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**Training Approaches, Preferences and  
Outcomes in Manufacturing SMEs**

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## **Abstract**

Unlike previous studies which concentrate only on formal training, this is a detailed empirical analysis of the influence of formal and informal training on performance in manufacturing SMEs. Findings indicate that, while SME managers may prefer informal approaches, formal training is a targeted activity that contributes more significantly to performance than informal training. However, the approach and influence of training is dependent on contingent factors. A model is proposed for a detailed study of these contingent factors using a multivariate statistical analysis. Findings also suggest that policy support for SMEs should be idiosyncratic and requires a detailed understanding of context.

## **Keywords:**

Small Firms, Training Approaches, Management Development, Performance, Business Support

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## 1. Introduction

The contribution of small- and medium-size enterprises (SMEs) has been recognised worldwide. For example, according to a recent survey by Small Business Services (2002) there are some 3.8 million enterprises in total in the United Kingdom, of which small and medium-sized enterprises account for 99.9 percent. In terms of UK employment and business turnover, SMEs account for 55.7 and 51.9 percent respectively (ibid). It is also suggested that “*one of the key reasons for low-levels of UK productivity is the ‘long-tail’ of badly-managed and under-performing small firms*” (Jones, 2003: 16). This concern for management capabilities is not new and, in the UK, both academics and policy makers alike started in the early 1970s to pay attention to the role played by SMEs in economic growth, employment, and technological change (Bolton Report, 1971; Rothwell and Zegveld, 1982; Gibb and Scott, 1985; Storey, 1994; Keeble et al., 1998; DTI, 2000). Despite this concern and many initiatives to encourage small firms to grow, management skill shortages still exist in the SME sector and management development and training in the sector remains a policy priority.

The Labour Market Survey (2001) showed a clear relationship between business failure and a lack of planning or training by SMEs. Lack of management skills and inadequate and inappropriate training provision has been highlighted as a particular problem (DTI/DfES, 2002). Research has also shown that because of the habit of promoting informal training over formal training, small firms operating in the manufacturing sector are in a relatively disadvantaged position (Matlay, 1999). Storey and Westhead (1997) suggest this is either due to ignorance or market choice about the efficacy of training provision. Thus, both demand and supply factors provide explanations as to why small firms are reluctant to invest in training (Centre for Enterprise, 1999). From the demand side, it is believed that one of the difficulties is the lack of quantifiable evidence that shows a link between training and performance (Marshall et al, 1993, 1995; Patton et al, 2000). In addition, openness to new practices may be determined by the organisational character of a business and, therefore, characteristics such as age, size, ownership form and main industrial activities ultimately determines the nature and extent of training demand (Hendry, et al, 1991). By making such a link more explicit and informing managers of the

benefits, demand and interest for training and management development within SMEs could be improved. Alternatively, from the supply side, small firm managers are making an informed choice. After assessing the market for training and expected benefits they are deciding not to invest in what is currently available (Storey and Westhead, 1997). In this instance, to provide tangible benefits, training policy and delivery systems need to promote targeted efforts with increasing relevance based on the firm conditions (Perren, et al, 1999). That is, a company will find training a useful investment as long as they see its contribution in relation to its management structures, staff numbers, operating rules and management conditions (ibid).

Whether the problem is in either supply or demand, it is clearly important to understand the links between training and performance. This is not a simple task. Those researchers who have failed to identify a positive impact of training on performance point out the difficulties in demonstrating such a link. In particular, there are a multitude of other external and internal variables that put weight into this relationship (Storey, 2004). Despite these difficulties this remains an important area of research, and in this paper we investigate the training-performance link by first exploring theoretical gaps in the small firm training-performance literature. We note that the contribution of different approaches to training may be particularly relevant given the fact that small firms are considered to invest in informal rather than formal training approaches (Matlay and Hyland, 1997; Storey, 2004). Thereafter, using multivariate analyses we explore whether the incidence, intensity and approach to training are linked to the performance of the small business, and how contingent variables might influence the approach taken. Building on previous studies, this study seeks to provide both theoretical and practical contributions to the subject of small firm training and development.

## **2. Review of the training-performance relationship**

The general assumption is that those businesses that pay more attention to training and development will be more successful in the long run of the business, and this premise underpins a significant investment in small firm training through European Social Funds (Devins and Johnson, 2003) and by national governments in many OECD countries (Storey, 2004). Although this claim is widely established, concluding evidence to show that training and management development enhances

small firm performance is equivocal (Storey and Westhead, 1994; Storey, 2004). A large body of the SME training literature has attempted to address this issue by empirically testing the relationship between training investments, both resources and time, and firm performance with individual and firm level data. Several recent reviews, however, have shown that the empirical evidence for training influence on firm performance is generally inconsistent and inconclusive (see for example, Morgan et al, 2002; Heraty and Morley, 2003; Storey, 2004). While some studies have found a positive relationship (Centre for Enterprise, 1999; Huang, 2001) others have reported a zero or negative relationship (Storey, 1994; Westhead, 1998). Cosh et al (1998) claimed a relationship between training provision and business performance in terms of employment and sales growth, but no such relationship exists when profit margins are taken as the dependent variable. The study conclusion was that there is a positive, but not statistically significant link between training and business survival. Recently, when investigating the link between ESF Objective 4 interventions and performance, Devins and Johnson (2003) found a modest and short-term influence, particularly in relation to hard financial outcomes. Baldwin et al (1995), in a broad survey of Canadian SMEs, found that business success is not associated with training alone as most successful firms tend to train less staff than less successful ones. Training could impact firm performance, but only when included alongside 'bundles' of other HRM methods (Cosh et al, 1998; Huselid, 1995). Storey (1994) also noted that 'there appeared to be little evidence that small firms which invest in training perform better than those which do not' (pp. 283).

On the other hand, those who provide a positive link to the relationship found that training could facilitate a firm's expansion (Cosh et al, 1998), existence (Marshall et al, 1995), profitability and productivity (Betcherman et al, 1997) and competitive advantage (Huang, 2001; Smith and Whittaker, 1999). Jennings and Banfield, (1993) claimed that 'training can, and should be a powerful agent of change, facilitating and enabling a company to grow, expand and develop its capabilities thus enhancing profitability' (p.3). Huang (2001) suggest that firms with sophisticated training systems and strong management support for training have effective training programmes and are more successful in delivering training. For Hallier and Butts 'organisational performance can be held back through a neglect of training activity' (1999, p.82). Their study results further noted that failure to exploit training

opportunities can put a firm at a competitive disadvantage. In their impact assessment study, Marshall et al (1993) found that government funded training investments in SMEs have significant influence in setting proactive strategies to combat recession; 50% of receiving companies as compared to 12% of the control group increased employment opportunities, increased investments and had a perception of resultant increased profit.

Therefore, taken as a whole, the SME training literature has provided some inconclusive, but evocative, examples of how training could influence firm success. It is considered that this contradictory evidence discourages both policy makers and SME managers in their attempts to be more proactive within the area of management development and training (Marshall et al, 1993, 1995; Patton et al, 2000). Cushion (1995, 1996) and Kerr and McDougall (1999) link this problem to the lack of effective evaluation of management training in small firms. There appears to be three major factors that prevent the conventional approaches to evaluation having utility for small businesses. First is timescale. Many of the models of 'best practice' in evaluation put forward a multi-level strategy over time. The time horizons in smaller businesses, however, are very different from those of larger organisations (Westhead and Storey, 1996) and investing in development that will impact on performance over time seems either irrelevant or a luxury to a company this is struggling to survive. The second area of concern, are the measures of success used in evaluation. As Hannon (1999) points out existing measures allow little room for effective comparison. Small businesses are interested in and value measures that suit their particular business conditions, or objectives, rather than those associated with an ideal of enhanced effectiveness per se. This view is supported by Cushion (1995, 1996) who maintained that strategies developed in and for large companies are inappropriate and that a multi-level strategy that takes a more holistic and dynamic view of learning would provide a more meaningful approach. Thirdly, finding cause-effect relationship between training and performance is not easy. The causality of such an association is always debatable as the variables themselves do not provide evidence of the direction of the causality. However, it is argued that checking correlations between key variables to establish patterns of behaviour is more important than determining causal relationship between training and performance (Centre for Enterprise, 1999). One of the primary focuses of this paper, therefore, is

filling this gap through an in-depth analysis using practical measures to establish patterns of the training-performance relationship. One important distinction of this research is that it clearly makes the separation between management perception on training and actual use of different training interventions when investigating the training-performance relationship.

Given the equivocal and confusing findings from previous studies, it is important to note that the existing studies have never attempted to differentiate between the effects of formal and informal approaches. Therefore, the answer to the question of whether it is formal or informal training commitment that distinguishes successful firms from unsuccessful firms presents a significant research gap. The Skills Assessment Report (2002) emphasises specifically the need to distinguish these two terms, in order to institute a good understanding of the subject. A broad definition of training includes any attempt, within or outside the organisation, which increases job-related knowledge and skills of either managers or employees (Kitching and Blackburn, 2002). Although this definition captures important parameters, Marlow (1997) noted that indistinct and inconsistent findings from researchers in the field are associated with vague definition. Training in itself is a difficult concept to quantify, but Westhead (1998) believes that the practice of providing sweeping generalisations to cover a variety of cases that are in many ways dissimilar makes things even more confusing.

While highlighting the critical need for proper measures for training constructs Kitching and Blackburn (2002) noted that the mismatch between firm practice and research focus is something need immediate attention. Researchers in the field unanimously agree that SME training is 'essentially informal, reactive and short-term in outlook' (Hill and Steward, 2000) and Matlay and Hyland (1997) found the take up of NVQs in small manufacturing firms was significantly influenced by this preference. To face external uncertainty, small firms always prefer to take flexible routes (Westhead and Storey, 1996). Further, supporting a flexible approach to HRM in small firms, Skill Assessment Report (2002) emphasised that, for small firms, because of the resource restrictions, an informal approach to training can provide cost effective solutions that often encourage SME managers. Given the importance of informal training it is perhaps surprising that existing research focuses exclusively

on the effects and outcomes of formal training programmes and there are no attempts to measure the impact of all types of training on performance. Thus, unlike previous research, this study makes a clear distinction between formal and informal training approaches. Formal training and development is defined as “*initiatives which can be identified by both recipients and deliverers as an intervention which has a structured mode of delivery, where the aim is to impart new awareness or knowledge of a workplace process or activity*” (Patton and Marlow, 2002: 261). Initiatives through informal training, on the other hand, are ad-hoc, fragmented and flexible and depend on the environment of the organisation, the nature of the task in hand, the propensity of individuals to learn, and lack a formal structure and stated objectives.

Finally, SME training research often considers the provision of training at the individual level, with staff/employee education and training receiving attention over management training and development. O’Dwyer and Ryan (2000) argue that management training and education is an area on which SME training researchers should focus, since it is particularly critical for firm success. This position seems to be supported by recent UK Government emphasis on skills in management and leadership, and in the establishment of the Council for Excellence in Management and Leadership. Therefore, this study considers management training at the firm level. However, in contrast to other firm level studies, this study does not consider the amount of time and money spent on training as measures of the level of training a company undergoes, but considers the number of training initiatives a particular organisation undergoes out of a possible list of both formal and informal approaches to training. That is it considers the number of training interventions a company has as a measure of the commitment to training. In addition, existing work rarely considers the factors that determine the level and provision of training. Hannon (1999) in a summary of the literature on training and management development processes in small businesses, refers to management within small firms as situationally specific, and dependent on a variety of factors such as leadership roles, product or market conditions, business ownership and management structures. While much research in SME training has focused on claiming a relationship between training and firm performance, far less attention has been directed to understanding the association within the context of the organisation and its conditions in terms of its capabilities and operating infrastructure. More notably, to date, no literature offers concrete

explanations as to the factors that make some SMEs receive more structured training than others. While some of the studies establish that organisational characteristics influence the training performance relationship they fail to elucidate the conditions on which this influence is exerted. Moreover, the research that claims a mediating effect from sets of variables have not presented statistical interpretations as to how significant these moderators are.

Thus, given the forgoing discussion, it is suggested that incidence (whether the firm engages in training), intensity (the number of training initiatives) and training approach (formal or informal), may affect organisational performance. In addition, the decisions on training approach will be influenced by contingent factors. Therefore, it is possible to claim that:

***Hypothesis 1:** those companies that do provide training outperform (in terms of turnover growth) those who do not provide training.*

***Hypothesis 2:** higher intensities of training interventions result in higher levels of turnover growth.*

***Hypothesis 3:** SME managers perceive informal training approaches as more effective than formal training approaches.*

***Hypothesis 4:** those companies that primarily invest in formal training show higher levels of turnover growth than those that rely on informal training.*

***Hypothesis 5:** the relevance of the approach to training is a contingent measure. Several organisational characteristics have an influence on the decision of training approach and how it impact on organisational performance.*

### **3. Research Methodology**

In this study, a mail survey was employed to collect information to address several issues surrounding training and management development within SME manufacturing firms operating in the UK. A list of training determinants was included in the survey instrument along with the important background information useful to identify the moderators. The use of a mail survey enables researchers to study a large random sample of a population at a relatively low cost. Although low response rate and non response bias are two major concerns, due to the need to collect facts rather than personal opinions the survey method was found to be more relevant than using case method in this research.

The questionnaire was designed following extensive consultation with members of the academic community, as well as personnel who worked with and in the small business sector. Since the questionnaire had to be quickly and easily answered, given the time constraints of which small business managers complain (Henderson et al, 2000), only closed questions were utilised. One of the main focuses of the questionnaire was the list of formal and informal approaches to training. Owner/managers were asked to state whether or not they had ever used a range of training techniques. These techniques were derived from the previous literature, in particular those that were identified by Small Firms Enterprise Development Initiative (SFEDI) as important training and development techniques for SMEs. Information was also gathered on the number of employees the respondent organisation employed, turnover, number of years of trading, responsibility for training and development, business ownership, product and customer types and industry details in order to contextualise the responses.

Contacts for the population from which the sample was drawn were obtained through the aegis of the Forum of Private Business and the Engineering Employers Federation who both provided a random sample of their membership within the appropriate sector. In addition, some of the corporate partners to the project provided details of smaller companies operating within their supply chain. One thousand small businesses nationwide were randomly selected from the population to ensure

representation by all size categories. The initial distribution of questionnaires was followed by a reminder questionnaire to non-respondents after 2 months. In total 198 (response rate of 19.8%) useable questionnaires were returned for analysis. Although this is a low response rate for a comprehensive statistical analysis, according to Curran and Blackburn (2001), in small business research, even surveys with low response rates 'can produce valuable findings, particularly where the study is exploratory' (p. 91)

The questionnaire data was analysed using SPSS. Multiple regression analysis, ANOVA, and simple descriptive statistics formed the major part of the quantitative data analysis. Regression analysis was performed to see the relationship between training and firm performance. All training techniques taken individually and grouped (formal, informal) were regressed on the dependent variable, turnover growth. ANOVA results were used to assess the management perception on training and to demonstrate the significance of the moderating variables on the training-performance relationship.

### *3.1 Measures Employed*

The paper explores the combination of factors associated with the provision of 7 types of formal training<sup>2</sup> and 5 types of informal training<sup>3</sup>. Respondents were given clear explanations, with examples, in order to help them classify their training approaches. A separate category in each of the formal and informal training sections asked for other methods of training they provide in addition to the ones listed. These were incorporated into the relevant group by the researchers after consulting the respondents. Thus, data collection on the incidences of both formal and informal training was clear and unambiguous<sup>4</sup>. Those respondents who have said no to both formal and informal training methods were included under the category NO training provision. Furthermore, to measure the manager perception on the relevance of each of the training approach, a seven-point Likert scale (1- strongly disagree to 7 =

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<sup>2</sup> Formal training methods includes qualification courses run at Universities/Colleges, formal courses run by outside providers, distance learning courses, NVQs, formal in-house courses run by outside providers, formal in-house courses run by company staff and internet-based courses.

<sup>3</sup> Informal training methods include appraisal, coaching, promotion on a temporary basis, informal training seminars/meetings and networking.

<sup>4</sup> Measures for both formal (Cronbach alpha = 0.675) and informal (Cronbach alpha = 0.675) approaches to training were found to be reliable (Nunnally, 1967)

strongly agree) was employed. This data was used to answer hypothesis 3. To test the hypothesis that training can have an influence on the organisational performance firm, turnover growth (average turnover growth for the past 3 years) was taken as proxy to firm performance. Employment growth and business survival, measured in terms of number of years of existence, were also regressed against independent variables.

When measuring the level of training associated with both informal and formal approaches, measures like training cost as a percentage of total sales (Cosh et al, 1998) and the number of employees being trained (Huang 2001) were considered as unsuitable because informal learning may be impossible to cost and individual learning efforts are not accounted for (Kitching and Blackburn, 2002). Therefore, three categorical variables were employed to classify the training provision in the respondent organisations. First organisations were classified into 2 groups according to whether they have undergone any training in the past. This variable was named as the *incidence of training*. A value of 1 was attached to organisations that adopted any of the training methods (formal/informal) and a value of 0 to organisations that had not used any training method at all. Several authors including Westhead and Storey (1997), Cosh et al (1998) and Baldwin et al (1995) used this binary indicator as their measure of training. The second variable was the *intensity of training*, defined as the number of training methods in use by a firm. The average value for all the formal and informal training was calculated for organisations that had any training in the past. The third variable was labelled as the *approach to training* meaning whether formal or informal training receives priority. For this analysis, organisations that had some training in the past were again divided into two groups. The training approach was set equal to 1 if the preferred training approach is formal and to 0 otherwise<sup>5</sup>.

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<sup>5</sup> On the assumption that all businesses should use all training methods for business success, training approach indexes (TAI) were calculated; the number of training methods (in each approach) reported by the companies divided by the theoretical number possible. If the TAI value for formal training is higher than for informal training approaches, the variable, training approach, was set equal to 1 and 0 otherwise.

### Sample Profile

Table 1 provides a summary of the demographic profile of the respondents. Although the average number of employees per firm was 43, the research sample is predominantly small firms employing less than 50 employees (35% accounted for micro businesses with less than 9 employees). Only 20% of the sample employ more than 50. A typical sample firm had been in business for 28 years with 72% of the sample trading for more than 11 years. This is an encouraging figure as previous research findings suggest that less than 20 percent of SMEs last more than 6 years (Barnett and Storey, 2000). The turnover profile of the sample companies suggested that on the whole, the sample was running successful businesses. More than 37% of the sample companies had a turnover of more than 3 million. Approximately 41 percent (n = 82) of the businesses are managed by owners. Out of the 198 manufacturing firms included in the sample less than half (n = 82) uses high technology.

**Table 1: Sample Profile**

	<i>Ave./ Freq. ( %)</i>		<i>Ave./ Freq. (%)</i>
<b><i>Firm Size (staff numbers)</i></b>		<b><i>Turnover (millions)</i></b>	
<i>Average staff numbers</i>	43	<i>Average Turnover</i>	2.4
<i>Micro (&lt; 9)</i>	69(35%)	<i>&lt; 1M</i>	65(33%)
<i>Small (10 to 49)</i>	89(45%)	<i>1-3 M</i>	59(30%)
<i>Medium (50 to 249)</i>	40(20%)	<i>&gt;3M</i>	74(37%)
<b><i>Firm age ( years)</i></b>		<b><i>Ownership</i></b>	
<i>Average age</i>	28	<i>Owner managed</i>	82(41%)
<i>0-10</i>	55(28%)	<i>Not owner managed</i>	116(59%)
<i>11-20</i>	81(41%)		
<i>&gt;21</i>	62(31%)	<b><i>Industry</i></b>	
		<i>High tech.</i>	82(41%)
		<i>Low tech.</i>	116(59%)

Data suggests that the most successful companies (in terms of turnover) in the sample have higher number of employees (Regression  $t = 12.96$ , sig.  $<0.001$ ) but do not necessarily have more trading experience (Regression  $t = 1.297$ , sig.  $>0.01$ ). It further revealed that while business turnover has a negative strong association with business ownership (Regression  $t = -2.27$ , sig.  $< 0.01$ ) there is no such association when level of technology use by the firms is taken to check the industry sector relevance (Regression  $t = 0.205$  sig.  $>0.01$ ). The negative association between turnover and ownership suggests that owner-managed businesses in the sample are less successful than non-owner managed businesses.

#### **4. Results analysis**

##### *4.1 Intensity and Incidence of Training*

While there are a number of possible measures of firm performance, several authors (for example, Jarvis et al, 2000) claim that firm turnover growth is a reliable measure. In testing the association between training and firm performance, turnover growth was therefore taken as a performance measure and the dependent variable in the regression analysis. Three variables were included in the regression equation as control variables. This is to control for multi-collinearity effects (Hair et al, 1984). First, to control for differences due to organisational size and the industry effect, the industry dummy (dependent on the level of advanced technology use in the manufacturing firms) and the measure of firm size were included in the analysis. In addition, because the age of the business has often been linked to performance (Jablin, 1988) number of years of firm existence was also included as control variables in testing the association with performance. Table 2 presents the multiple regression analysis results for the incidence and intensity of training against the performance measure, firm turnover growth.

**Table 2: Multiple regression analysis – incidence and intensity of training vs. performance (turnover growth)**

Dependent Variables	Firm turnover growth (Model 1)		Firm turnover growth (Model 2)	
	Incidence of training	Intensity of training <sup>a</sup>	Incidence of training	Intensity of training
Multiple R	<b>0.697</b>	<b>0.640</b>	<b>0.699</b>	<b>0.688</b>
R-Square	<b>0.486</b>	0.409	<b>0.488</b>	0.474
Adjusted R-Square	0.476	<b>0.391</b>	0.475	<b>0.453</b>
df	4	<b>4</b>	5	<b>5</b>
F statistics	<b>45.69***</b>	<b>22.54***</b>	<b>36.66***</b>	<b>23.24***</b>

**Analysis of variance**

	Model 1				Model 2				
	Incidence of training		Intensity of training		Incidence of training		Intensity of training		
	eta	T	eta	T	B	T	Beta	T	
Firm size (no. of staff)	.63	1	0.62	7	0.306	.82	0	0.968	7
Firm age (years of trading)	.00	0	.058	0	.001	.020	0	-0.02	.86***
Industry <sup>b</sup>	.00	0	.058	0	.001	.020	0	.034	0.34
Training variable	.01	2	.02	0	.008	.157	3	.59	.497
Training variable x firm size	.16	0	.051	0	.274	.15**	0	-0.35	.78***
					.338	.868	0		3.51**

<sup>a</sup> cases that do not provide training were excluded from the analysis

<sup>b</sup>0 = low tech., 1 = high tech; \*\*\* p < 0.001; \*\* p < 0.01; \*p < 0.05

While model 1 incorporate training variable along with the control variables firm age, size and industry dummy, model 2 provides results for the influence of the interaction term, training incidence/intensity x firm size.

With respect to the turnover growth we found highly significant results for the incidence of training. This relationship has a beta coefficient of 0.163 which is highly significant (p < 0.01). However the relationship between the amount of training provided (intensity of training) and turnover growth was not statistically significant although the patterns were in the predicted direction with the companies providing the most number of training reporting the highest turnover growth<sup>6</sup>. This supports the

<sup>6</sup> The reasons for a significant F statistic (F = 23.12) for the regression model and non-significant association between training intensity and turnover is because of the high association found between turnover and firm size (r = 0.681; p = 0.000).

notion that it is not the amount of training provided to management team that increases the turnover growth of the company, but whether or not a firm willing to provide training to develop its management capabilities.

The highly significant coefficient for the firm size variable, for both incidence and intensity of training, indicate that there is a main effect of firm size on performance. Specifically, those with more staff were typically better performers than firms with less staff. Because of this, it was assumed that the relationship between training provision (both incidence and intensity) and turnover growth might be contingent on firm size. Several authors also agreed the moderating effect of this variable. To check this moderating effect, the regression analysis included an interaction term (incidence/intensity of training x firm size). As shown in table 2, model 2, although there is no relationship between the interaction term and performance with regard to incidence of training, there is a strong but negative association when intensity of training is taken as the training measure. Therefore our results indicate that:

although firm size is strongly related to performance, it does not appear to moderate the significant relationship between incidence of training and performance. This provides strong support for Hypothesis 1.

there is no support for Hypothesis 2. It was found that firm size has a significant moderating influence on the intensity of training vs. firm performance relationship. When the interaction term was included as a control variable in the regression equation the results indicate a highly significant association between intensity of training and firm performance.

Further analysis of results taking employee growth and business survival measures as performance variables showed some mixed results. In terms of employee growth (difference in employee number between the start of the business and now) we found a very strong significant association for both incidence ( $t = 5.12$ , sig.  $<0.001$ ) and intensity of training ( $t = 2.81$ , sig.  $<0.01$ ). When business survival (measured in terms of number of years of firm existence) was regressed against incidence and

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intensity of training (with firm size, turnover and industry type as control variables) we found a positive but insignificant relationship for the incidence of training ( $t = 1.341$ , sig. = 0.181) while for intensity of training this association is negative and insignificant ( $t = -0.634$ , sig. = 0.527).

#### *Formal and Informal Approach to Training*

To assess the management perception of management development and in particular different training approaches studied, managers were asked to rate each training method on a 7 point Likert-scale from 1 = strongly disagree to 7 = strongly agree. The variable *management perception* was split into two broad groups around the mean. These two groups were labelled as ‘positive perception’ and ‘negative perception’ with former representing firms with a score above the mean (this was calculated based on the perceptions on all the training approaches) while the score for the latter group fell below the mean.

**Table 3: ANOVA results – manager perception on formal and informal approaches to training**

<i>Variable</i>	<i>Mean</i>	<i>Positive perception</i> <i>(n = 87)</i>	<i>Negative perception</i> <i>(n = 109)</i>	<i>F- value</i>
<i>Formal training</i>	3.29 (0.92)	3.18	4.72	9.406**
<i>Informal training</i>	4.86 (1.2)	5.12	4.03	7.6**

The descriptive statistics and the ANOVA results are presented in table 03. The results indicate that the mean values for management perception on formal training are less than for informal training, suggesting that more SME managers in the sample prefer informal approaches to management development over formal approaches. The results also showed that both formal training and informal training have significant differences when managers are divided between positive and negative groups based on their perceptions to the relevance of the training methods. The results for formal training approaches ( $F = 9.406$ ,  $p < 0.01$ ) however showed that means are significantly higher for unfavourable managers. With regard to the informal approaches to training, results revealed that where managerial perceptions

on management development were favourable, the desire for informal training is significantly higher ( $F = 7.6, p < 0.01$ ). These results therefore suggest that while for informal training a significantly positive relationship exists for managers with favourable perceptions towards management development, this association is negative for formal approaches to training. This finding, together with the finding that the mean value for management perception for informal training is well above the value for formal training, lends strong support for hypothesis 3. This finding however need to be interpreted with great care as management perception and training impact are two different issues that may or may not mean the same.

Multiple regression analysis using two unordered sets of predictors were therefore used to examine the relationship between formal and informal training on performance and to check whether firms investing predominantly in formal training outperform those relying on informal training. Analysis results are given in table 4. The regression results presented in Model 1 indicate that while formal training has a significant relationship ( $p < 0.05$ ) to firm turnover growth, this relationship is insignificant and negative for informal training. As these results hold true even under the control conditions imposed by firm size, age and industry we are confident to claim that formal training is associated with performance over and above the informal training in small manufacturing firms. This provides strong support for Hypothesis 4.

Furthermore, the very strong association found between turnover growth and firm size indicates that the relationship between the training approach and firm performance is contingent on the firm size. Model two provides the results of the regression analysis when two interaction terms: *formal training x firm size*, *informal training x firm size*, were included as control variables. As shown in table 04 (model 2) training approach-performance relationship is contingent on the firm size. While the firm size influence on formal training is positive and significant ( $p < 0.01$ ) this influence is negative and significant ( $p < 0.05$ ) for informal training. While this provides some supporting evidence to Hypothesis 5, further analysis is required to test the significance of other possible moderators. This is included in the next section.

Table 4: Multiple Regression Analysis – approach to training (formal and informal training averages) vs. performance (turnover growth)

Dependent Variables	Performance: Turnover growth (Model 1)	Performance: Turnover growth (Model 2)
Multiple R	<b>0.692</b>	<b>0.727</b>
R-square	<b>0.479</b>	<b>0.528</b>
Adjusted R-square	<b>0.465</b>	<b>0.511</b>
F statistics	<b>5</b>	<b>7</b>
	<b>35.31***</b>	<b>30.37***</b>

**Analysis of variance**

	Model 1		Model 2	
	eta	T	eta	T
Firm size	.60	.29***	.087	3***
Firm age	.02	.39	0.004	0.073
Industry	.036	.622	.026	73
Formal training (ave.)	.177	.21*	.272	2**
Informal training (ave.)	0.028	0.396	0.029	0.342
Formal training x firm size			.304	4**
Informal training x firm size			0.242	1.39*

\*\*\* p < 0.001; \*\* p < 0.01; \*p < 0.05

To further clarify the issue related to the most influential formal training method, a stepwise multiple regression analysis was performed taking company turnover growth as the dependent variable and 7 formal training techniques as independent variables. Starting with all the variables in the equation and sequentially removing insignificant ones, this method allows the most relevant subset of variables to be included in the equation. Three variables remained in the regression equation; in-house formal training by outside providers ( $t = 5.62$   $p < 0.001$ ), qualification courses run by universities and colleges ( $t = -2.35$   $p < 0.05$ ), and in-house formal training provided by company staff ( $t = 2.61$   $p < 0.05$ ). The  $R^2$  of 0.37 ( $F = 9.25$ , sig.  $P < 0.001$ ) indicates that the resulting regression equation with the three remaining training methods explains 37% of the variance in firm performance. The finding that qualification courses run at universities/colleges, as a formal training method has a very strong negative association to company performance is in line with the findings

from the Small Business Skill Assessment (2002) report. Here it was noted that although during the last few years there is an increase in the rate of small businesses seeking higher education training, the perception of the significance of this training as a potential source of competitive advantage is very poor.

Among the informal training methods, training provided in the form of appraisal and temporary promotions were found to have a negative, but insignificant, association with performance. The association between coaching and networking as informal training mechanisms and turnover growth of a company was found to be positive, but insignificant. Training seminars were the only informal training method that had a significant positive contribution to firm performance (sig. <0.05). This supports the research literature that suggests the importance of informal learning through networks is significant for competitive advantage.

The relationship between employment growth and firm survival to the chosen training approach was also sought. When employment growth was regressed against average values for formal and informal training, we found very strong significant associations. While formal training had a positive and significant association to employment growth of a company ( $t = 5.48$ , sig. <0.001) this association was negative, but significant when informal training was considered as the dependent variable ( $t = -2.98$ ,  $p < 0.01$ ). However, in terms of business survival, we didn't find any significant association for both formal and informal training.

#### *4.3 Moderators to SME Training-performance Relationship*

As predicted by Hypothesis 5, the relevance of formal, informal training approaches to companies varies with the organisational conditions. The present study therefore considered six variables that could potentially influence the firm decision on the most suitable training approach. These variables and the ANOVA results are given in Table 5. Differences in training approach are significant for four of the six organisational characteristics considered in the analysis. Specifically, the firm size, level of technology and business structure have a significant influence over the training approach decision at  $p = 0.001$ ,  $p = 0.007$  and  $p = 0.000$  respectively. The higher the number of employees, the use of more sophisticated technology and highly structured business conditions were found to be putting a more weight on the

decision to take formal routes of management development. The relationship between the business ownership (owner managed and non owner managed) and training approach remains significant at  $p = 0.014$ , with the owner managed companies showing more interest to informal training than the non owner managed companies. Also there is no significant influence on the training approach from both the firm age and level of innovation.

**Table 5: contingency influence on the training approach**

Characteristic	Group	N	Mean	Std dev.	t-statistics	p-value
Size (no. of employees)	Formal	69	53.22	33.2	3.56	.001
	Informal	66	26.03	13.43		
Age	Formal	69	26.42	6.23	-1.02	0.38
	Informal	66	32.51	9.5		
Ownership <sup>1</sup>	Formal	69	0.28	0.18	1.998	.014
	Informal	66	0.41	0.24		
Business structure <sup>2</sup>	Formal	69	0.78	0.415	10.23	.000
	Informal	66	0.12	0.329		
Level of innovation <sup>3</sup>	Formal	69	0.54	0.31	0.418	.676
	Informal	66	0.50	0.27		
Level of technology <sup>4</sup>	Formal	69	0.59	0.395	2.734	.007
	Informal	66	0.36	0.25		

<sup>1</sup>(1-owner mgd, 0 – non owner mgd); <sup>2</sup>(1- high; 0 – low); <sup>3</sup>(1- high; 0- low); <sup>4</sup>(1-high; 0-low)

To substantiate these results concerning the performance impact between training approach and organisational characteristics, those companies that do provide training were divided into two groups: ‘high performers’ and ‘low performers’. This classification was made based on the mean value for the variable ‘turnover’. High performers were identified as those with a turnover more than 1.9 million (the sample average). This classification gave rise to 58 high performers and 79 low performers

Mean differences in organisational characteristics of high performers in the two training approaches were compared with the differences in the low performance group. As seen in Table 6, the mean differences in firm size, business ownership, level of technology and business structure of high performers using formal training versus informal training is significantly higher ( $p < 0.001$ ) than the mean difference in these characteristics for low performers. As the mean difference in age and level of innovation between firms using formal and informal training was significantly different further comparisons were not relevant. Therefore, it is clear that the positive

relationship we found between formal training and firm performance is moderated by a set of organisational characteristics. Companies with more staff, more structure, use advanced technology and managed by some one other than the owner are in a better position to receive more benefits from formal training. Firm size and level of innovation are not significant determinants of the formal training-performance relationship. Results presented in Table 5 and 6 therefore provide evidence in support of Hypothesis 5.

**Table 6: Organisational characteristic influence on training-firm performance relationship**

Organisational characteristics	Mean difference in organisational characteristics by training approach		Difference (high – low)	T stat.
	High performers (n = 58)	Low performers (n = 79)		
Firm size (no. of employees)	27.5	12.23	+15.27	9.56***
Firm age (years of trading)	-2.25	10.45	-	-
Ownership <sup>1</sup>	0.26	0.056	+0.204	8.1**
Business structure <sup>2</sup>	0.39	0.04	+0.35	12.5***
Level of innovation <sup>3</sup>	0.48	-0.22	-	-
Technology <sup>4</sup>	0.29	0.014	+0.276	9.2**

\*\*\* p < 0.001; \*\* p < 0.01; \*p < 0.05

## 5. Discussion

The findings from this study provide significant support for the hypothesis that there is a positive link between training investment and firm performance. This is provided in the significant associations identified between training and both financial and employee growth. However, there was no link with business survival. On closer examination, this link is more strongly associated with training being undertaken as opposed to the intensity of that training; the latter is only relevant as the firm grows. This finding seems intuitive since the number of training interventions required is likely to increase as the number of employees increases. However, these findings are not unequivocal. As with other studies, they are subject to criticisms of causal ambiguity (Storey, 2004), and the measures of success used do not reflect the wide range of objective and subjective aspirations of small firm owners (Curran and Blackburn, 2001). The findings do, nevertheless, add weight to the growing body of evidence of the training-performance link highlighted in earlier studies (for example,

Cosh et al, 1998; Marshall et al, 1995; Betcherman et al, 1997; Huang, 2001; Smith and Whittaker, 1999). What is particularly significant, and different, in this study is the findings regarding the impact of formal and informal training approaches to firm performance, and the distinctions made between types of interventions.

As is suggested in the literature (Hill and Steward, 2000; Kitching and Blackburn, 2002), we also found that SME managers prefer and perceive informal management development as being more useful than formal interventions. There may be a number of reasons for this, but the reasons most often put forward are the cost (in terms of time and resources), flexibility, and the lack of relevance to specific needs (Storey, 2004). However, while small firm managers *prefer* an informal learning approach, that does not necessarily mean it is more effective. SFEDI (2004) note that it is important to distinguish between what is practiced (due to resource scarcity) and what is appropriate. In this research there is a clear and significant finding that formal training is associated with performance over and above that provided by informal training in small manufacturing firms. This contradicts other research findings that place great emphasis on informality within the small organisations. There are a number of potential reasons for this occurrence. Firstly, it could be attributed to the lack of skills in informal development activities as highlighted by Hendry (1991) and Mabey and Thompson (1994). Secondly, the owner-manager may be too busy to devote time to informal training, but when recognising a development need will utilise a formal approach that is cost effective in terms of their own time. Thirdly, previous research has highlighted training and development being utilised as a response to a problem (Blackburn and Kitching, 1997) where 'selecting training was particularly tailored to an identified training need' (Cassell et al, 2002, p687).

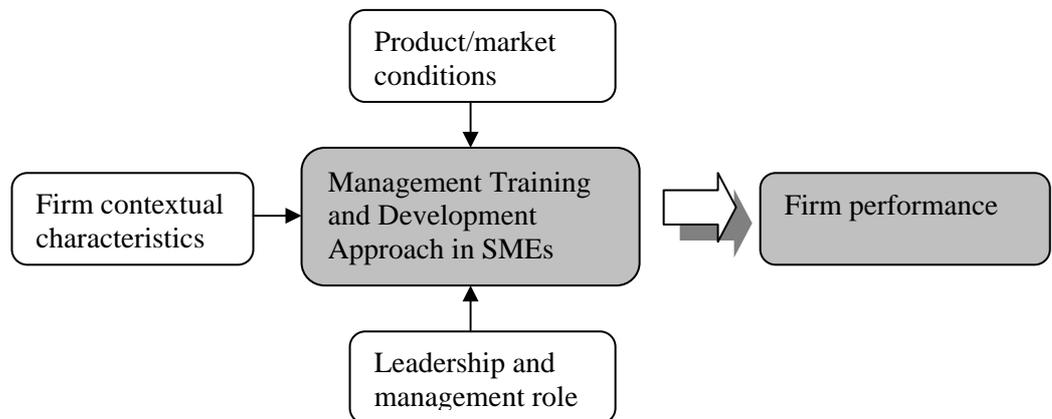
When we look further into the statistics these latter two points seem particularly relevant. The most positively significant approaches within formal training were the use of outside providers, for in-house courses, and the use of in-house designed and delivered courses. Taken together with the finding that it is the *incidence* and not the *intensity* of training that is important, we suggest that both of these types of intervention are likely to be used to target a specific and identified need. The former when specific skills are absent, but the failure to address the skill need is perceived to jeopardize the business, and the latter when there is an ongoing skill need in the

business that warrants training investment. This finding lends weight to Cassell et al (2002) and Hendry et al (1991) findings that training is undertaken as tactical solutions to problems, and the demand for training is explicitly related to improving the way the business is operated (Patton and Marlow, 2002). In that sense, the intensity of training is less relevant, since generic interventions, provide benefits to the individual and not the firm (Westhead and Storey, 1999). Indeed, the most effective informal development initiative was shown above to be attendance at training seminars. Given the difficulty of engaging small firm managers who are under significant time pressures, attendance is likely to occur only when the information is considered relevant to a specific business issue. Thus, the most successful formal and informal interventions appear to be tactical solutions to crises, but they have a direct effect on business performance. In relation to Storey and Westhead's (1997) 'ignorance' or 'market' explanations of small firm engagement with formal development, this evidence tends to support a market approach. However, rather than ignoring formal development or informal externally provided business support, a much more sophisticated distinction is being made about the relevance of the products on offer. Our findings are also consistent with Perren et al's (1999) conclusions that more flexible, targeted and relevant business support mechanisms are required in order to engage small firm managers in development activity. Small firm support programmes need to understand and address the particular crises that individual businesses are facing, and be flexible enough to provide idiosyncratic solutions.

It is also interesting to note that the approach to training is moderated by contingent variables. In particular, this study highlights the influence of size (number of employees), structure, and uses of technology on the approach to training chosen. Similar to findings by Reid and Harris (2002), we also noted that business ownership was significantly influential, with non-owner managed companies significantly more likely to engage in formal training. Thus, this study extends our theoretical knowledge of the contingency influence of training-performance relationship, but it is important also because it has managerial implications in terms of choosing the most suitable training approach. However, the findings here are only tentative and further research is necessary. There has frequently been a lack of coherence between the proposals made in theoretical studies and the focus of empirical work. While

some researchers studied the association between training and organisational characteristics (for example, Reid and Harris, 2002) others examined the linkage between the amount of effort (budget/time allocation) put on training and performance (Huang, 2001; Patton et al, 2000), and on management style (Sadler-Smith et al, 2004). Although these are complimentary, none of the research considers these relationships within a multivariate framework. Thus, since issues of structure, leadership and product/market seem to be influential in this relationship we propose the model of contingent variables, figure 1. Further research and analysis will be important to understand what factors are important for each of these categories and how each of these factors influences the approach and incidence of training. These relationships need to be explored and tested more comprehensively using statistical analysis within a multivariate framework.

**Figure 1: Conceptualising Training and Performance in SMEs**



## 6. Conclusions

This study adds to the growing body of evidence that suggests a positive correlation between training and performance in SMEs, although that evidence is not unequivocal. What is particularly important with this study, however, is the distinction made between the contribution of formal and informal training to performance. While managers may *perceive* that informal training is more relevant, this study highlights the importance of targeted formal interventions. We suggest that these findings are consistent with a tactical approach to training to address specific

and identified training needs. Managers of SMEs are investing in training that can be seen to contribute directly to business performance, and this is reflected in the growth both in terms of size and turnover. This finding, along with others such as Perren et al (1999), Cassell et al (2002) and Patton and Marlow (2002) suggests that training support for SMEs needs to be targeted at the perceived needs of the managers to address specific problems. Rather than ignoring the market for formal development, as proposed by Storey and Westhead (1997) the evidence suggests that SME managers are making informed decisions regarding the state of the training market and they are investing in specific training interventions. Support mechanisms for SMEs, if they are to add value for small firms, need to be flexible enough to support idiosyncratic development needs, and not provide generic solutions which do not accrue value to the firm. Finally, the approach and effectiveness of training appears to be mediated by a number of contingent variable including market, structure and leadership. Further analysis is required to provide a deeper understanding of these effects, which will have implications for identifying the types of training approaches suitable for SME managers depending on their organizational context.

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