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Predicting management development and learning behaviour in New Zealand SMEs

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Abstract: *Despite concern on the part of policy makers to raise managerial capability in SMEs, there is little evidence on the key drivers of owner-manager participation in management development programmes. The authors argue that such participation is poorly understood. The paper develops a predictive model of the drivers of participation in sources of learning by owner-managers. It tests a theoretical model, based on the small firm as a learning organization, which posits that participation is driven by owner-managers' learning orientation and the extent of their belief in self-improvement. The implications of the results are discussed in light of the provision of management development programmes.*

Keywords: *management learning; learning orientation; belief in self-improvement; SME management development; New Zealand*

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Arguably, we are still developing our understanding of the drivers of management development behaviour by owner-managers and entrepreneurs in small and medium-sized enterprises (SMEs) and, hence, of predictors of that behaviour – an area in which there remains a research gap (Kitching and Blackburn, 2002; Coetzer *et al*, 2011). Although there has been extensive work and previous research on the nature of management development, sources of learning in SMEs and barriers to participation, there has been little work on the intrinsic factors that affect the participation of SME owner-managers in management development programmes and sources of learning. This paper contributes to knowledge through increased understanding of the importance of intrinsic factors that influence owner-manager behaviour and levels of such participation. We provide empirical evidence on the drivers of managerial development in SMEs; develop a theoretical conceptual framework based on the SME as a learning organization, following the approach of Gibb (1997); and test our two main research propositions resulting from the theoretical framework using the structural equation modelling technique. We discuss our results and propose a conceptual predictive model for explaining factors affecting behaviour and participation in management development by owner-managers of New Zealand SMEs, which can be applied more widely in other economic contexts.

The paper has been developed from a programme of research undertaken by the New Zealand Centre for SME Research (NZSMERC) on managerial capability in New Zealand SMEs. It reports findings from the Centre's 2009 annual survey of 1,500 SMEs, the *BusinesSMEasure*. The survey builds on a previous qualitative study (Coetzer *et al*, 2011) and is part of a

programme of research that has the following research aims:

(1) to understand how SME owner-managers assess their development needs and how they meet these needs;
(2) to assess the extent of participation in management development; and
(3) to assess the perceived impact of management development on their business.

To develop the theoretical framework, we first review the relevant literature. From this review we develop research propositions. After a discussion of the theoretical framework, we then present the results of a predictive model, which are assessed in terms of their significance. The implications are discussed and conclusions are drawn for wider contexts and for policy.

Literature review

Previous literature and research evidence on SME owner-managers suggests a low take-up of formal management development programmes and a reliance on incidental and informal managerial learning processes (Massey *et al*, 2005). NZSMERC's previous qualitative study with 25 SME owner-managers (Battisti *et al*, 2009) enabled the development of a conceptual framework and typology to explain their orientation to learning and management development. Furthermore, it allowed the identification of variables that affected their attitudes to managerial learning and participation in management development. In particular, it was demonstrated that a high regard and orientation for learning by owner-managers combined with a high regard for task resolution and reflective learning provided the most desirable form of management development activities among the categories of such activity identified from this study (Coetzer *et al*, 2011). A follow-on quantitative survey of New Zealand SMEs enabled the testing of some of the propositions from the qualitative stage, such as the importance of sources of managerial learning and the importance of variables that influence owner-manager participation in management development.

Two broad themes are apparent in the literature on management development in SMEs. The first of these is the nature of learning in SMEs by owner-managers who are perceived to have a strong preference for informal learning processes that address current business problems or issues. Most owner-manager learning is incidental and is achieved through learning embedded in everyday management practice. The second theme concerns the barriers to SME owner-managers' participation in structured, off-site learning and development events. There has been an underlying assumption in much previous research that higher levels of SME participation in external, structured and formal sources of learning are desirable: hence the bulk of the research has examined this latter theme.

Management development and sources of learning in SMEs

Management skills are hailed as critical components of the firm's resource base that are essential for long-term productivity and organizational success (Ministry of Economic Development, 2010). The literature suggests that improving the management knowledge and skills of SME owner-managers contributes to their survival and growth (Fuller-Love, 2006). New Zealand commentators contend that there is considerable scope for further improvement in management knowledge and skills, especially in the SME sector (Ministry of Economic Development, 2010; Jayne, 2007; Massey *et al*, 2005).

Although there is no consensus on the definition of management development (MD) in the current literature, it is commonly viewed as one or a combination of the following: a learning process (Mumford, 1987); management education (Thomson *et al*, 1998); development of managerial resources (Molander, 1986); and/or a dynamic capability for learning (Espedal, 2005). The common theme amongst these perspectives is the involvement of a manager in some form of learning approach designed to improve managerial effectiveness to meet organizational needs. Mumford (1997) classified these approaches into three groups: informal managerial accidental processes (occurring within a manager's natural working environment); integrated managerial opportunistic processes (well defined, goal-driven and well planned approach within the manager's working environment); and formalized, planned development processes (well planned, goal-driven and structured learning programmes, often away from the normal working environment). A more common classification involves formal and informal approaches to management development (MD) (Gray and Mabey, 2005).

MD for SMEs is an issue of great importance in many developed and developing countries. Poor managerial competence is linked to small business failure (Walker *et al*, 2007). A general finding in many studies in Australia/New Zealand, Europe and North America on MD in the context of SMEs is the low level of engagement in MD activities by owner-managers relative to managers in large firms (Battisti *et al*, 2009; Hoque and Bacon, 2008; Gray, 2004; Morrison, 2003; Kitching and Blackburn, 2002). Despite the established link between participation in training programmes and improved productivity, small firms have demonstrated low participation in skills development and training activities

(Admiraal and Lockhorst, 2009; Walker *et al*, 2007; Battisti *et al*, 2010).

Barriers to SME engagement in management development

The low uptake of structured management development activities (that is, formal training) in SMEs has triggered numerous studies to investigate the underlying reasons that prevent or hinder participation in such activities. Previous studies have developed different classifications of these barriers to learning and participation in MD activities. Temporal and Boydell's (1981) work identified three major blocks to MD and learning: namely perceptual blocks (that is, not seeing the need to learn), intellectual blocks (the inadequacy of the previous learning engagement) and environmental blocks (unsupportive organizational climate for learning). Stuart (1984) proposed that barriers to MD should be classified as intrinsic, encompassing individual attitudes, perceptions and previous experience, and extrinsic, encompassing the wider conditions of the organization, the industry and other extraneous variables within and outside the organization. Mumford's (1988) work emphasized emotional and motivational blocks such as the lack of motivation to participate in MD, as well as cognitive blocks arising from negative reactions to previous engagement in an MD activity. These studies suggest that barriers to MD can be generally classified in two groups: those factors that are intrinsic to an individual, such as attitudes, values, capability and motivation to learn; and those that are extrinsic to an individual, such as the nature of MD activities as well as the resources required to engage in such activities.

Constraints with regard to resources are the commonly identified factors that prevent an owner-manager of a small firm from engaging in MD activities. The financial cost of participating in MD or training programmes is one of these constraints (Walker *et al*, 2007; Fuller-Love, 2006). MD is not necessarily a regular feature of the operating budget of small firms. Hence allocating resources to MD activities may be conceived as a financial burden that brings no immediate financial returns and can severely impact on the small firm's operating cash flow. Time is another resource that not many owner-managers of small firms have or are able/willing to spend on participating in MD activities (Admiraal and Lockhorst, 2009; Webster *et al*, 2004; Walker *et al*, 2007). The often hands-on involvement of owner-managers in their businesses makes engagement in formal MD activities an added burden – one that consumes precious time that could have been spent on the business.

Another set of barriers relates to the nature, relevance and quality of MD programmes that are promoted or marketed to small firms. Owner-managers of small firms may perceive MD or training programmes as irrelevant to their business or individual needs (McGuire *et al*, 2008; Walker *et al*, 2007). They may even think that they could not find an MD or training programme to suit their specific needs (Hoque and Bacon, 2006). Others may consider the delivery of an MD or training programme to be inconvenient as it may require significant disruption to their business operations (Walker *et al*, 2007). Likewise, issues associated with the credibility and expertise of the provider are also viewed as barriers to participation in MD (Fuller-Love, 2006). The failure of the MD or training provider to demonstrate the potential to address the specific needs of participants will influence the perceptions of owner-managers of small firms about engaging in MD in the future.

Other studies have focused attention on the innate characteristics of owner-managers that may make them highly resistant to engaging in MD. Owner-managers of small firms may lack the necessary management skill or aptitude to recognize the importance of MD: hence the lack of a perceived need to engage in MD (McGuire *et al*, 2008; Webster *et al*, 2004). Closely associated with this is the lack of formal education, which creates a tendency to undervalue or inherently dislike MD or training programmes – especially those that take the form of formal educational programmes (Fuller-Love, 2006). Others are simply unaware of the MD activities that are available to them (Fuller-Love, 2006). Furthermore, heavy engagement in the operational side of the business may diminish an owner-manager's focus on strategic-level initiatives such as engagement in MD (Walker *et al*, 2007; Webster *et al*, 2004).

Some studies have examined organizational factors that hinder owner-managers from engaging in MD. The slow technological uptake of small firms may also explain why their owner-managers tend to delay engagement in MD to develop the skills required to exploit technological innovations within the firm (Webster *et al*, 2004). Similarly, small firms tend to have a shorter lifespan than larger ones. As a result, owner-managers of small firms tend to focus on activities that have short-term benefits, if not immediate impacts on the business (Storey and Westhead, 1997; Storey, 2004). They may not be able to appreciate the long-term benefits of MD and so have an inherent reluctance to engage in such activities.

The importance of understanding intrinsic barriers to MD engagement stems from the view that MD in the SME context is driven not only by organizational and external environmental forces, but also by the individual needs, disposition and unique characteristics of the owner-manager (Cullen and Turnbull, 2005; Mabey,

2008). Bishop (2008) suggests that an individual's participation in MD activities is not a simple and objective matter of weighing up economic costs against the economic returns of an MD programme. When making participation decisions, individuals seem to draw upon a range of attitudes, dispositions and orientations. An individual's attitudes towards participation in training and, more broadly, on learning, are wedded to a sense of identity and self that ultimately determines their perceptions of need with respect to the nature and extent of participation in learning activities (Bishop, 2008).

This is especially true in SMEs where the owner-manager takes the leading role in facilitating learning for the entire firm (Coetzer, 2006). Devins *et al* (2005) argue that the success of any MD engagement depends on a good fit between the supply side of MD interventions and the innate characteristics of owner-managers of small firms. Previous studies have noted the potential impact on MD engagement of intrinsic barriers such as managerial attitudes – for example, negative or positive (Admiraal and Lockhorst, 2009; Antonacopoulou, 2000; Lawless *et al*, 2000), lack of self-esteem, insecurity and lack of confidence (Fuller-Love, 2006), self-efficacy – that is, confidence in one's own ability to cope with challenging situations (Brown and McCracken, 2009) and personal values (McGuire *et al*, 2008). McCracken's exploratory and qualitative study on intrinsic barriers to training participation identified the barriers as perceptual (that is, the perceived value of training), emotional (feelings of insecurity and fear of failure), motivational (the desire to participate in a training programme) and cognitive (likelihood of pursuing future training activities based on previous experiences).

Owner-manager attitudes towards learning and development were also seen as a common intrinsic barrier to engagement in capability development (Battisti *et al*, 2009). Some managers have developed negative attitudes towards management development because of past management development experiences. Other managers hold the view that they learn incidentally through engagement in everyday work activities and that this informal work-based learning is sufficient. Some commentators argue that many SME owner-managers do not perceive themselves as managers (Fuller-Love, 2006). Consequently, the demand from SME managers for management development is not active and there is a need to stimulate demand.

A theoretical framework

Our study builds on the 'stakeholder model' of the nature of learning in small firms as proposed by Gibb (1997). Gibb conceptualizes the small firm as an active learning organization within a stakeholder environment. He argues that the predominant contextual learning mode in this environment is that of learning from peers; learning by doing; learning through feedback from customers and suppliers; learning by copying; learning by experiment; learning by problem solving and opportunity taking; and learning from making mistakes. This learning environment is continually creating contextual knowledge through the process of the business striving to adapt, survive and grow. According to Gibb, this contrasts sharply with the largely de-contextualized (from the specific problems/priorities of the firm) learning environment frequently provided by formal training programmes.

Gibb's (1997) 'stakeholder model' of the nature of learning in SMEs provides a theoretical basis for propositions associated with the sources of management learning. This model suggests that SME owner-managers with an external orientation to sources of learning and engagement with external stakeholders will be more likely to engage in activities that will increase management development and capacity. Dragoni *et al* (2009) give support to a theoretical basis for the degree of learning orientation of managers contributing to the extent of access to external sources of learning and to the prediction of managerial competencies (or capacity). From these approaches, we develop a theoretical framework of the small business as a learning organization, as shown in Figure 1. This model depicts the role of the owner-manager in SMEs in relation to three sources of learning: practice-based, proximal and distal.

We build on the 'stakeholder model' in two ways. First, we cluster several of the sources of learning that Gibb identified into three categories. These categories of sources of learning are: (1) practice-based; (2) proximal; and (3) distal. Practice-based sources of learning include sources of learning embedded in the goal-directed activities of everyday management practice. This includes learning through reflection on challenging work experiences, learning through observing and learning through trial and error. Proximal sources of learning include family, friends, peers and trusted advisers such as accountants and bank managers. Distal sources of learning include management training programmes, university courses and seminars run by chambers of commerce. Second, we propose that the strengths of both the owner-manager's learning goal orientation and beliefs about the improvability of skills and abilities will influence his or her (1) intensity of engagement with the sources of learning, (2) perceptions of the importance of the sources of learning, and (3) likelihood of engaging with these sources of learning in the future.

Dweck (1986) and Dweck and Leggett (1988) have

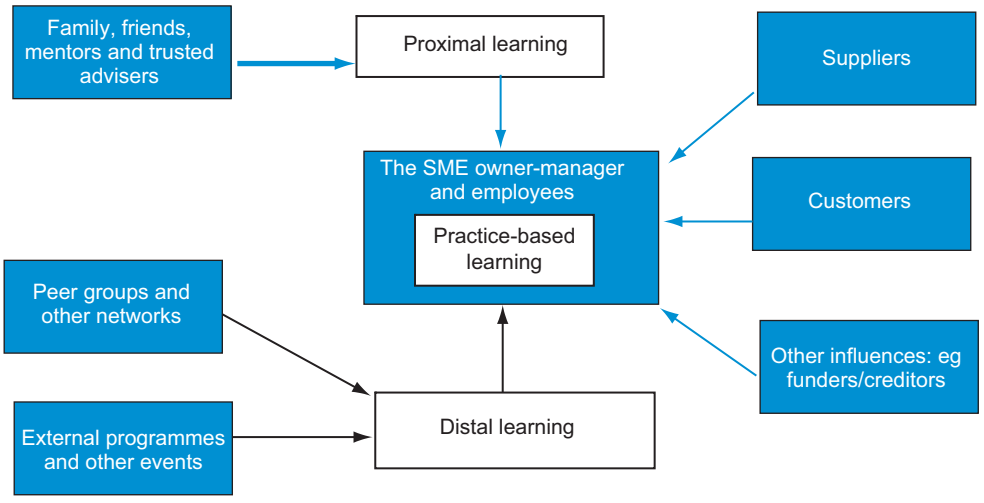

Figure 1. Sources of learning and SMEs as learning organizations.
Source: Follows Gibb, 1997.

proposed that individuals have goal orientations: that is, individual differences in goal preferences in achievement situations. They identified two major types of goal orientation: (a) a learning goal orientation of seeking to develop competence by acquiring new skills and mastering new situations; and (b) a performance goal orientation of seeking to demonstrate and validate the adequacy of one's competence by seeking favourable judgments and avoiding negative judgments about one's competence. Individuals who hold a learning goal orientation are interested in developing their skills and abilities, while those who hold a performance goal orientation are predisposed to attempt to validate and demonstrate the skills and ability they already possess (Maurer *et al*, 2003; VandeWalle, 1997). According to Dweck and Legget (1988) and Dweck (2000), individuals hold implicit theories regarding the malleability of personal qualities, and these implicit theories predispose people towards the different goal orientations. Individuals with a learning goal orientation tend to hold an incremental theory about their abilities. These individuals assume that their abilities are malleable and can be changed and improved upon. In contrast, individuals with a performance goal orientation tend to hold an entity theory about their abilities. These individuals assume that their abilities are fixed and non-malleable. Understandably, implicit theories and the associated goal orientations have important implications for individuals' engagement in learning and development (Maurer *et al*, 2003; VandeWalle, 1997).

In summary, drawing on the concepts of learning goal orientation, beliefs about the improvability of skills and abilities and the sources of owner-manager learning, we have developed two propositions:

Proposition 1: The strength of the owner-manager's *learning goal orientation* will influence his or her (a) *intensity* of engagement with the sources of learning, (b) perceptions of the *importance* of the sources of learning, and (c) *likelihood* of engaging with the sources of learning in the future.

Proposition 2: The strength of the owner-manager's *beliefs about the improvability of skills and abilities* will influence his or her (a) *intensity* of engagement with the sources of learning, (b) perceptions of the *importance* of the sources of learning, and (c) *likelihood* of engaging with the sources of learning in the future.

The following section describes how the key constructs in these two propositions were assessed in our study.

Research methods

Sample and study setting

The Centre's 2009 survey involved 4,165 New Zealand SMEs (defined as having fewer than 100 employees) using a database of firms provided by APN Infomedia, a commercial provider of business-to-business information in New Zealand. There were 1,447 usable responses after excluding 297 ineligible and unreachable firms. The overall response rate was 35%, which is well above the acceptable rate for this type of mail survey (Bartholomew and Smith, 2006).The study followed Dillman's (2000) Total Design Method (TDM) in choosing the sample, developing, designing and pilot testing the questionnaire. BusinesSMEasure is a postal survey. The mail survey was carried out between 9 October and 18 December 2009 using a four-stage

approach at an interval of two weeks. The first mail-out contained an explanatory letter and the survey questionnaire. Step two in the mail-out process entailed a postcard reminder. This was followed up by another reminder letter with survey questionnaire, and the final step was another postcard reminder. The survey form was addressed to the owner, owner-manager or managing director. In order to check for non-response bias, a comparison on the demographic profile (gender, ethnicity, legal form of firm and family firm) was made between respondents who replied to both the 2008 and 2009 surveys and those who replied in 2008 but did not reply in 2009, following Armstrong and Overton's (1977) approach. The insignificant differences between the two groups of respondents suggested that the non-response bias was non-existent or too small to detect.

To account for common method bias, given that the study used a single instrument to measure all the variables in the study, Harman's single-factor test was performed on selected items (Podsakoff *et al*, 2003). The unrotated factor solution reported 11 underlying factors with eigenvalues greater than 1. Seven factors accounted for variances ranging from 3.41% to 35.54% and no factor accounted for more than 50% of the total variance. The results offered some evidence that the common method bias *per se* could not explain the variations in the responses to the questions.

Table 1 shows the characteristics of the sample.

Table 1. Profile of survey respondents.

Sample characteristics	*f*	Percentage
Firm size		
Micro	768	58
Small	534	40
Medium	26	2.0
Total	1,328	100
Sector		
Services	496	39
Manufacturing	263	20
Others	527	41
Total	1,286	100
Firm age		
5 or less	48	4
6–10	162	13
11–20	420	34
21 plus	604	49
Total	1,234	100
Owner-manager's age		
30 or younger	5	< 1
31–40	90	7
41–50	360	26
51–60	553	40
61 or older	376	27
Total	1,384	100
Educational qualifications		
No qualification	88	6
Secondary school	350	27
National certificate 1–3	61	5
Trade certificate or equivalent	279	21
Diploma, advanced trade certificate	207	16
Degree level or higher	335	25
Total	1,320	100

Measurement

The measures for learning orientation and belief on self-improvement were adopted from previous studies. Six items were used to measure learning orientation (for example, 'In my current role, I often read materials related to my work to improve my ability'). These items were adopted from VandeWalle (1997). Five items were used to measure belief on self-improvement (for example, 'In my current role, I believe that I possess the skills and abilities needed to develop, grow and learn). These items were adopted from Maurer *et al* (2003). Responses to the items were contained in a five-point Likert scale.

In the survey questionnaire, we included five items to measure owner-managers' belief in self-improvement (Maurer *et al*, 2003). Improvability belief is a psychological construct that measures whether or not people believe that it is possible to develop, change or improve specific types of knowledge and skills. Individual differences in this belief may explain why some owner-managers are more capable of managing regulation than others. As discussed earlier, from a theoretical perspective, it can be argued that improvability beliefs result in more favourable attitudes towards learning and development, which in turn should result in a higher engagement in developmental activities.

The dependent variables in this study are the intensity of previous engagement in three sources of learning (practice-based, distal and proximal), the importance of the three sources of learning, and the likelihood of future engagement with them. Measures for these variables were specifically developed for the current study following Churchill's (1979) and Groves *et al*'s (2004) recommended procedures. The procedures include a systematic review of the literature, theoretical domain specification, concept definition, item development, expert review and evaluation, pilot testing, construct validation and item or scale refinement (Groves *et al*, 2004).

The intensity of engagement refers to the extent to which the SME owner-manager has engaged in specific activity in the past 12 months. The respondents were asked, using a five-point Likert scale, about the intensity of their engagement in the three sources of learning. The importance of the three sources of MD refers to the degree to which the sources of learning were perceived by SME owner-managers as important in improving their management knowledge and skills. The respondents were asked about the level of importance (on a

five-point Likert scale) of the three sources of MD. The likelihood of future engagement with the three sources of learning refers to the likelihood that the SME owner-manager will undertake each of the items in the next 12 months. The respondents were asked (using a five-point Likert scale) about their likelihood of engaging in the three sources of learning. The development of the items to measure these variables was guided by learning theories in the management development literature, which were discussed above in the theoretical framework section and conceptual review.

Control variables

The size of the firm (number of employees), the number of years since it started in business and the age and educational qualifications of its owner-managers are included as control variables. These variables can potentially alter the nature and extent of the hypothesized relationships of the variables in the study.

Structural equation modelling (SEM) was the main tool used to test the propositions of the study aided by EQS 6.1 software (Bentler, 1995). SEM is a multivariate statistical technique for confirming the causal relationships of latent variables in a model strongly guided by theory. Using Anderson and Gerbing's (1988) two-step approach, this study developed and confirmed an effective measurement model using confirmatory factor analysis. Subsequently, the study analysed the structural model depicting the hypothesized relationships of the constructs.

Results

Confirmatory factor analysis (CFA) was performed on the two independent variables and the dependent variables (intensity, importance and likelihood of engaging in three categories of sources of learning) using the maximum likelihood method with the robust confirmatory technique (Brown, 2006). CFA is a tool that seeks to determine whether the number of factors and the loadings of measured indicators or variables on the factors conform to what is expected on the basis of pre-established theory (Brown, 2006). The indicators or items were pre-selected or assumed to load to a specific factor or construct based on prior strong theoretical, conceptual or empirical evidence (Brown, 2006; Hair *et al*, 2006). Details of the CFA are shown in Table 2.

The results of the CFA maximum likelihood technique indicated a less than ideal fit between the full measurement model and the raw data evidenced by the goodness of fit measures in Table 2. The values of the Normed Fit Index (NFI) and Comparative Fit Index (CFI) were less than the minimum acceptable value of 0.90, whilst the Root Mean Square Error of Approximation (RMSEA) was over the minimum of 0.9, suggesting that the predicted measurement model is slightly different from the data. NFI is a measure that indicates whether there is improvement in the fit between the data and the identified model relative to a null model when all items are allowed to load freely in any construct (Hair *et al*, 2006). CFI is a measure that indicates whether there is improvement in the fit between the data and the identified model relative to a null model when the items are assumed to be uncorrelated. RMSEA is a measure to check whether the proposed model is too complex for the data at hand (Hair *et al*, 2006). The x^2 test is a general measure of discrepancy between the identified model and the data structure. A non-significant x^2 test result indicates a fit between model and data. Whilst the x^2 tests in the present analysis reported significant results, Hair *et al* (2006) noted the instability and lack of reliability of the chi-square test for studies with large sample sizes: hence the need for other measures such as the NFI and CFI.

However, closer examination of the data revealed slight departures from the normality assumption of data distribution. The data describing some of the constructs displayed mild negative skewness. Bentler (1995) recommends the robust method of EQS in running CFA to deal with normality issues in data distribution. The results of the robust method showed acceptable goodness-of-fit indices. Re-specification of the measurement model was no longer performed as the modification indices – namely Lagrange Multiplier (LM) and Wald tests provided by EQS (Bentler, 1995) – indicated that no significant improvement could be gained from dropping items in the lower scale of factor loadings.

Overall, the results of the test of the measurement model–data fit suggested that the constructs used in this study possessed a satisfactory level of content and construct validity and internal consistency (that is, reliability as shown by Cronbach α and Joreskog rho values). The significant loadings of the items under construct and the values of the AVE that are more than the minimum value of 0.50 suggest that the constructs have an acceptable level of convergent validity (Fornell and Larcker, 1981).

Table 3 shows the correlation of the constructs used in the study. The table also shows the values of the square root of AVE, as shown in the uppermost diagonal line and the correlation (r) coefficients. Comparison of these two values indicates that there are no r values greater than the square root of AVE of a construct in any given row, which offers evidence of the discriminant validity of the constructs used (Bagozzi, Yi and Phillips, 1991; Fornell and Larcker, 1981). Despite having four constructs in the table with high r values (more than 0.60), multicollinearity is not a major issue, as these variables

Table 2. Confirmatory factor analysis.

Constructs and corresponding indicators	Standardized factor loadings		
	Intensity	Importance	Likelihood
Practice-based sources			
Carrying out everyday managerial work activities	0.63	0.73	0.72
Reviewing what I did and thinking about how to do it better	0.87	0.85	0.95
Discovering what does and does not work (trial and error)	0.68	0.70	0.78
Cronbach α/average variance extracted/Joreskog rho	0.76/0.54/0.77	0.80/0.58/0.81	0.85/0.68/0.86
Proximal sources			
Learning from suppliers or customers	0.61	0.60	0.66
Getting advice from an accountant or bank manager	0.81	0.77	0.83
Learning from other people running a business	0.63	0.60	0.66
Learning from family and/or friends	0.65	0.60	0.61
Cronbach α/average variance extracted/Joreskog rho	0.75/0.74/0.77	0.73/0.72/0.73	0.73/0.77/0.78
Distal sources			
Reading books, journals and/or information on the Internet	0.62	0.84	0.61
Attending occasional off-site management training courses, seminars and workshops	0.70	0.65	0.74
Studying university and/or polytechnic courses	0.62	0.62	0.69
Being mentored or coached	0.60	0.67	0.61
Getting information from business events	0.72	0.76	0.76
Getting information provided by government agencies	0.64	0.67	0.62
Getting information from Chambers of Commerce, economic development agencies, and professional and industry associations	0.69	0.72	0.71
Joining a group of business owners reviewing current business issues	0.69	0.73	0.68
Cronbach α/average variance extracted/Joreskog rho	0.84/0.85/0.86	0.86/0.93/0.89	0.85/0.69/0.87
Learning orientation		**Standardized factor loadings**	
In my current role:			
I often read materials related to my work to improve my ability		0.65	
I am willing to select a challenging task that I can learn a lot from		0.81	
I often look for opportunities to develop new skills and knowledge		0.83	
I enjoy challenging and difficult tasks where I'll learn new skills		0.83	
Development of my ability is important enough to take risks		0.64	
I prefer to work in situations that require a high level of ability and talent		0.63	
Cronbach α/average variance extracted/Joreskog rho		0.86/0.54/0.88	
Belief in self-improvement			
In my current role, I believe that:			
I have what it takes to be a person who can learn new things and improve myself		0.87	
I possess the skills and abilities needed to develop, grow and learn		0.88	
I really do not have what it takes to be continually improving and learning (reverse)		0.69	
There are skills and qualities that people need to be able to learn, grow and develop, and that I have those skills and qualities.		0.69	
I have the capabilities and qualities to be continually learning, improving and developing		0.81	
Cronbach α/average variance extracted/Joreskog rho		0.63/0.78/0.89	

Goodness-of-fit measures: Maximum likelihood: χ^2 = 27,783.47, 1,484 degrees of freedom (p = 0.000), NFI = 0.88, CFI = 0.85, RMSEA = 0.12. Robust method: SB χ^2 = 21,354.10, 1,484 degrees of freedom (p = 0.000), NFI = 0.90, CFI = 0.91, RMSEA = 0.08.

are all endogenous variables with acceptable levels of divergent and discriminant validity. Multicollinearity becomes a major issue only when both the endogenous and exogenous variables are highly correlated (Hair *et al*, 2006; Tabachnik and Fidell, 2005).

Results from fitting the structural model to the data using the maximum likelihood technique and robust method gave satisfactory results, as demonstrated by the goodness-of-fit measures shown in Figure 2. The structural model shows the effects of learning orientation and belief in self-improvement on the intensity, importance and likelihood of engaging in three sources of learning.

To account for possible variations in the structural model due to the control variables, a multi-sample invariance analysis was performed (Bentler, 1995; Byrne, 2006). The invariance of the full structural model was tested across subsamples to determine whether variations existed across the subsamples. In order to do this, the total sample was subdivided into eight groups according to firm size, firm age, owner-manager age and educational qualifications. The mean values of the control variables were used as the cut-off to determine the subgrouping in each category. The results presented in Table 4 indicate a well-fitting multi-group structural model as shown by the goodness-of-fit measures using the robust method of fitting the model to the data. The empirical evidence suggests that the identified structural model is invariant or remains stable across the subgroups.

Table 3. Correlation matrix.

Constructs	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Learning orientation	3.87	0.63	***0.73***														
2. Belief in self-improvement	4.06	0.53	0.57*	***0.73***													
3. Intensity – practice-based sources	3.53	0.87	0.36*	0.32*	***0.73***												
4. Intensity – proximal sources	2.69	0.82	0.32*	0.21*	0.40*	***0.86***											
5. Intensity – distal sources	2.08	0.72	0.43*	0.24*	0.34*	0.57*	***0.92***										
6. Importance – practice-based sources	3.99	0.76	0.40*	0.34*	0.61*	0.37*	0.28*	***0.76***									
7. Importance – proximal sources	3.26	0.81	0.27*	0.17*	0.27*	0.70*	0.37*	0.43*	***0.85***								
8. Importance – distal sources	2.74	0.83	0.37*	0.18*	0.19*	0.40*	0.68*	0.32*	0.60*	***0.96***							
9. Likelihood – practice-based sources	4.03	0.99	0.32*	0.31*	0.52*	0.27*	0.22*	0.58*	0.32*	0.21*	***0.82***						
10. Likelihood – proximal sources	3.25	0.86	0.31*	0.22*	0.33*	0.68*	0.39*	0.40*	0.77*	0.43*	0.48*	***0.88***					
11. Likelihood – distal sources	2.62	0.81	0.44*	0.26*	0.29*	0.42*	0.33*	0.33*	0.46*	0.77*	0.40*	0.59*	***0.83***				
12. Firm size	7.78	11.32	0.15*	0.06*	0.07*	0.08*	0.06*	0.01	0.07*	0.01	0.07*	0.03	0.08*	na			
13. Firm age	24.83	19.10	–0.05	–0.07*	–0.01	0.01	0.02	–0.07*	0.01	–0.01	–0.02	–0.01	–0.02	0.18*	na		
14. Owner-manager age	54.60	9.25	–0.05*	–0.14	–0.08*	–0.11	–0.05	–0.09*	–0.13	–0.11*	–0.19	–0.19	–0.12	–0.04	0.14*	na	
15. Highest educational qualification	3.89	1.69	0.14*	0.15*	–0.01	–0.08*	0.07*	–0.01	–0.14*	–0.02	0.06	–0.08*	0.06*	0.03	–0.07*	0.01	na

Notes: SD – standard deviation; na – not applicable. Figures in bold italics show the square root of the average variance extracted (AVE) values. *Significant at $p < 0.05$.

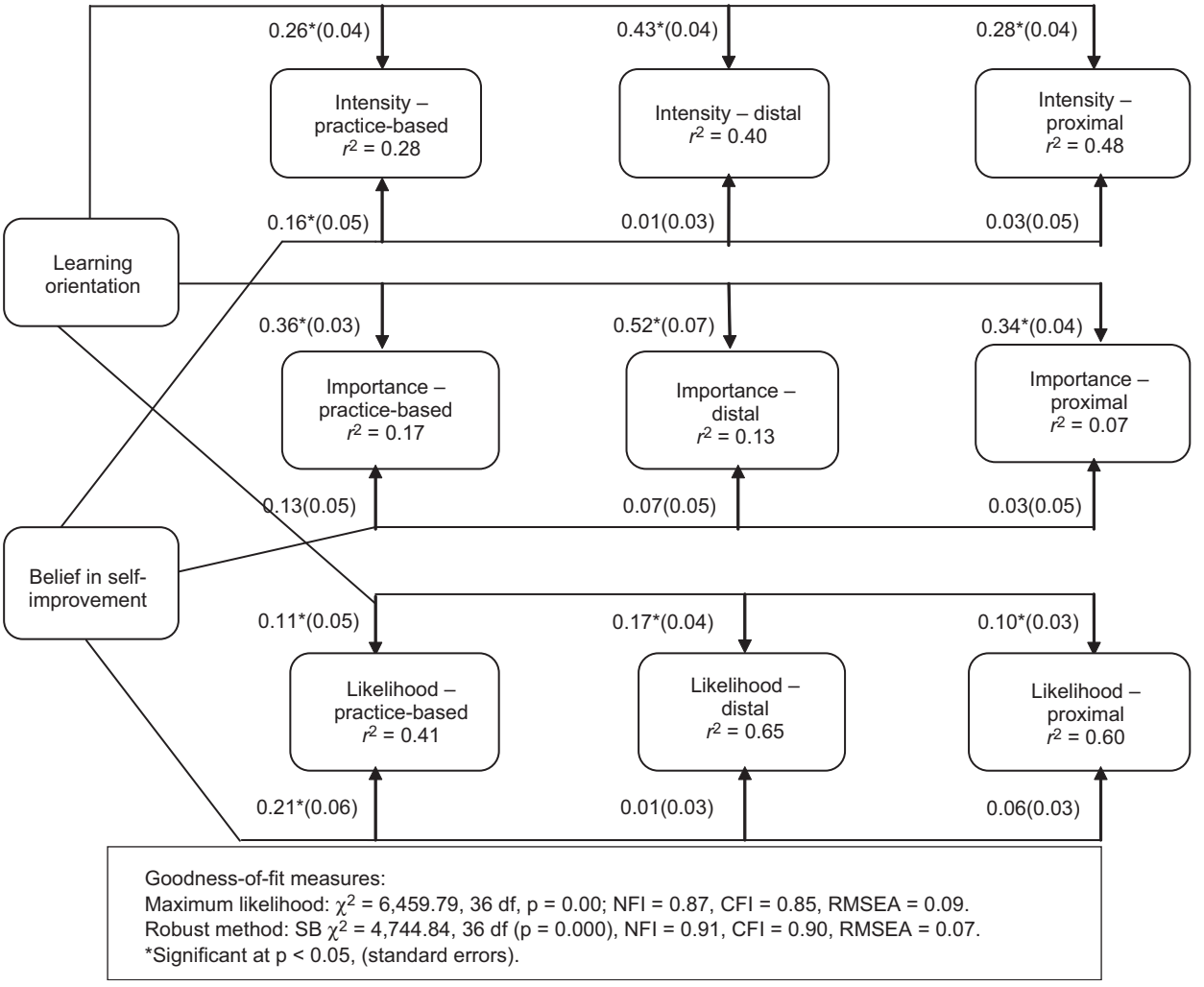

Figure 2. Results from structural equation modelling.

However, the results of the Lagrange Multiplier (LM) test (Bentler, 1995) of equality constraints show that some of the paths vary between groups. The LM test identifies the constraints or paths in the model that vary with the subgroups. In terms of firm size, the path of belief in self-improvement to likelihood of engaging in distal learning is significant for larger firms (group 2) but not significant for the smaller firms (group 1). This finding suggests that amongst smaller firms, belief in self-improvement does not have strong influence on the likelihood of engaging in distal sources of learning, whereas in larger firms, such belief has a strong influence on future engagement in distal learning. The same findings apply to younger and older firms.

The path of belief in self-improvement to likelihood of engaging in practice-based learning is not significant in the younger owner-managers group, but significant in the older group. Finally, among owner-managers with higher educational qualifications, the paths of belief in self-improvement to likelihood of engaging in distal learning and of belief in self-improvement to likelihood of engaging in proximal learning are not significant.

Interpretation of results

The results show that learning orientation is positively and significantly associated with all the variables in the structural model. Learning orientation (along with *belief in self-improvement*) explained 28% of the variations in the intensity of owner-managers engaging in sources of learning using practice-based sources. Likewise, learning orientation explained 40% and 48% of the variations in the intensity of owner-managers engaging in sources of learning using distal and proximal sources respectively. The r^2 values represent medium to large 'effect size', which suggests that the relationships between learning orientation and the intensity of engagement with the three sources of MD are substantively

Table 4. Results of multi-sample invariance analysis.

Basis of multi-sample invariance analysis	Robust goodness-of-fit of multi-group model				Non-invariant paths	Non-invariant path coefficients (standard error)
	Satorra-Bentler scaled χ^2 (degrees of freedom)	*NFI*	*CFI*	*RMSEA*		
Firm size: Group 1 – up to 8 employees = 1,074 Group 2 – over 8 employees = 363	4,258.95* (36)	0.90	0.92	0.05	Belief in self-improvement → likelihood – distal	Group 1 = 0.02 (0.04) Group 2 = 0.11*(0.08)
Firm age: Group 1 – up to 25 years = 1,001 Group 2 – over 25 years = 436	4,852.25* (36)	0.91	0.92	0.07	Belief in self-improvement → likelihood – distal	Group 1 = 0.02 (0.03) Group 2 = 0.09*(0.04)
Owner-manager age: Group 1 – up to 55 = 272 Group 2 – over 55 years = 710	4,589.87* (36)	0.90	0.91	0.04	Belief in self-improvement → likelihood – practice	Group 1 = 0.04 (0.07) Group 2 = 0.10*(0.07)
Owner-manager educational qualifications: Group 1 – up to trade certificate = 778 Group 2 – diploma and above = 542	3,952.54* (36)	0.91	0.92	0.05	Belief in self-improvement → likelihood – distal Belief on self-improvement → likelihood – proximal	Group 1 = 0.15*(0.03) Group 2 = 0.03 (0.04) Group 1 = 0.12*(0.01) Group 2 = 0.07 (0.04)

Note: *Significant at $p < 0.05$.

meaningful and valid inferences could be drawn from them (Cohen, 1992; Field, 2005; Pedhazur, 1982). It is logical to infer that SME owner-managers with high levels of learning orientation are likely to have high levels of intensity with their engagement in three types of sources of learning.

Learning orientation is also positively associated with high levels of importance placed by owner-managers on the three sources of learning. In terms of the likelihood of engaging, owner-managers with high learning orientation are more likely to engage in distal sources of learning, relative to other sources, although learning orientation is positively associated with all of the three sources of learning.

SME owner-managers' belief in self-improvement was shown to have a relatively weaker relationship with the three sources of learning. The results indicate that belief in self-improvement is positively and significantly associated only with the *intensity* and *likelihood of engaging* in practice-based sources of learning. However, belief in self-improvement is positively associated across all three measures – that is, likelihood, importance and intensity of engagement. Therefore, the greater the belief in self-improvement, the greater will be the likelihood of such engagement and the greater will be its take-up and intensity. There is a less strong association with proximal sources. Since this refers to the potential development that would be seen with trusted advisers and mentors, it suggests that owner-managers with a strong belief in self-improvement do not see great value in proximal learning sources. Similar results are shown in Figure 2 for distal sources of learning: that is, there is a weaker association between belief in self-improvement and the three areas of likelihood, importance and intensity of engagement.

Discussion and policy implications

The results support the Gibb model of the importance of sources of learning and participation in management development activities that were represented in our earlier theoretical discussion and illustrated in Figure 1. However, our results allow us to modify this model to show conceptually the importance of the owner-manager's learning orientation and belief in self-improvement. This development of the basic theoretical model is shown in Figure 3, and we argue that this gives a fuller understanding of the determinants of SME owner-manager participation in management development; further, it allows some prediction of the importance and likelihood of participation by SME owner-managers. The results have confirmed the strong positive relationship between the importance, likelihood and intensity of participation in management development activities with the constructs of learning orientation and belief in self-improvement. The representation of these relationships in Figure 3 implies some policy implications, which are discussed in the remaining part of this section.

Although management development programmes have been a focus of policy and of policy intervention, as indicated by previous writers, support agencies and SME policy makers need to understand the motivators for participation in management development activities and the importance of SME sources of learning if policy developments are to be effective. As noted by Henderson *et al* (2000, p 84), support bodies and policy makers:

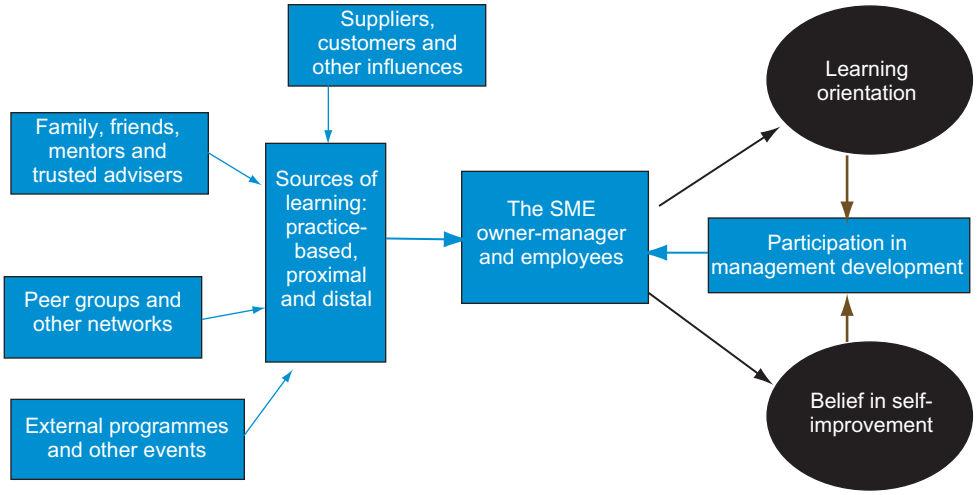

Figure 3. Determinants of participation in management development.

> '…need to know who participates in management development; how; why; and what problems are encountered in so doing'.

Our analysis supports the view that management development programmes for SMEs need to be specialized and targeted, and participation rates will be higher if they are seen as relevant and are targeted at those SME owner-managers who indicate high degrees of orientation towards learning and a high degree of belief in self-improvement. One way to facilitate this would be through the role of trusted advisers and mentors working closely with SME owner-managers. For example, the establishment of a trusted network of advisers and peer mentors could be one way to work with SME owner-managers and to indicate the likelihood of and participation in management development programmes. The development of effective policy needs to take both a demand and supply perspective; it needs to take account of known issues regarding the external barriers to SME owner-manager participation, such as time, cost, access and availability (Henderson *et al*, 2000); and it needs to take into account demand-side and internal issues regarding owner-managers' orientation and their approach to belief in self-improvement. These are perspectives that can be influenced by the role of an established and trusted network of peers and trusted business advisers. Without this system in place, management development interventions will continue to encounter poor responses from SME owner-managers.

We suggest that support agencies and training organizations need to work with owner-managers to develop pilot programmes that recognize SMEs as learning organizations. Although it is known that those with a positive learning orientation will engage with such initiatives, these interventions would benefit from the development of case studies, profiling the importance of participation in sources of learning and of management development and capability. This will influence the approach of additional SME owner-managers and lead to a greater take-up of relevant interventions and policy support programmes. It is recognized that our research is a demand-side study only; case studies from similar pilot supply-side initiatives are needed.

Conclusions

It has been well established in the literature that there is a lack of engagement of owner-managers in SMEs with formal sources of management development and learning. Indeed, as indicated by previous writers such as Storey and Westhead (1997), it can be argued that there is a situation of market failure arising from the mismatch between market provision of MD programmes and demand from SMEs. Other writers have pointed to the importance of informal and practice-based types of learning for owner-managers in SMEs. Despite this well known situation for SMEs and engagement with formal management development programmes, there has been little work that has examined the motivation and key drivers of owner-managers' participation in different types of learning; nor has there been work to examine the factors that influence participation. In this paper we have developed a predictive model based on two propositions. The two propositions are concerned with, first, owner-manager learning orientation, and second, owner-managers' belief in self-improvement. Our results suggest that learning orientation and belief in self-improvement can explain a significant part of owner-manager engagement in different sources of learning and associated management development

activities, although the extent varies according to whether this is practice-based, proximal or distal.

The results, which are shown in Figure 2 and discussed in our interpretation, allow us to modify our original model of the SME as a learning organization. Our insight is to recognize the importance of owner-managers, their beliefs in improvement and their learning orientation. This approach builds on the theoretical framework provided by the Gibb model (Figure 1), which, it is argued, conceptualizes the small business as a learning organization. It is feasible to add extra dimensions to the theoretical framework to modify Figure 1. This model gives greater insights into the processes of participation in management development activities, as illustrated by Figure 3.

Much of the previous research on management development has examined external barriers (Kitching and Blackburn, 2002). Our study and this paper's contribution are focused on internal barriers connected with owner-manager attitudes to learning and owner-manager belief in self-improvement. In this paper we have developed propositions associated with learning orientation and belief in self-improvement. Previous research has focused on SME firm characteristics, such as a lack of resources, firm size and network engagement as explanations of the known low take-up of formal provision of management development programmes and capacity-building initiatives (Fuller-Love, 2006). These studies have assumed that participation is driven by the demographic and profile characteristics of SMEs, such as size and sector. Our results and analysis point to the importance of owner-managers' beliefs and orientation, factors that previous studies have tended to ignore. We have modelled this process to indicate the importance of these determinants.

We recognize that there are a number of limitations with a survey-based study of this nature. Although it builds on a previous qualitative study, it will be important to undertake more dynamic and qualitative work on the importance of the constructs developed in this paper, especially the relationship between learning orientation and belief in self-improvement as constructs with a range of other variables and contexts. Although we have made a contribution, this should be seen as starting point for further testing and more qualitative work undertaken with owner-managers over time. There is still much that could be revealed by longitudinal studies that examine how such constructs may vary over time and how they may be influenced by the role of a number of actors and providers – especially the role of trusted advisers and intermediaries. Further lines of research are encouraged that seek to build upon our work in different contextual environments and further qualitative and longitudinal studies with owner-managers.

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References

Admiraal, W., and Lockhorst, D. (2009), 'E-learning in small and medium-sized enterprises across Europe: attitudes towards technology, learning and training', *International Small Business Journal*, Vol 27, No 6, pp 743–767.

Anderson, J.C., and Gerbing, D.W. (1988), 'Structural equation modeling in practice: a review and recommended two-step approach', *Psychological Bulletin*, Vol 103, No 3, pp 411–423.

Antonacopoulou, E. (2000), 'Reconnecting education, development and training through learning: a holographic perspective', *Education & Training*, Vol 42, No 4/5, pp 255–263.

Armstrong, J.S., and Overton T.S. (1977), 'Estimating non-response bias in mail surveys', *Journal of Marketing Research*, Vol 14, pp 396–402.

Bagozzi, R.P., Yi, Y., and Phillips, L.W. (1991), 'Assessing construct validity in organizational research', *Administrative Science Quarterly*, Vol 36 (September), pp 421–458.

Bartholomew, S., and Smith, A.D. (2006), 'Improving survey response rates from chief executive officers in small firms: the importance of social networks', *Entrepreneurship Theory and Practice*, Vol 30, No 1, pp 83–96.

Battisti, M., Coetzer, A., Jurado, T., and Massey, C. (2009), 'The reality of management development in small New Zealand firms: implications for policy', paper presented at the *ICSB Conference, Seoul, South Korea*.

Battisti, M., Deakins, D., Roxas, H., and Coetzer, A. (2010), *Management Capability: Perspectives from New Zealand Firms*, Report from the BusinesSMEasure 2009, New Zealand Centre for Small & Medium Enterprise Research, Massey University, Wellington.

Bentler, P. (1995), *EQS – Structural Equations Programs*, Multivariate Software, Encino, CA.

Bishop, D. (2008), 'The small enterprise in the training market', *Education & Training*, Vol 50, No 8/9, pp 661–673.

Brown, T. (2006), *Confirmatory Factor Analysis for Applied Research*, Guildford Press, New York.

Brown, T., and McCracken, M. (2009), 'Building a bridge of understanding: how barriers to training participation become barriers to training transfer', *Journal of European Industrial Training*, Vol 33, No 6, pp 492–512.

Byrne, B.M. (2006), *Structural Equation Modelling with EQS: Basic Concepts, Applications and Programming*, 2 ed, Routledge, Lawrence Erlbaum Associates, Mahwah, NJ.

Churchill, G. (1979), 'A paradigm for developing better measures of marketing constructs', *Journal of Marketing Research*, Vol 16, No 1, pp 64–73.

Coetzer, A. (2006), 'Managers as learning facilitators in small manufacturing firms', *Journal of Small Business and Enterprise Development*, Vol 13, No 3, pp 351–362.

Coetzer, A., Battisti, M., Jurado, T., and Massey, C. (2011), 'The reality of management development in SMEs', *Journal of Management and Organisation*, Vol 17, No 3, pp 290–306.

Cohen, J. (1992), 'A power primer', *Psychological Bulletin*, Vol 112, No 1, pp 155–159.

Cullen, J., and Turnbull, S. (2005), 'A meta-review of the management development literature', *Human Resource Development Review*, Vol 4, No 3, pp 335–355.

Deakins, D., Battisti, M., Roxas, B., and Coetzer, A. (2010), 'Managerial learning and management development in New Zealand SMEs', paper for the *ISBE Conference, 3–4 November, London*.

Devins, D., Gold, J., Johnson, S., and Holder, R. (2005), 'A conceptual model of management learning in micro busi-

nesses: implications for research and policy', *Education & Training*, Vol 47, No 8/9, pp 540–551.
Dillman, D. (2000), *Constructing the Questionnaire: Mail and Internet Surveys*, John Wiley & Sons, New York.
Dragoni, L., Tesulk, P.E., Russell, J.E.A., and Oh, I.-S. (2009), 'Understanding managerial development: integrating developmental assignments, learning orientation and access to developmental opportunities in predicting managerial competencies', *Academy of Management Journal*, Vol 52, No 4, pp 731–743.
Dweck, C.S. (1986), 'Motivational processes affecting learning', *American Psychologist*, Vol 41, pp 1040–1048.
Dweck, C.S. (2000), *Self-Theories: Their Role in Motivation, Personality, and Development*, Psychology Press, Lillington, NC.
Dweck, C.S., and Leggett, E.L. (1988), 'A social-cognitive approach to motivation and personality', *Psychological Review*, Vol 95, pp 256–273.
Espedal, B. (2005), 'Management development: using internal or external resources in developing core competence', *Human Resource Development Review*, Vol 4, pp 136–158.
Field, A. (2005), *Discovering Statistics Using SPSS*, Sage Publications, London.
Fornell, C., and Larcker, D.F. (1981), 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research*, Vol 18, No 1, pp 39–50.
Fuller-Love, N. (2006), 'Management development in small firms', *International Journal of Management Reviews*, Vol 8, No 3, pp 175–190.
Gibb, A.A. (1997), 'Small firms' training and competitiveness: building on the small business as a learning organisation', *International Small Business Journal*, Vol 15, No 3.
Gray, C. (2004), 'Management development in European small and medium enterprises', *Advances in Developing Human Resources*, Vol 6, No 4, pp 451–469.
Gray, C., and Mabey, C. (2005), 'Management development: key differences between small and large businesses in Europe', *International Small Business Journal*, Vol 23, No 5, pp 467–485.
Groves, R., Fowler, F.J., Couper, M., Lepkowski, J., Singer, E., and Tourangeau, R. (2004), 'Survey metholodogy', in Groves, R., Kalton, G., Rao, J. N. K., Schwarz, N., and Skinner, C., eds, *Wiley Series in Survey Methodology*, John Wiley & Sons, Hoboken, NJ.
Hair, J., Black, F., Babin, W., Anderson, B., and Tatham, R. (2006), *Multivariate Data Analysis*, 6 ed, Prentice Hall, Upper Saddle River, NJ.
Henderson, R., Sutherland, J., and Turley, S. (2000), 'Management development in small business: a sub-regional examination of practice, expectation and experience', *Regional Studies*, Vol 34, No 1, pp 81–86.
Hoque, K., and Bacon, N. (2006), 'The antecedents of training activity in British small and medium-sized enterprises', *Work, Employment and Society*, Vol 20, No 3, pp 531–552.
Hoque, K., and Bacon, N. (2008), 'Investors in people and training in the British SME sector', *Human Relations*, Vol 61, No 4, pp 451–482.
Jayne, V. (2007), 'Lifting New Zealand performance: why the focus falls on management?' *New Zealand Management*, Vol 54, No 9, pp 30–36.
Kitching, J., and Blackburn, R. (2002), *The Nature of Training and Motivation to Train in Small Firms*, Kingston University Small Business Research Centre, London.
Lawless, N., Allan, J., and O'Dwyer, M. (2000), 'Face-to-face or distance training: two different approaches to motivate SMEs to learn', *Education & Training*, Vol 42, No 4/5, pp 308–316.
Mabey, C. (2008), 'Management development and firm performance in Germany, Norway, Spain, and the UK', *Journal of International Business Studies*, Vol 39, pp 1327–1342.
Massey, C., Gawith, A., Perry, M., Ruth, D., and Wilson, M. (2005), *Building Management Capability in New Zealand: An Assessment of Supply and Demand*, New Zealand Centre for SME Research, Massey University, Wellington.
Maurer, T.J., Wrenn, K.A., Pierce, H.R., Tross, S.A., and Collins, W.C. (2003), 'Beliefs about "improvability" of career-relevant skills: relevance to job/task analysis, competency modelling, and learning orientation', *Journal of Organizational Behaviour*, Vol 24, No 1, pp 107–131.
McGuire, D., Garavan, T., O'Donnell, D., Saha, S., and Cseh, M. (2008), 'Managers' personal values as predictors of importance attached to training and development: a cross-country exploratory study', *Human Resource Development International*, Vol 11, No 4, pp 335–350.
Ministry of Economic Development (2008), *Statement of Intent 2009–2012*, Ministry of Economic Development, Wellington.
Ministry of Economic Development (2010), *Management Matters in New Zealand – How Does Manufacturing Measure Up? Findings from the New Zealand Practices and Productivity Global Benchmarking Project*, Ministry of Economic Development, Wellington.
Molander, C. (1986), *Management Development*, Chartwell-Bratt, Bromley.
Morrison, A. (2003), 'SME management and leadership development; market reorientation', *Journal of Management Development*, Vol 22, No 9, pp 796–808.
Mumford, A. (1987), 'Using reality in management development', *Management Learning*, Vol 18, No 3, pp 223–243.
Mumford, A. (1988), 'Learning to learn and management self-development', in Pedler, M., Burgoyne, J., and Boydell, T., eds, *Applying Self-Development in Organisations*, Prentice-Hall, Hemel Hempstead.
Mumford, A. (1997), *Management Development: Strategies for Action*, 3 ed, Institute of Personnel and Development, London.
Pedhazur, E.J. (1982), *Multiple Regression in Behavioral Research*, 2 ed, Holt, New York.
Podsakoff., P.M., MacKenzie, S.B., Lee, J.-Y., and Podsakoff, N.P. (2003), 'Common method biases in behavioral research: a critical review of the literature and recommended remedies', *Journal of Applied Psychology*, Vol 88, No 5, pp 879–903.
Storey, D. (2004), 'Exploring the link among small firms, between management training and firm performance: a comparison between the UK and other OECD countries', *International Journal of Human Resource Management*, Vol 15, No 1, pp 112–130.
Storey, D., and Westhead, P. (1997), 'Management training in small firms: a case of market failure?' *Human Resource Management Journal*, Vol 7, No 2, pp 61–71.
Stuart, R. (1984), *Maximising Managers Day to Day Learning, Management Development: Advances in Practice and Theory*, Wiley, London.
Tabachnick, B., and Fidell, L. (2005), *Using Multivariate Statistics*, 4 ed, Allyn & Bacon, Harlow.
Temporal, P., and Boydell, T. (1981), *Helping Managers to Learn*, Sheffield Polytechnic Occasional Paper, Sheffield Polytechnic, Sheffield.
Thomson, A., Mabey, C., and Storey, J. (1998), 'The determinants of management development', *International Studies of Management and Organisation*, Vol 28, No 1, pp 91–113.
VandeWalle, D. (1997), 'Development and validation of a work domain goal orientation instrument', *Educational and Psychological Measurement*, Vol 57, No 6, pp 995–1015.
Walker, E., Redmond, J., Webster, B., and Le Clus, M. (2007), 'Small business owners: too busy to train?' *Journal of Small Business and Enterprise Development*, Vol 14, No 2, pp 294–306.
Webster, B., Walker, B.N., and Dorney, B. (2004), 'Training and improving productivity in the small business sector', *Proceedings of the 17th Annual SEAANZ Conference 2004, Entrepreneurship as the Way of the Future, 26–29 September, Brisbane, Queensland*.