Organisational learning: research issues and application in SME sector firms

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Abstract Over the last two decades the UK government has massively expanded support for SME sector firms. Two important elements of this expansion have been the funding of intervention by commercial consultants and the provision of training schemes covering start-ups, owner-manager development and employee skills acquisition. Argues that a fresh approach is required which ensures embedding of the concept that firms should be more self-responsible and continually strive to find ways of enhancing their performance. This view then permits one to posit the idea that the introduction of organisational learning into the SME sector is a highly attractive proposition. However, the majority of espoused theory is based on application of the concept in large firms moreover, there is very limited empirical research that supports the fundamental assumption that organisational learning contributes towards enhancing performance. Research to determine whether identifiable relationships exist between the performance of the firm, the learning mode of the organisation and organisational competence does not provide clear statistically significant relationships and further work is clearly needed. A grounded theory approach was adopted for developing an organisational learning programme for small firms. Preliminary results indicate the approach offers significant advantages over the classic, external intervention driven support models currently in common use among TECs and business links.

Introduction
Over the last two decades the UK government has massively expanded support for SME sector firms. Two important elements of this expansion have been the funding of intervention by commercial consultants and the provision of training schemes covering start-ups, owner-manager development and employee skills acquisition. Possibly the largest consultancy support scheme was the DTI Enterprise Initiative. Firms which participated in the programme frequently found that at the end of the funding period, they were left with a thick report containing recommendations which either the firm did not understand and/or lacked the resources to implement. In the case of training schemes it has proved extremely difficult to identify any positive relationship between funds expended and improvement in SME sector performance.
Given the apparent failure of consultancy schemes or training programmes to assist small firms, then perhaps there is a need for a fresh approach which ensures embedding of the concept that firms should be more self-responsible and continually strive to find ways of enhancing their performance. This view then permits one to posit that idea that the introduction of organisational learning into the SME sector is a highly attractive proposition. In recognition of this situation, the UK Government has recently announced four major initiatives:

1. the New Deal;
2. the University for Industry;
3. Individual Learning Accounts and
4. the National Grid for Learning (Fryer 1997).

In response to this situation, Plymouth Business School, with funding from the Department of Education & Employment (DfEE), has for the past 18 months been concerned with acquiring greater understanding of organisational learning within small UK firms. An early phase of this project was aimed at generating knowledge concerning the relationship which may exist between organisational capability and organisational learning.

Organisational capability

The term organisational capability has been used by a number of authors in discussing the performance of large firms (Stalk et al., 1992; Ulrich and Lake, 1990) often in the context of “core competencies” (Prahalad and Hamel, 1990). Collis (1996) lists “organisational capability” as an intangible asset, along with other more tangible ones (such as location, fixed assets, etc.) that give rise to “inimitability”. The intangible assets are not tradable factors, but are acquired over years of development in parallel with the firm’s tacit knowledge.

In the UK and across Europe government policy has shifted away from maximising the number of small business start-ups to focusing on stimulating growth among existing capable small and medium sized enterprises (SMEs). Chaston and Mangles (1997) argued that common key characteristics exhibited by growth SMEs are a reflection of the internal capabilities of the organisation. Based on a number of studies (Burns, 1994; Brickau, 1994; Coopers and Lybrand, 1994; Tradenz, 1990) they have identified a number of characteristics of growth SMEs which are reflective of underlying organisational capabilities in the areas of innovation, human resources, quality, productivity and information systems. These capabilities appear to be related to organisational performance (measured in terms of sales growth). However certain capabilities are more critical “influencers” than others and undue emphasis on a non-critical factor may have a negative impact. The capabilities of a small firm, based on the model described above, may be measured using the dynamic growth mapping questionnaire (Chaston and Mangles, 1997). The views of the authors are that possibly it can be argued the acquisition of organisational capability (or organisational competence), and hence a predisposition to behave in more effective ways, may occur through the processes of organisational learning.
Organisational learning

Collis (1996) includes “accumulated learning” as one of the intangible assets that give a firm “inimitability”. Indeed he describes organisational capability itself as “the firm’s dynamic routines that enable it to generate continuous improvement in the efficiency or effectiveness of its performance of product market activities” and the “collective tacit knowledge ... built into the organisation’s processes, procedures and systems and that is embedded in modes of behaviour” (Collis, 1996, pp. 149-50). He suggests two critical factors in building organisational capability:

1. the ability to innovate; and
2. the ability to learn.

The present authors favour a somewhat different view; namely that the former depends upon the latter, i.e. that organisational learning is an antecedent of organisational capability (as exhibited in ‘innovativeness’). Therefore one may anticipate that “capable” firms will exhibit learning characteristics which differ from those of non-capable firms.

The organisational learning literature is dominated by research in large US corporations. Two notable exceptions to this are Pedler et al. (1997) and Hendry et al. (1995). The latter identify SMEs as a specific area of neglect within the field. They describe the notion of learning in SMEs in terms of the elaboration of existing routines as well as building in redundancy (conscious overlapping of information) to those routines in order to spread explicit knowledge. Gibb (1997) (in a theoretical analysis of the impact of traditional training and development on small firms) recognises two types of learning (derived from Argyris and Schon (1978) and Senge (1990)) – adaptive learning (learning in order to cope with change) and generative learning (the capacity to create and think projectively). He goes on to propound the notion of the small firm as “an active learning organisation within a stake-holder environment” (Gibb, 1997, p. 25). Collis (1996) describes certain “modes” of behaviour as being consistent with the acquisition of organisational capability.

A number of authors have described contrasting modes of learning behaviours within firms which predispose them to create, share and store knowledge in two but contrasting, ways. Single loop learning (Argyris and Schon, 1978) occurs when an organisation “employs its schema without change” (Stacey, 1996), whereas double loop learning occurs where there is a “change of dominant schema”. Related to the notion of single and double loop learning are the “learning modes” suggested by Pedler et al. (1997). They suggest three modes which range from the simplest level of “implementing” (which shares some of the features of Argyris and Schon’s (1978) single loop learning), through “improving”, to the most complex level of “integrating” (which shares some of the features of double loop learning).

The notion of differing modes of learning is consistent with Nevis, DiBella and Gould’s (1996) assertion that there are stylistic variations in organisational learning systems which are consistent with an organisation’s underlying value
orientations, for example “specifying metrics” versus “setting broad objectives”. Pedler, et al.’s three learning modes may be described thus:

(1) implementing: doing things well, characterised by constant reliability but limited by lacking responsiveness to environmental changes;

(2) improving: characterised by initiative-taking, systematic experimentation and doing things better but constrained by small scale improvements within existing boundaries;

(3) integrating: characterised by “doing better things” – creativity through “holistic” and systematic problem solving (Pedler et al., 1997, p. 208).

These modes are derived from a combination of research and consulting experience and are described more fully in Pedler et al. (1997). They represent a “stage” model of development in which subsequent stages subsume previous ones, analogous to “crawling, walking and running” – see Figure 1.

Clearly, therefore, a number of authors recognise and attempt to define different types of learning behaviour at the organisational level. This raises the question of how these differing modes of behaviour relate to and impact on organisational capability? In spite of the extensive literature which exists relating to organisational learning (a comprehensive review may be found in Dodgson, 1993), there have been a few attempts to operationalise the construct through the application of quantitative techniques, especially in the small firm

Figure 1.
The three learning modes

Source: Adapted from Pedler, Burgoyne and Boydell, 1997
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This may be as a result of the general lack of readily available tools which may be used to explore the construct of organisational learning in large scale studies. One exception to this is the learning modes questionnaire (Boydell and Leary, 1996) which can be used to measure individual managers’ perceptions of the predisposition of the work-force to engage in each of the three “modes” of learning.

Aim of the research
The aim of this exploratory study was to examine the relationships between organisational learning, organisational capability and performance (in terms of sales growth over the last three years) in SMEs. It was anticipated that:

• capability and growth would be related;
• learning and growth would be related;
• learning and capability would be related.

Methodology
The study employed a self-report questionnaire which was administered in the form of a postal survey to owner/managers in SMEs (< 200 employees) in Devon and Cornwall. The sample of 600 firms was randomly selected from the local Business Link database. The questionnaire had three sections as follows.

Organisational performance
Organisational performance was measured in terms of sales growth and scored on a seven-point scale (ranging from “sales decreased by more than 10 per cent” through to “sales increased by more than 50 per cent”) and re-coded as:

• sales growing;
• sales not growing.

Organisational capability
Organisational capability was measured using the dynamic growth mapping (DGM) questionnaire (Chaston and Mangles, 1997). The DGM consists of 25 statements of capability covering the areas of innovation, human resources, quality, productivity and systems and is self-scored on a five point adequacy scale (ranging from “totally adequate” to “totally inadequate”).

Organisational learning
Organisational learning was measured using a short (35 item) form of the organisational learning modes questionnaire (Boydell and Leary, 1996) (items were accepted or rejected on the basis of redundancy and relevance to small firms). Respondents were asked to indicate how frequently they felt employees in their organisations engaged in particular behaviours. Items were scored on a five-point scale from “very infrequently” (coded “1”) through to “very frequently” (coded “5”) and categorised as follows:
(1) implementing: 15 items (e.g. “people in this company stick to established routines and methods”);

(2) improving: ten items (e.g. “people in this company try something new even if the outcomes are uncertain”);

(3) integrating: ten items (e.g. “people in this company encourage differences of opinion and use them in a creative and constructive way”) (Boydell and Leary, 1996).

Mean scores for each of the three scales were computed.

Results

The results will be reported in six sections:

(1) characteristics of sample;
(2) factor analysis of the DGM questionnaire;
(3) descriptive statistics;
(4) relationship between sales growth, capability and learning;
(5) relationship between operational capability and organisational learning;
(6) relationship between market orientation capability and organisational learning.

Characteristics of sample

Usable replies were received from 106 organisations (representing a response rate of 18 per cent). In terms of industrial sector and size the responses received were as follows:

(1) Sector:
   • construction, 15.1 per cent;
   • manufacturing, 46.2 per cent;
   • service, 30.2 per cent;
   • other, 8.5 per cent.

(2) Size:
   • 4-20 employees, 52.8 per cent;
   • 21-150 employees, 47.2 per cent (median number of employees = 19). There was an imbalance in the sample between growth firms (86.8 per cent) and non-growth firms (13.2 per cent), which may be indicative of a response bias.

Factor analysis of DGM questionnaire

The factor structure of the DGM was investigated by means of an exploratory principal components analysis. The scree plot (Cattell, 1966) suggested that two factors should be extracted which accounted for 42.6 per cent of the variance.
The factors were rotated to simple structure using orthogonal (varimax) method. Table I presents the matrix of factor loadings (this shows the strength of the relationship between each of the DGM items and the two factors suggested by the principal components analysis). Consistent with the suggestion of Tabachnick and Fidell (1996) only loadings of more than 0.32 have been shown in the table and interpreted. Item 4 failed to load at the salient level on either of the two factors and item 17 loaded ambiguously. The analysis suggests two varieties of organisational capability:

1. Factor I: market orientation capability (for example, identifying specific market niches, etc.);
2. Factor II: operational capability (for example, using new technologies, operating appraisal systems, etc.).

For the purposes of further analysis the items were categorised according to these groupings.

Descriptive statistics
Scale means, standard deviations, coefficient α's and inter-correlations are shown in Table II. The internal reliabilities of all five scales employed were acceptable (α > 0.7). There were statistically significant inter-correlations between the operational and market orientation capability scales, and between each of the three learning modes. This indicates lack of independence between the hypothesised capability scales and the hypothesised learning scales. The correlations between capability and learning will be considered further below. No test-retest reliability data for either instrument are publicly available.

Sales growth, capability and learning
The relationship between organisational capability and sales growth was investigated by means of an independent samples t-test. No statistically significant differences in market orientation capability (t = -1.36; df = 104; p = 0.18) or operational capability (t = 0.20; df = 104; p = 0.84) were detected between growth and non-growth firms. Similarly, no statistically significant relationships were detected between any of the organisational learning modes and sales growth. Chaston and Mangles (1997) in a study of small manufacturing firms did, however, identify a number of relationships between capability and growth.

Relationship between operational capability and organisational learning
The relationship between operational capability and organisational learning was investigated by means of an independent samples t-test. Capability responses were re-categorised dichotomously as either “adequate” or “not adequate”. The results are shown in Table III. Statistically significant differences at the 1 per cent level were observed with respect to the “improving” and “integrating” modes.
<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
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<tr>
<td>1. Identification of a specialist market niche(s) which the firm can</td>
<td>0.56</td>
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<td>occupy, thereby reducing the intensity of competition</td>
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<td>2. Offer product(s) or service(s) superior to those available from</td>
<td>0.35</td>
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<td>competition</td>
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<td>3. Prepare a detailed business plan to guide future operations</td>
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<td>4. Mainly rely on profits generated by the business to fund future</td>
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<td>operations (i.e. additional external borrowing requirements remain</td>
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<td>relatively low)</td>
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<td>5. Successfully develop and launch new products or services</td>
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<td>6. Increase the number of new products or services launched over the</td>
<td>0.70</td>
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<tr>
<td>next three years</td>
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<td>7. Over the next three years reduce the time taken to develop and</td>
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<td>launch each new product or service</td>
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<td>8. Develop new products or services which will attract new customers</td>
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<td>and/or permit entry into new markets</td>
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<tr>
<td>9. Structure the organisation to optimise the effectiveness of the</td>
<td>0.61</td>
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<tr>
<td>work-force</td>
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<td>10. Provide a working environment in which employees are motivated</td>
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<td>and achieve job satisfaction</td>
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<td>11. Operate an appraisal system to assist employees achieve their</td>
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<tr>
<td>full potential</td>
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<td>12. Implement programmes to further enhance employee skills and</td>
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<tr>
<td>abilities</td>
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<td>13. Optimise employee productivity</td>
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<td>14. Identify new ways of enhancing employee productivity in the</td>
<td>0.63</td>
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<td>future</td>
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<tr>
<td>15. Introduce new technologies to further enhance employee</td>
<td>0.68</td>
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<tr>
<td>productivity</td>
<td></td>
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<tr>
<td>16. Implement an investment programme to continually upgrade assets</td>
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<tr>
<td>thereby further improving product quality and/or optimise</td>
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<td></td>
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<tr>
<td>operating costs</td>
<td>0.57</td>
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<tr>
<td>17. Measure customer expectations over product and/or service quality</td>
<td>0.41</td>
<td>0.46</td>
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<td>18. Use knowledge of customer requirements to define quality standards</td>
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<td>for all activities within the organisation</td>
<td>0.64</td>
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<tr>
<td>19. Identify any variance between actual quality of output and</td>
<td>0.56</td>
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<td>quality desired by customers</td>
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<td></td>
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<tr>
<td>20. Implement actions which effectively close any identified gaps</td>
<td>0.50</td>
<td></td>
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<td>between actual quality and quality desired by customer</td>
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<tr>
<td>21. Utilise information to optimise decision making across all areas</td>
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<td>of the firm's operations</td>
<td>0.48</td>
<td>0.47</td>
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<tr>
<td>22. Create appropriate control systems for identifying any variance</td>
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<td>between actual versus planned performance</td>
<td>0.53</td>
<td></td>
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<tr>
<td>23. Rapidly identify any changes in market conditions</td>
<td>0.50</td>
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<tr>
<td>24. Utilise computer technology to acquire and analyse key sources</td>
<td>0.52</td>
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<tr>
<td>of information</td>
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<tr>
<td>25. Incorporate new advances in computer technology to enhance</td>
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<td>0.43</td>
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<tr>
<td>existing information management systems within the organisation</td>
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These data may suggest that a distinguishing feature of operationally capable firms is their predisposition to engage in activities which are concerned with improving existing processes, procedures and systems (for example “by trying out something new even if the outcomes are uncertain”) and integrating disparate opinions, beliefs and sets of values to create new ways of conceptualising issues (for example by “encouraging differences of opinion and using them in a creative and constructive way”).

Relationship between market orientation and organisational learning

The relationship between market orientation capability and organisational learning was investigated by means of an independent samples t-test. Responses were categorised as either “adequate” or “not adequate”. The results are shown in Table IV. Statistically significant differences at the 1 per cent level were observed with respect to the “implementing” and “integrating” modes. These data may suggest that a distinguishing feature of market orientation-capable firms is their predisposition to engage in activities which are concerned with implementing existing processes, procedures and systems (for example by improving them with new ideas even if the outcomes are uncertain), and integrating disparate opinions, beliefs and sets of values to create new ways of conceptualising issues (for example by encouraging differences of opinion and using them in a creative and constructive way).
“sticking to established routines and methods”) and integrating disparate opinions, beliefs and sets of values to create new ways of conceptualising issues (for example by “encouraging differences of opinion and using them in a creative and constructive way”).

There are clear differences between “implementing” and “integrating” as described by Boydell and Leary, which begs questions about their mutual exclusivity (in one sense they are polar opposites). Pedler et al. (1997) and others (for example Nevis et al., 1996; Sadler-Smith and Badger, 1998) do not see different learning modes as necessarily being mutually exclusive, but perhaps representative of different “styles” of organisational learning all of which may be potentially beneficial in different circumstances. If it is the case that market orientation-capable firms are engaging in more of these apparently conflicting activities to a greater extent than are their non-capable counter-parts, the question is raised of how such a ‘versatility’ is being achieved?

Conclusions
This study has sought to explore the relationships between growth, capability and learning in small firms. In spite of the observations that response bias and social desirability present problems in research of this nature, a number of tentative conclusions may be drawn. The principal components analysis suggested a meaningful factor structure for the DGM, with the two factors of market orientation and internal capabilities both needing to be considered in seeking to determine which competences will impact overall organisational performance.

There has been some discussion regarding the recommended ratios of subjects to variables for such analyses to be valid. Kline (1994, p. 74) suggested that large factors can emerge with clarity with subject to variables ratios as low as 2:1. Kline (1993) concluded that factor analysis with at least 100 subjects and a ratio of subjects to variables of at least 3:1 ought to be sound. The ratio of subjects to variables in the present study was approximately 4:1, nevertheless the hypothesised factor structure the DGM should be investigated further using larger a sample. This conclusion is supported by earlier research (Chaston, 1997) which demonstrated that different competences influence growth depending on in which market sector the firm is operating. Hence in hindsight for this study it would probably have been preferable to either focus on one specific market sector (e.g. manufacturing) or significantly expand the sample size in order that adequate data representation could have generated at the level of individual industry sectors.

The notion of organisational capability (competence) was suggested which in turn raises questions regarding the absolute value of organisational competence (is it a contingent phenomenon thus rendering certain competencies redundant?). Collis (1996, p. 152) suggests that “organisational capability must be specialised to a particular strategy” and “rooted in and developed for the industry in which it is applied”. Hence, capability is not a general attribute of all organisations but rather is one which is specific to a particular organisation at
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was a particular time and may therefore be thought of as a dynamic attribute of a flexible organisation. In specific relation to SME sector firms, Chaston (1997) demonstrated that for manufacturing firms, critical influencers of performance were competences in the area of employee productivity and innovation. This can be contrasted with service sector firms where quality management, information systems and HRM practices were of much greater importance. Hence under these circumstances it seems reasonable to conclude that there are a number of relationships between capability and learning which are deserving of further investigation, including the notion of different ‘styles’ of organisational learning which is suggestive of stylistic versatility which may manifest itself as organisational flexibility.

Possibly an even more important finding in this study is that there appears to be no direct relationship between overall organisational performance and organisational learning. This conclusion apparently flies in the face of the normative view in the literature that firms which engage in organisational learning can expect to be rewarded through an improvement in overall performance. It is necessary to recognise, however, that most of these published claims have either been based on qualitative observations of limited, single firm scenario and/or the espoused aspirations of authors who are striving to persuade their readers that organisational learning is the most powerful force in the effective management of to-day’s organisations.

Clearly the failure to support this conclusion in this study is a strong argument for the need for further large scale research to generate the quantitative data needed to statistically determine the validity of the commonly articulated view that there are clear links between organisational learning and overall organisational performance. For without such research, academics run the risk of being accused of providing yet another example of an “emperor’s clothes syndrome” in which theoretical claims of the benefits of organisational learning cannot be validated because the paradigm has no real application in the real world faced by the practising manager.

Where a positive relationship was found in this study, however, is between organisational learning and organisational competence. Thus it may be the case that greater emphasis should be given to the concept of organisational learning in the context of enhancing organisational competence. This alternative perspective thereby posits organisational learning as a necessary antecedent to effective acquisition of competence. Assuming this is a valid conclusion then possibly proponents of organisational learning should be giving greater emphasis to promoting the idea that more firms should:

- First, “vision their future.”
- Second, determine which core competences are required to deliver the selected vision.
- Finally, then adopt the concept of organisation learning as the most effective philosophy through which to acquire new core competences and/or further enhance existing competences.
Discussion

Having determined that organisational learning may act as an antecedent to building stronger core competences, Plymouth Business School has used this knowledge in the development of a potential process model for assisting SME sector firms accept the benefits of adopting a lifelong learning philosophy (Plymouth Business School, 1998). The first phase of this process involves employees in a target firm completing a number of questionnaires concerning learning style, organisational capability and self-perceptions of competence in fulfilling current job roles. These employees then participate in an action learning day examining how variables such as marketing, HRM, finance and strategic management can influence future organisational performance. During this event, through observation trained assessors gain further insights into managerial competences exhibited by employees.

For each firm, a learning advisor is appointed. This individual, utilising the data generated from the surveys and the action learning day, develops a learning plan for the organisation; and specific learning plans for each employee. Following negotiated agreement with the firm over the validity of the proposed learning plans, the learning advisor then acts as a mentor over an extended period (e.g. two years) to guide the firm and the employees through the process of exploiting organisational learning as a path through which to build stronger internal competences.

Early indications are that the new process model is an extremely powerful tool through which to assist UK SME sector firms in a way which has rarely been achievable through the use of more traditional approaches in the provision of support services such as funding employees to attend training programmes or assisting the firm to afford the services of a professional consultant. Consequently additional funding have been attracted from the DfEE and the EU A DA PT programme to both further research the validity of the model and to examine the application of the concept in the creation of SME sector learning networks.

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