

## **THE COST AND VALUE OF CARPENTRY APPRENTICESHIPS TO EMPLOYERS IN THE AUCKLAND AND THE WIDER NZ CONSTRUCTION INDUSTRY**

BLAKE HOGARTH AND LINDA KESTLE

*Unitec Institute of Technology, Auckland, New Zealand*

---

### **ABSTRACT**

The Auckland construction sector is currently faced with a skills shortage which has the potential to impede the industry's further development. The research focused on the potential of carpentry apprenticeship programmes to assist with this shortage, and evaluated the cost-benefit relationship of such apprenticeships within medium/large scale commercial construction companies in the Auckland construction sector, to determine the value to employers of this form of vocational training.

Semi-structured interviews were conducted with senior management level staff of established construction companies within the Auckland sector, to explore employers' perceptions of the value of apprenticeship training to employers. In addition, a quantitative analysis of data provided by the participating companies was carried out, to identify the overall cost of an apprentice to the employer over the vocational training period. Responses suggested growing concern within the industry about the skills shortage currently facing Auckland construction. Whilst the findings indicated an overall financial cost to employers during the four year training period, the respondents agreed that the practical benefits to the company and to the industry as a whole outweighed any financial implications. Apprenticeship training could therefore mitigate future risk by focusing on developing the knowledge capital of apprentice carpenters within the industry.

### **KEYWORDS:**

Apprenticeship; cost-benefit; work place learning; knowledge capital; vocational training.

### **INTRODUCTION**

Currently the New Zealand construction industry is undervalued, and is facing an increasing skills shortage. This situation can be partly attributed to the recent leaky building debacle that crippled the industry's reputation and cost-effectiveness, in turn bankrupting many high profile construction firms. Whilst the immigration of skilled workers offers a short-term response to the skills shortage, a long-term strategic plan needs to be created. One valid option would be an increased focus on carpentry apprenticeships/cadets in order to build a wider number of skilled practitioners with a significant knowledge of the industry and committed to 'best practice'.

The issue of apprenticeship training and its importance to the New Zealand construction industry has recently gained significant attention with the government initiatives announced in July 2013 by financial minister Hon. Steven Joyce. The initiatives involve government allocated financial aid to both newly recruited apprentices and their employers, in a bid to promote and increase the number of apprentices in New Zealand by 3,500 personnel.

Whilst there is a need for training apprentices, the cyclical 'boom-bust' nature of the construction industry, coupled with increased manufacturer and design complexities, has resulted in employers' perceptions of the value and costs of training apprentices to be questioned.

One particular Australian study researched the net costs of modern apprenticeship training to employers and suggested that whilst apprenticeship programmes cost an employer over the training period, there are many valuable returns which cannot necessarily be measured financially (Hogarth and Hasluck, 2003). This investigative studies by Hogarth and Hasluck (2003), and Hoeckel (2008), focused specifically on the core values gained by employers, and the costs associated with training

apprentices in the wider construction industry, in a bid to understand whether and how apprenticeship training is advantageous to employers.

## LITERATURE REVIEW

The cyclical nature of the New Zealand construction industry has recently seen businesses struggling for work, which has resulted in the liquidation of many, and the significant restructuring of others. With these changes, businesses have had to lay off skilled staff and apprentices who have either gone out on their own, left the sector altogether, or gone overseas, particularly to Australia (Quinn, 2011).

The New Zealand construction sector has been building 14,000 – 15,000 new homes per annum for the last few years, with a slight decrease predicted for 2012/13. The sector has adjusted to a level equal to those demands, with capacity for minor growth in the near future. The industry's capacity needs to be combined with the knowledge that the Christchurch rebuild requires approximately 10,000 new homes, 100,000 still need to be repaired, and significant commercial redevelopment is planned for the CBD. The skills shortage is therefore potentially very significant and will continue for a reasonable length of time. In addition, there is consensus that the impending Auckland housing shortage may be as high as 20,000 (Quinn, 2011). The Christchurch rebuild and Auckland's city housing crisis, has the very real potential to impede the industry's ability to cope with the demand.

The NZ Building Construction and Training Organisation recently stated that “there are only around 5000 building apprentices currently training, with the turn of the financial crises, and the subsequent building lull, an estimated 8,500 apprentices will be needed”.

As a form of vocational training, the distinguishing feature of a building apprenticeship is the existence of a contract between the apprentice and employer that the apprentice will serve under the employer for a set period, typically four years. In return, the employer undertakes to impart the skills required in the building trade through on-the-job training, whilst in conjunction with the apprentice completing off-the-job technical training through a tertiary institution, (Dockery et al., 1997). Carpentry apprenticeship programmes are the acknowledged platform for the transfer of both tacit and explicit knowledge from the established trained workforce to the trainees entering the construction industry and play a critical role in the construction industry's ability to up-skill and prosper.

There is an abundance of literature pertaining to the costs and benefits of training apprentices. However, the majority of the selected literature comes from Australia, the United Kingdom, France and Germany. The literature was found to be applicable to the New Zealand context, as the construction industry training is relatively similar in terms of content, duration and costs.

The recent National Government changes to the apprenticeship scheme in New Zealand is set to boost the number of people in apprenticeships to fill the gaps currently faced in Auckland and Christchurch by combining all apprenticeships into a single nationwide scheme, and providing new financial incentives for employers and workers in a bid to increase the number of apprenticeships, (Joyce, 2013). The initiative was setup to give the first 10,000 new apprentices who enrol after April 1<sup>st</sup> 2013, \$1,000 towards their tools and off-job costs, or \$2,000 for newly recruited apprentices, if they are in priority trades. This amount to be paid to the employers as well.

The new initiative also includes:

- The ‘rebooting’ of the apprenticeship scheme to potentially increase the number of apprentices by 14,000 over the next five years, this is in addition to the 7,000 who already enrol every year, (Joyce, 2013).
- The unification of modern apprenticeships and other apprentice-style training to form an improved scheme called New Zealand Apprenticeships. Fewer than half of the people

undertaking apprenticeship-type training are actually funded as true apprentices, but with the newly implemented scheme this will change.

- A significant boost in overall funding for apprenticeships with subsidy payments set to increase by around \$12 million in the first year, rising over time. The increased funding will allow industry training organisations to invest in the quality education provided.
- The educational content of apprenticeships is set to be boosted to a minimum 120 credits which will result in a level 4 qualification.
- A clearer set of roles and guidelines, coupled with performance expectations for industry training organisations which has been implemented to give employers other options if the ITOs do not perform (Joyce, 2013).

The key features of the New Zealand are that :

- Theory work training typically spans a 3-4 year period, and this is dependent upon a student's ability to pass the required credits at each level.
- Practical work typically is based on the completion of an 8000 hour apprenticeship, which translates to approximately four years (dependent upon hours worked).
- Training takes place either via correspondence through the Building Construction Industry Training Organisation (BCITO) or through tertiary institutions such as Unitec Institute of Technology (Unitec), or Manukau Institute of Technology, (Smith et al.).

Listed below are the approximate durations of international apprenticeship programmes, that according to the reviewed literature, are comparable to the New Zealand apprenticeship schemes.

- British apprenticeship system tends to take 3 years (Hogarth & Hasluck, 2003).
- Swiss programmes are spread over a 4 year period (Wolter et al., 2006).
- German and French programmes tend to span 4 years (Fougere and Schwerdt, 2002).

In addition, the apprenticeship training structures internationally, are similar to those in New Zealand, in terms of the on-the-job training and theoretical study for both employers and apprentices. The maximum standard incentive that is payable for an apprenticeship at certificate level 3 or higher is fixed at \$4,000. The government has removed the progression incentives, and increased the proportion of the total amount payable upon the apprentice completing the trade certificate, from 37.5% to 62.5%. The change places more emphasis/incentive on increasing completion rates, (Knight and Karmel, 2011).

The Australian government has a detailed incentives scheme and also makes personal benefit payments to apprentices and trainees, through the Australian Apprenticeships Centre. The benefit payment structure is far more detailed than the New Zealand structure described above. Currently the personal benefit payments include:

- A long standing Living Away From Home Allowance, pays \$77.17 (AUD) a week in the first year, \$38.59 in the second, and \$25.00 as the final year payout.
- A \$13,000 (AUD), (with income tax benefits) over the first two years under the 'Support for Mid-Career Apprentices Initiative'.
- A \$2,000 (AUD) in tax-exempt payments, under the Apprenticeship Wage Top-Up for trade apprentices in national skills shortage occupations, (Knight and Karmel, 2011).

Studies investigating the factors determining a firm's willingness to train apprentices tended to be based on the assumption that profit-based companies calculate the likely cost-benefit ratio of training an apprentice. From this calculation the companies make a decision as to whether they proceed with offering an apprenticeship training programme, (Wolter et al., 2006).

German economic research suggested that most apprentices offset the cost of their training during their apprenticeship on the basis of the productive contributions of the work they perform. Therefore the real benefit for firms in training apprentices revolves around the productive contribution apprentices make to the business (Wolter et al., 2006).

Research conducted in an Australian study by Hogarth and Hasluck (2003), found that whilst an apprenticeship programme does not necessarily benefit the firm in a financial manner, (it in fact costs the firm over a three year period), it does however provide the opportunity for the firm to reduce labour turnover and helps create a supply of future supervisors and management level staff. Additional benefits mentioned in the study included the enhanced reputation of the firm as a 'good employer', social benefits, and the promotion of links with training providers and schools. Hoeckel (2008), found that employers benefit as productivity increases, and also from government and industry training organisation incentives, reduced costs of recruiting external skilled workers, and reduced outage costs when skilled workers are in short supply. Employers reap benefits by saving costs incurred when hiring new employees, including the recruitment process, integration of new employees and the risk of hiring a person not previously known to the company.

In terms of the various cost components associated with apprenticeships, Hoeckel (2008) suggested that costs were divided into direct costs (including apprentice wages, salaries for training personnel, teaching material, and equipment), and indirect costs such as tax expenditure or subsidies, but also opportunity costs, and drop out costs. Nechvoglod et al., (2009) research concluded that apprenticeship training involved a substantial financial commitment from both employers and apprentices, and the highest cost for employers was supervision costs. Wages were structured more-or-less to their productivity rates. In addition to indirect costs, Nechvoglod et al., (2009) also included administrative costs, extra maintenance and material wastage costs of apprenticeship training.

The literature review underlined key themes associated with the benefits of apprenticeship training. Significantly, studies by Hoeckel (2008) and Dockery et al. (1998), identified comparable key findings relating to employer based benefits in trade industries.

## **METHOD**

The research question was, "what is the cost-benefit relationship of apprenticeship programmes to employers in medium-large scale construction companies in Auckland, and the wider New Zealand construction industry?"

A mix of qualitative and quantitative research methods were selected to provide answers to the research question. Qualitative face-to-face semi-structured interviews were conducted with five senior management personnel from four well established medium –large scale construction companies, based in Auckland.

The sample group of participants for the research project consisted of team members within four medium – large scale construction companies within Auckland, with the following roles:

- Senior management in charge of contracts/employment
- Site management/superintendent roles.

The five participants had been responsible for 47 apprentices whilst they were completing their training over the immediately previous 5 year period.

The interview questions were developed from the findings in the literature analysis, and in addition

a quantitative cost document analysis was undertaken. The quantitative statistical analysis used in the research project followed a simple layout in table form. Data relating to tuition costs was sourced directly from the training institutions, and being public knowledge posed no ethical difficulties. Other cost components absorbed by employers were detailed during the interview process, and raw data ascertained after the interview through the use of a follow up emails and

phone conversations with the participants. This allowed the participants sufficient time to detail costs accurately.

## **DATA FINDINGS AND ANALYSIS**

### **Skills shortage within the wider construction industry**

The findings on the supposed skills shortage within the construction industry are in line with the literature findings, (Quinn, 2011) suggested that there is a definite skills shortage within the wider construction industry. The literature review did not indicate a period of time that the skills shortage had been developing, whereas the research findings indicated that a skills shortage has been developing for the last 10 – 15 years, and more alarmingly an estimate that there has been 25 years of decline in construction workers skills. All of the participants underlined the following key skills lacking in the current wider industry:

- Ability to read plans.
- Understanding and implementing manufactures correspondence.
- Work unsupervised.
- Ability to use set out equipment such as theodolites, dumpy and levels.

Consistencies among the participants identified that the larger more established companies played a significant role in bridging the skills shortage by placing an emphasis on training apprentices, investing heavily in training and up-skilling of apprentices, as they play a vital role in filling the current skills shortages within the industry Quinn, (2011).

### **Tuition costs and payment methods**

Four of the five participants interviewed paid for the apprentices' tuition costs. One of those employers paid the costs upfront whilst the other three employers opted for a reimbursement strategy whereby the initial costs were divided equally between the apprentice and the employer with a reimbursement payment to cover the apprentice's investment once he/she had passed their year's unit standards.

The remaining participant worked on a split payment method (50/50) with the apprentices, no reimbursement payment method was in place. The participant paid apprentices slightly more than the average going-rate to offset the apprentices' contributions for their tuition. The tuition costs through Manukau Institute of Technology comprise:

- Year 1 \$2570.00
- Year 2 \$2463.00
- Year 3 \$3186.00

Total fees for a level 4 certificate in carpentry (qualified carpenter) is \$8,219.00 , whereas BCITO training fees are \$7,585.00 approximately.

### **Remuneration level whilst training**

The literature did not delve into remuneration levels, but it did place an emphasis on the associated financial risk of remuneration, (Dockery et al., 1997). Remuneration levels were viewed by many as an important factor when assessing the financial feasibility of vocational training, (Wolter et al., 2006).

The research findings identified a common trend among participants that an apprentice's wage was not a determining factor when assessing the feasibility of carpentry apprenticeships. When asked, "would you employ more apprentices if the wage level was reduced?", the participants universally answered no. Participants commented that a reduction in wage levels would have an adverse effect on the apprentices training by placing unnecessary financial strain on the apprentice. This response suggested that employers did not view an apprentice's wage level as a

risk. More importantly, the findings suggested that wage costs had no effect on a firm’s decision to hire an apprentice, and that employers undertake apprenticeship training programmes for the benefit of the business, and also the employee.

**Government apprenticeship initiative**

Each of the participants were asked whether they were aware of the recent government initiative around apprenticeships in New Zealand. Four of the five participants had heard of the July 2013 initiative with just one unaware of the new scheme. Whilst four participants saw value in the scheme, only one was planning to involve two of his apprentices under the new scheme. Whilst respondent 4 did not see any value in the scheme for his specific business (due to its scale), he did however see value in it for smaller ‘labour only’ contractors, who have used it to secure a younger work force whilst aligning themselves with training institutions such as BCITO and Manukau Institute of Technology.

**Perceived productivity contributions by apprentices whilst training**

The research findings showed that productivity increases by apprentices were rated the least valuable benefit by employers in terms of the five options presented. This was surprising in the sense that productivity and monetary gain are usually closely related. Generally, businesses are able to recoup the money invested in an employee through their productive contributions on-site, (Dockery et al., 1997). Hoeckel (2008) though, asserted that benefits accruing to employers can be measured in different ways, such as productivity performance contributions by apprentices. When asked what an apprentice’s contribution might be during each year of their apprenticeship, the participants’ answers were typically similar, with only one offering a contrasting view, refer Table 1 below.

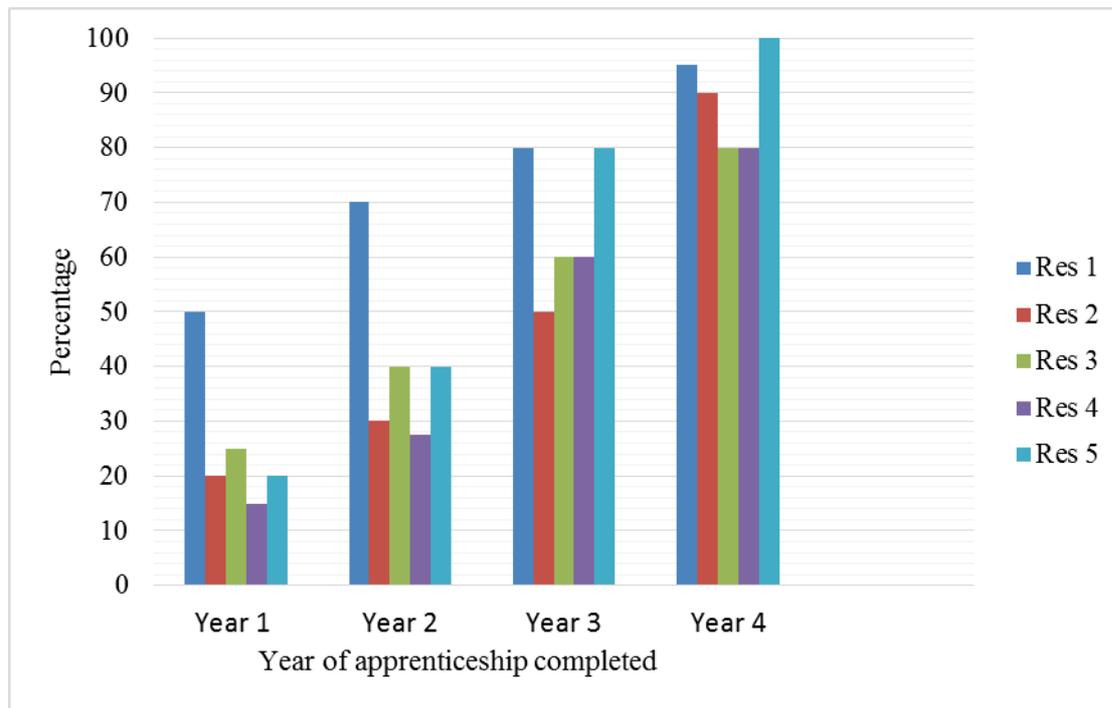


Table 1 Perceived Productivity Contributions of Apprentices

**Perceived main benefits of training an apprentice**

The literature review identified that the driving factor behind an employer’s involvement in apprenticeship programmes was the benefit the employer received throughout the course of the apprentice’s training period. The benefits highlighted in the literature review informed the

interview questions provided to the participants to rank in order of priority. The research findings on the perceived benefits of apprenticeship training, showed that participants ranked ‘added value to the industry’ as being a primary benefit, refer Table 2. In order for the wider construction industry to develop and successfully meet the sectors demands, participants suggested that a focus must be placed on training the future generations to ensure the transfer of knowledge and experiences

One participant ranked this factor as the highest priority stating that he was “*appalled that the major players in the commercial industry are not investing more heavily in training*” he continued by asserting “*that we have moved to a sub-contract or labour only contractors to cap our risk as opposed to self-performing.*” The result of this view has seen a deterioration in in supervision on site.

The findings established that staff retention was ranked as the second highest priority for employers training apprentices, and that a business was able to recoup the money invested in training an apprentice rapidly through increased charge-out rates, and the productivity of the ‘now’ qualified worker. Training of future management level staff was considered of marginally less benefit than ‘staff retention’, and similar to ‘added value to the industry’. Only one participant scored it as the least beneficial element of apprenticeship training to employers. This could be related to the particular business structure and the typical scope of works.

The findings tended to imply that from an employer’s perspective, there is in fact more value to the business for a newly qualified carpenter continuing as a productive carpenter, than progressing them to a management role.

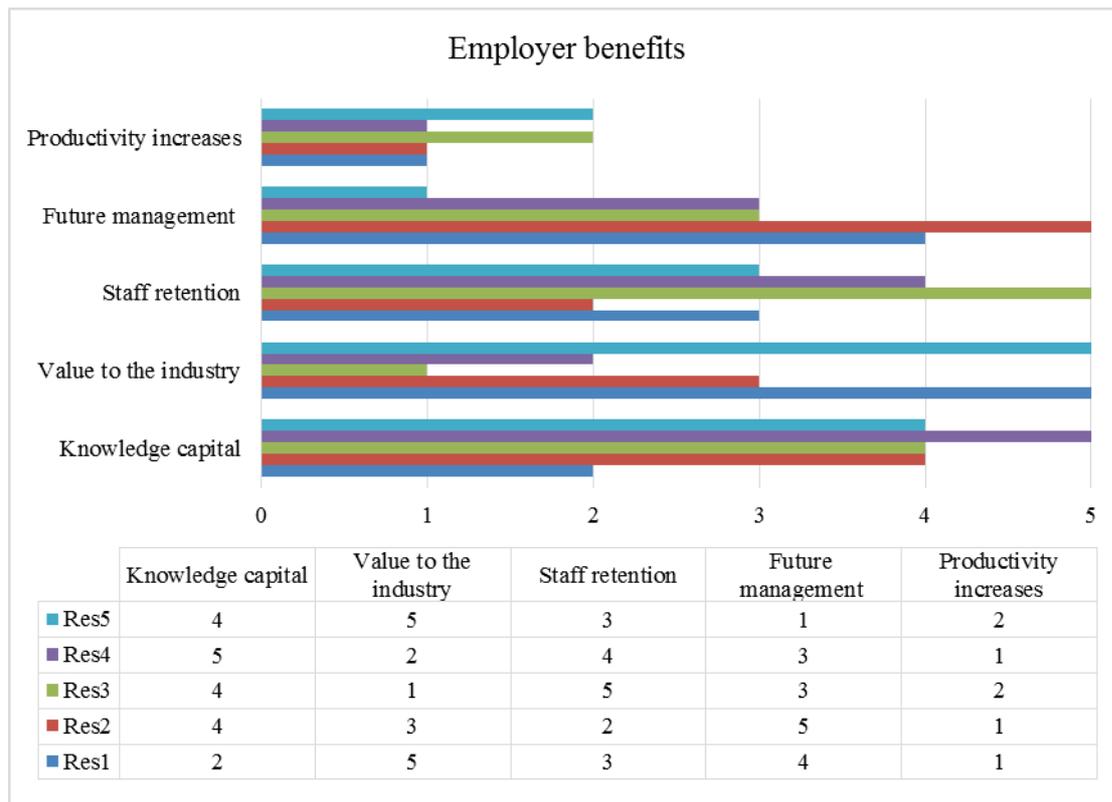


Table 2. Employers perceived benefits of apprenticeship training  
 Contrary to this information, the literature suggested that the cost effective screening of future management level employees is of value to employers (Fougere and Schwerdt, 2002),

**CONCLUSION**

The importance of carpentry apprenticeships has recently been emphasised by the skills shortages currently impacting on the construction industry's ability to perform. Whilst there are options to fill this skills shortage with imported skilled labour, a longer term answer is required.

The research conducted built on the literature available to assess the cost-benefit and value of carpentry apprenticeship programmes to employers in medium-large scale construction companies in Auckland and the wider construction industry.

The findings suggested that whilst a carpentry apprenticeship poses a financial risk to employers, the value gained by both the employer and the value added to the wider industry eclipses these costs, making carpentry apprenticeship programmes an essential part of the construction industry.

These findings agreed with the research conducted by Hoeckel (2008), and Hogarth and Hasluck (2003), where the main cost items associated with carpentry apprenticeships were supervision costs, tuition costs and to a lesser extent, remuneration. Similarly, the findings showed that the predominant benefits linked to apprenticeship training were, 'developing knowledge capital within the business', 'staff retention', 'added value to the construction industry', 'training of future management level staff' and 'increased productivity'. The current government stance on modernising apprenticeships in New Zealand has suggested an increased focus from all parties involved in apprenticeship that training is beneficial to the country's various related industries. The newly announced apprenticeship scheme and financial aid in 2013 is proving to be beneficial to employers who have, or are in the process of employing apprentice carpenters.

## REFERENCES

- Dockery, A. M., Koshy, P., Strombach, T. and Ying, W. 1997. "The cost of training apprentices in Australian firms". Perth, Western Australia: Murdoch University.
- Dockery, A. M., Norris, K. and Strombach, T. 1998. "The Social Return to Apprenticeship Training". Australian Economic Review, 31(1), 37–46. doi: 10.1111/1467-8462.00049
- Fougere, D. and Schwerdt, W. 2002. "Are apprentices productive?". Konjunkturpolitik 48: 317-346. Germany.
- Hoeckel, K. 2008. "Costs and benefits in vocational education and training". Paris: Organisation for Economic Cooperation and Development.
- Hogarth, T. and Hasluck, C. 2003. "Net costs of modern apprenticeship training to employers". Nottingham, England: Institute for Employment research. Retrieved from [http://www2.warwick.ac.uk/fac/soc/ler/publications/2003/hogarth\\_and\\_hasluck\\_2003\\_rr418.pdf](http://www2.warwick.ac.uk/fac/soc/ler/publications/2003/hogarth_and_hasluck_2003_rr418.pdf).
- Joyce, S. (2013). "New Zealand apprenticeships to boost skills & support jobs". Retrieved from <http://www.beehive.govt.nz/release/new-zealand-apprenticeships-boost-skills-amp-support-jobs>
- Knight, B. and Karmel, T. (2011). "Overview of the Australian apprenticeship and traineeship system". Rethinking Apprenticeships Report. IPPR.UK.
- Nechvoglod, L., Karmel, T. and Saunders, J. (2009). "Costs of training apprentices". Adelaide, Australia: The National Centre for Vocational Education Research

Retrieved from <http://www.avetra.org.au/AVETRAWORK11.04.08/CS4.10-LisaNechvoglod.pdf>.

Quinn, W. 2011. "Do the numbers". *Building Today*. 21(3),4,5. Retrieved from <http://www.buildingtoday.co.nz/Shared/Documents/Issues/BTapr11lores.pdf>.

Wolter, S. C., Muhlemann, S. and Schweri, J. (2006). "Why Some Firms Train Apprentices and Many Others Do Not". *German economic review*, 7. doi: 10.1111/j.1468-0475.2006.00155.x.