive factor to determine if this is the case.

It may also be that learners in metropolitan areas / certain regions have higher needs and therefore present more complex cases than those in less dense areas, and these needs are not necessarily correlated with other learner-related variables present in the model.

Figure 2 – Odds ratio of labour market outcome to *other* outcome category by region



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Employment history

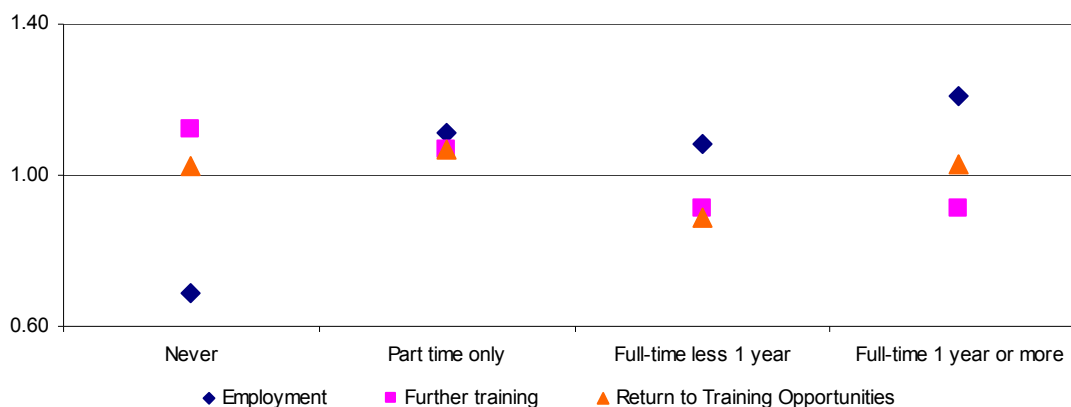
The employment history that the learner brings on first entering Training Opportunities was the third most important predictor of labour market outcome, taking all of the other variables included in the model into account.

Figure 3 shows the odds of an outcome over an *other* outcome for learners in each employment history category. For those who had never been in employment before first entering Training Opportunities, the odds of an employment outcome are low – lower than an *other* outcome and lower than further training. Further progressive training is the most likely outcome.

For those who have worked before entering (even part-time) the odds of employment after Training Opportunities are higher than for an *other* outcome.

Employment is the most likely outcome only for those who have had some form of work experience prior to entering Training Opportunities suggesting that it is their employment experience, perhaps in conjunction with Training Opportunities, that is most influential. It suggests that in the absence of work experience, Training Opportunities participation can only go some of the way to making a person employment ready and/or attractive to prospective employers.

Figure 3 – Odds ratio of labour market outcome to *other* outcome category by employment history of learner



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Course major field

The major field of study of the course was the fourth largest predictor in the model of placement outcome.<sup>5</sup> The two single largest fields represented in Training Opportunities are ‘Society and Culture’ and ‘Mixed field programmes’. Learners in the ‘Society and Culture’ fields are as likely to attain an *other* outcome as an employment outcome, but are more likely to attain a further training outcome than an *other* outcome. Learners in the ‘Mixed field programmes’ field are slightly more likely to attain an employment outcome than an *other* outcome.

Employment is the most likely outcome where the majority of credits available are in applied vocational fields such as the ‘Agriculture Environmental and Related studies’ and ‘Engineering and Related Technologies’ fields. Further training is the most likely outcome of programmes in the ‘Education’ field.

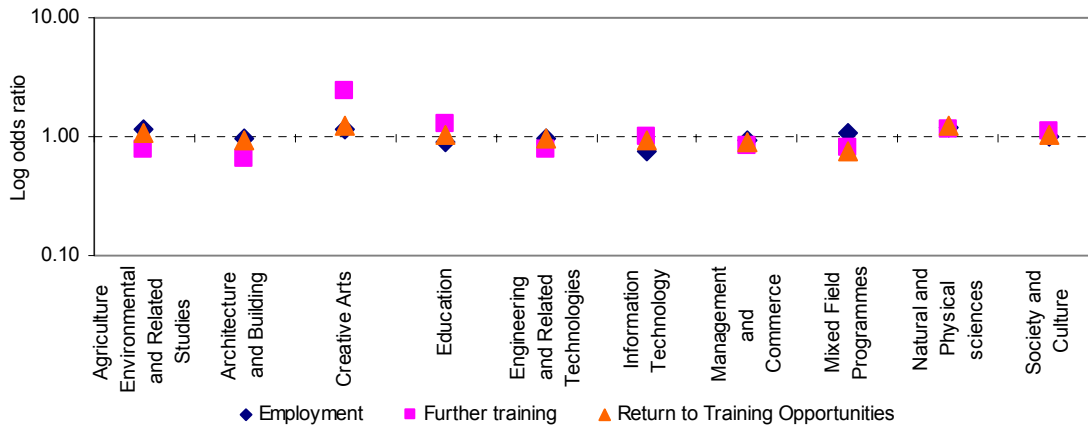
But in ‘information technology’ an other outcome is the most likely, reinforcing other research that shows skill gaps in that industry have largely been for people with more advanced qualifications.<sup>6</sup>

<sup>5</sup> Field of study refers to the NZSCED classification of each course. The methodology used to assign an NZSCED category to Training Opportunities courses is described in Mahoney, P. 2009a.

<sup>6</sup> Earle, 2009, 2008.



Figure 4 – Odds ratio of labour market outcome to *other* outcome category by course major field



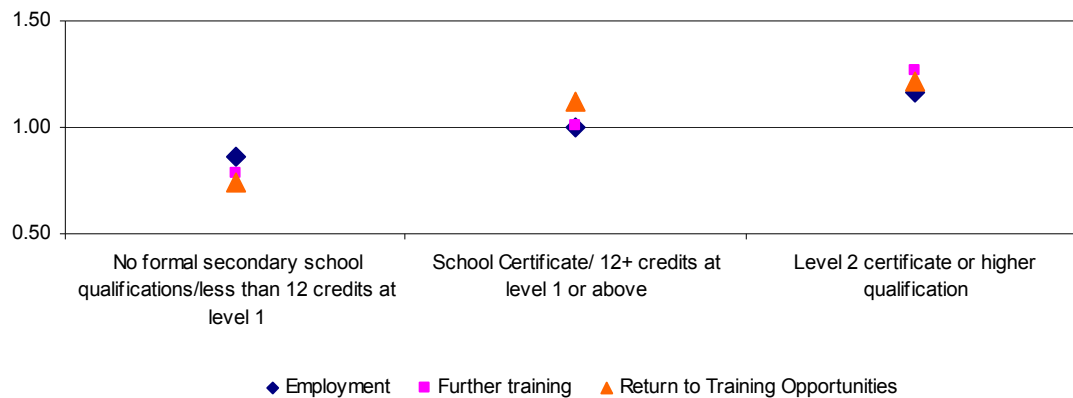
Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Education history

The education history of the learner prior to first entry into Training Opportunities was the fifth largest predictor in the model. The odds of a positive outcome increase with the level of prior education. Unemployment or out of the labour force status (an *other* outcome) is the most likely outcome for learners who had no or low qualifications on entering Training Opportunities.

Curiously, those with the highest level of education pre-entry into Training Opportunities have the highest odds of returning to the programme over an *other* outcome than any other group, while learners with no qualifications pre-entry are less likely to attain any other outcome than *other*.

Figure 5 – Odds ratio of labour market outcome to *other* outcome category by education history of learner



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Placement end year

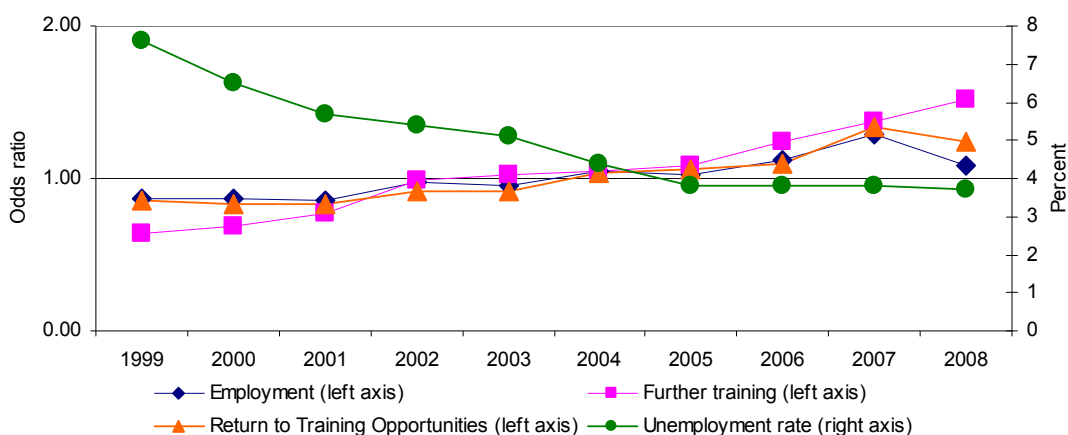
The odds of attaining each placement outcome differs over calendar years. This is probably due to a number of factors that are not included in the model, such as the year to year change of the macro-economic environment, changing labour market conditions and the availability of other / further education options, as well as any differences associated with programme policy adjustments. In effect, this variable may be largely picking up the effects of shifts in the labour market across years.

The odds of an *employment* outcome over an *other* outcome gradually increased across years from 1999 so that by 2004 an employment outcome was more likely than an *other* outcome. The odds of a return to Training Opportunities are lower than the odds of an other outcome until 2007 when it becomes as likely.

Figure 6 shows the odds of each outcome over an *other* outcome by year, and compared to the unemployment rate for each year. As we would expect, the odds of an employment outcome increase when the national unemployment rate decreases, and vice versa. The difference between the two is almost symmetrical: in the years where an employment outcome is more likely than an other outcome, the unemployment rate is below 5 percent.

This symmetrical relationship reinforces the finding that an employment outcome after a Training Opportunities placement is quite dependent on the prevailing labour market conditions at the time.

Figure 6 – Odds ratio of labour market outcome to *other* outcome category by year



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

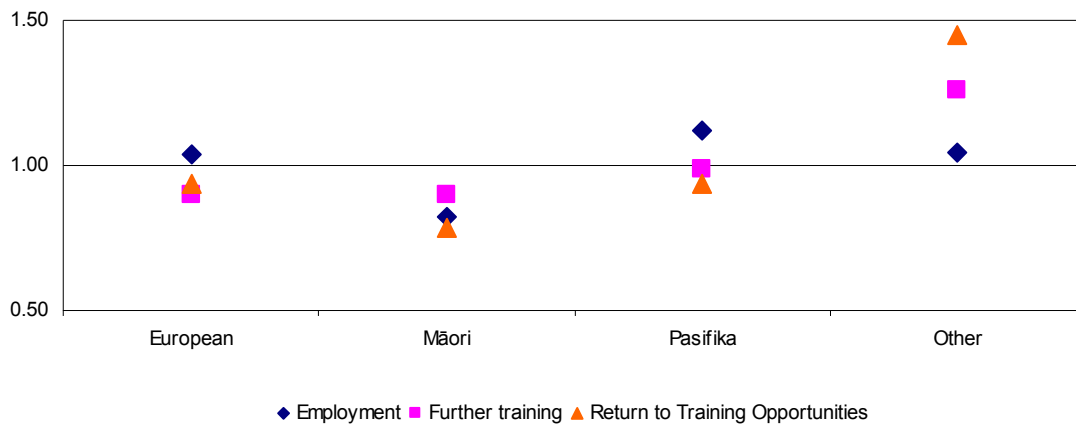
## Ethnicity

The ethnic group of the learner was the seventh largest predictor in the model of placement outcome. Employment is the most likely outcome for European and Pasifika learners, followed by an *other* outcome (Pasifika are as likely to go into further training as to gain an *other* outcome).

Māori learners are most likely to be unemployed on leaving over all other categories of outcomes. Learners whose ethnic group is 'Other' have the highest odds of going on to further training; have the highest odds of returning to Training Opportunities over an *other* outcome;

and are the only group where the odds ratio of an *other* outcome is lower than all possible alternative categories.

Figure 7 – Odds ratio of labour market outcome to *other* outcome category by ethnic group of learner



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Training provider type

The type of training provider was the eighth largest predictor in the model of placement outcome. This variable may capture the differing levels of ‘need’ between the types of learner typically selected to participate in Training Opportunities by each provider type.

For learners placed with charitable trusts, the most likely outcome is an *other* outcome while learners placed with tertiary education institutions are most likely to go on to further progressive training over all other possible outcomes.

Differences in outcome by provider type may reflect the differing trainee selection effects of each provider type, driven by their primary motivations for offering training. Charitable trusts may choose (or be chosen by) people perceived to be the most ‘in need’ to participate in Training Opportunities out of a social conviction, and as such, may not attain a good outcome as often as learners participating with other provider types. Private training establishments may be incentivised to be less likely to select high needs participants as most operate primarily as profit-making businesses. They may try to ensure they fulfil outcome targets by choosing learners who are less ‘in-need’ to participate in their programmes, otherwise their funding may drop.

Learners placed with employers are most likely to have an employment or return to Training Opportunities outcome, while for learners placed with private training establishments, employment is the most likely outcome, and an *other* is the least likely outcome.

As might be expected, learners placed with tertiary education institutions are most likely to go on to further training over any other form of outcome.

Figure 8 – Odds ratio of labour market outcome to *other* outcome category by training provider type



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Placement order

This variable simply shows the order of the placement for each learner. Overall, the odds of an employment outcome over an *other* outcome increase with the order of the placements until the learner reaches their fourth or more placement, when the odds of employment occurring over an *other* outcome begins to decline.

The odds of attaining a further training outcome over an *other* outcome increase as the number of placements increase, and the odds of a return to the programme also consistently increase with each successive placement.

Learners leaving their first placement were most likely to attain an *other* outcome, then a return to Training Opportunities outcome. They were less likely to attain an employment outcome. Employment becomes the most likely outcome after the second placement ends.

There could be a number of explanations for these effects. Two possible (polar opposite) explanations have been suggested: that this is showing a training effect, or the alternative, an opposite explanation is that the trends in figure 9 suggest a needs effect. It is difficult to distinguish between a needs effect and a training effect hypothesis in this case, but on balance it seems that the training effect can be more highly supported.

That employment is only more likely than an *other* outcome after the second placement ends suggests that just one placement in Training Opportunities is rarely enough for a learner to succeed. This implies a training effect rather than a needs effect.

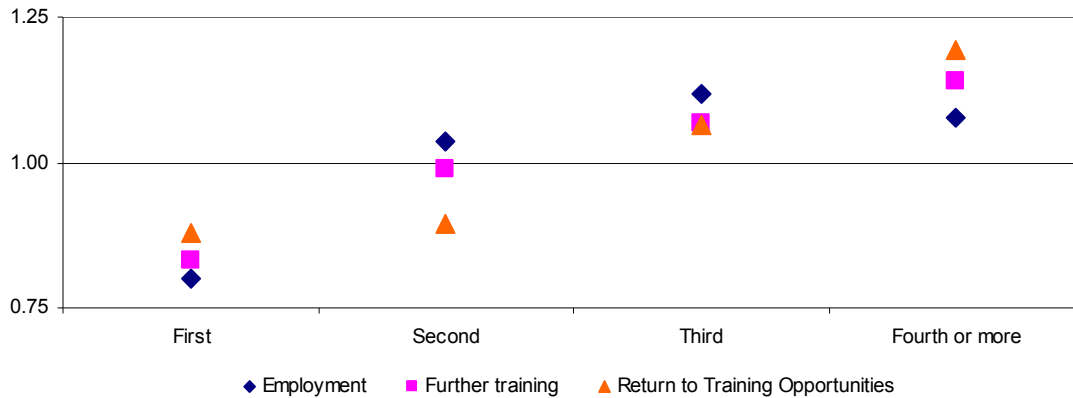
The decline in the likelihood of employment between the third and fourth placement could be for any of several reasons. It might suggest that those who undertake four or more placements have higher needs than those who have fewer placements, and are therefore less likely to be successful than other learners who need fewer placements.

That employment becomes the most likely outcome only after the second placement ends suggests that this is showing a training effect rather than a needs effect. We could hypothesize that if this was a needs effect, learners with only one placement would be more likely to gain employment and further training than an *other* outcome, but this is not what we see.

The alternative explanation for the trend we see in figure 9 (the training hypothesis), is that repeated placements may be ‘marking’ learners as people with problem or high needs. These people may become less attractive to employers as their CV shows more and more spells in Training Opportunities. Further training outcomes become more likely as the number of placements per learner increases, again suggesting a training hypothesis.

That learners with multiple placements are most likely to return to Training Opportunities over any other outcome is interesting and could be explored further. It supports both a needs hypothesis and a training hypothesis.

Figure 9 – Odds ratio of labour market outcome to *other* outcome category by placement order



Note: points above 1 indicate more likely to occur than an *other* outcome, while points below 1 indicate the outcome is less likely to occur than an *other* outcome.

## Gender

The learner’s gender was the tenth largest predictor in the model of placement outcome. Employment was the most likely outcome for males, however females were more likely to go into further training or return to Training Opportunities than attain an *other* outcome.

Table 2– Odds ratio of labour market outcome to *other* outcome category by gender

Gender	Outcome	Estimate	Pr > ChiSq	Odds ratio
Female	Employed (full and part-time)	-0.22	0.00	0.94
	Return to Training Opportunities	-0.12	0.00	1.01
	Further progressive training	-0.02	0.02	1.08
Male	Employed (full and part-time)	0.22	ref	1.06
	Return to Training Opportunities	0.12	ref	0.99
	Further progressive training	0.02	ref	0.93

## Conclusion

Training Opportunities outcomes are strongly influenced by a range of internal and external factors. Using the administrative dataset to examine the key influencers of two month labour market outcomes shows that, of all the administrative variables, the rate at which learners attain credits is the most powerful predictor of two month outcomes.

There are also large differences between different regions, perhaps reflecting the differing regional labour markets in New Zealand. The employment history of the learner is one of the more important influencers, with learners with no or little prior labour market experience less likely to gain employment than others.

Other strong influencers are the education history of the learner, the strength of the national labour market, training provider type (a proxy for 'need'), placement order and gender.

This shows that the strength of Training Opportunities two month outcomes, as for Youth Training<sup>7</sup>, depend quite heavily on factors external to the programme, such as the strength of the labour market and employers' willingness to employ persons with little or no prior labour market experience, as well as what occurs on training programmes. In times of economic downturn, when jobs are necessarily scarce, it is likely pressure for participation in Training Opportunities will increase, but also that two month employment labour market outcomes will decline. Further training outcomes may increase at such times, as well as the proportion of learners who return to Training Opportunities.

The mix of unit standards between various fields of study seems to have some influence, with learners in vocationally placed courses more likely to gain employment than those who take predominantly generic or humanities fields courses.

There are clear differences between ethnic groups, and these may be due to a multiplicity of factors, including the concentration of Māori and Pasifika in certain industries, and the decline of these industries (for example manufacturing and forestry).<sup>8</sup> Females are less likely to gain employment than further training, and the opposite is true for males.

There may also be a marking effect with persons placed multiple times in Training Opportunities: employers may be less willing to offer employment to people who they perceive to be 'high needs', and multiple placements (four or more) may label them as such. Alternatively, the decline in likelihood of employment outcomes for learners placed four or more times may be because only people with the highest need have this many placements (and this need is somehow not captured by the other variables in the model). On balance the prior explanation (the training effect) seems more likely.

It should be noted that the outcomes collected for Training Opportunities are short term and little information on the longer term effects of participation in the programme is currently available.

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<sup>7</sup> See Mahoney, P 2009 (2).

<sup>8</sup> Department of Labour, 2009. pg. 18.

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