

A THREE DOMAIN, TWO DIMENSION MODEL
OF MANAGERIAL EFFECTIVENESS

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ABSTRACT

Using the international literature and empirical work, a set of 78 skills and characteristics common to many perspectives was distilled as being critical to being effective as a manager. Empirical work consisted of a series of six focus groups and a national survey of practising managers. Subsequent work culminated in a second national survey where managers provided a rating of effectiveness for a manager they knew well, and then assessed that manager on the 78 skills and characteristics. Multiple discriminant analysis was used to reveal a core set of predictor variables. Ongoing work further validated the model. Applications are discussed.

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INTRODUCTION

The purpose of this paper is to briefly summarise the literature on what is perceived to constitute managerial effectiveness from three major perspectives, and present a validated model derived from these perspectives. The model is posited to be generic, in that it appears to represent a core set of skills and characteristics common to most perspectives. This core must then be supplemented with the skills and characteristics demanded by contextual influences (e.g. management level; organisation sector; managerial role; specialist function; etc.). The three perspectives on managerial effectiveness reflected in the model are:

- a traditional/conventional perspective evident in contemporary management textbooks
- a strategic management/organisation level competency-based perspective evident in the research literature
- an individual level competency-based approach to managerial effectiveness, also evident in the research literature.

The above points are now briefly discussed in turn in order to establish the need and context for developing a new model. In essence, it will be argued that no one approach is enough. For managers to become more effective these different, yet perhaps equally important, perspectives need to be integrated. The research process used to achieve this integration, and the emergent model is then presented. Implications for the competency-based approach at the level of the individual are considered, and applications for the model are discussed. The paper ends with a discussion on the extent to which the model is ready for application, and considers avenues of research that would increase the strength of the model even further. The first perspective outlined is the traditional, or conventional, view on managerial effectiveness evident in the text books used in management education programmes.

The traditional/conventional approach

This perspective is important to include in any attempt to understand or explain managerial effectiveness, given that a number of traditional ideas on management have endured over many decades. These are the perspectives that practicing managers, and those aspiring to a management role, are learning from text books. The traditional perspective on management, and how to be effective in that role, was developed in an era of business stability and complacency characteristic of the 1960s and 1970s (Frater, Stuart, Rose & Andrews, 1995), and drew heavily upon the work of Fayol (1916), and then Mintzberg (1973) and Katz (1974).

Fayol established a model of management as a process of planning, organising, commanding, co-ordinating, and controlling functions that are universally applicable, and to this, Mintzberg (1973) added generic Interpersonal, Informational, and Decisional managerial roles, each with their subroles. Katz (1974) provided a typology of managerial skills, which he termed 'Technical', 'Human' and 'Conceptual'. In these traditional models (Luthans, Hodgetts, & Rosenkrantz, 1988; Worledge, 1996) strategic, tactical, and operational perspectives and time frames, different needs at different management levels, and the differences between general and functional roles are also recognised as universal aspects of management.

This traditional perspective that management is a universal set of functions and roles underpinned by personal skills and characteristics remains the cornerstone of many contemporary management texts, where managerial input is defined according to Katz's (1974) typology, as shown in Table 1 below.

Table 1. A selection of management text definitions of technical skills, human skills, and conceptual skills traditionally required by managers.

AUTHOR	TECHNICAL SKILLS	HUMAN SKILLS	CONCEPTUAL SKILLS
Bartol & Martin (1991, p. 18)	Skills that reflect both an understanding of and a proficiency in a specialised field	Skills associated with a manager's ability to work well with others both as a member of a group and as a leader who gets things done through others. Examples: communicating, motivating others to develop themselves and perform well	Skills related to the ability to visualise the organisation as a whole, discern interrelationships among organisational parts, and understand how the organisation fits into the wider context of the industry, community, and world
Daft (1997, pp15-17)	The understanding of and proficiency in the performance of specific tasks	The ability to work with and through other people and to work effectively as a group member. Examples: motivate, facilitate, co-ordinate, lead, communicate, resolve conflicts	The cognitive ability to see the organisation as a whole and the relationship amongst its parts
Gilbert et al. (1995, p.18)	Acquired through training for or doing a particular kind of work	The abilities that the manager uses to work with and through other people. Examples: communicate, empathise, work as member of a group	Enable a manager to take a broad view of the organisation & its environment & to visualise possible future courses of action
Inkson & Kolb (1995, pp 30-32)	Reflect expertise in a particular functional or industry area	Enable managers to communicate effectively with people inside and outside the organisation; they include both team work and leadership skills. Examples: communicate, motivate, inspire	Skills of analysis which enable managers to find solutions to problems. See the organisation as a whole, understand all its activities, interrelationships, position and goals
Robbins (1996, p.8)	The ability to apply specialised knowledge or expertise	The ability to work with, understand, and motivate other people, both individually and in groups. Examples: communicate, motivate, delegate	The mental ability to analyse and diagnose complex situations

Table 1 shows that many texts based upon the traditional management perspective agree that managers need to possess and/or develop certain technical management skills that are the learned tools and techniques of management. Managers also require well developed interpersonal skills relating to working with others, with the component abilities encompassing everything concerned with managing and leading people. As Vaughan (1989) suggests, the terms leadership, motivation, and communication are so general and imprecise that they convey nothing of the specific attributes, skills, and training required for each. The

conceptual skills category is equally broad in encompassing many different forms of information processing strategies and abilities.

In these texts, effectiveness is most often defined in terms of an individual's ability to set and achieve goals, where it is implicitly assumed that managerial effectiveness leads to organisation effectiveness. Some examples of the traditional definitions provided for effectiveness are:

- The ability to choose appropriate goals and achieve them. (Bartol & Martin, 1991, p.20).
- ... is accomplished by achieving a stated objective. (Kreitner, 1980, p.7).
- ... is a measure of the extent to which the prescribed goals are achieved. (Gilbert et al., 1995, p.19).
- ... is defined in terms of the quality and quantity of their performance and the satisfaction and commitment of their subordinates. (Robbins, 1996, p.9).
- ... means achieving the result which you seek. (Inkson & Kolb, 1995, p.10)

In addition, an organisation level definition is provided by Daft (1997, p.10):

- The degree to which the organization achieves a stated goal. (Daft, 1997, p.13).

The theme of these definitions of effectiveness, at both the individual and organisational levels, is goal setting and achievement, with Robbins introducing the idea of quality and quantity of performance, and a manager's positive impact on others. A problem with this concept of effectiveness is that there is no evidence to suggest that existing models of effective management performance are related to organisational performance (Gilbert et al., 1995, p.21), and none of the models explain the relationship between managerial effectiveness and organisational effectiveness. While a measure of the extent of goal achievement is mentioned by Gilbert et al. (1995), there is nothing that details and defines a possible range of effectiveness, from being ineffective to being extremely effective.

Luthans et al. (1988) provide a different aspect on managerial effectiveness in distinguishing between effective and successful managers. Effective managers are described as having satisfied and committed subordinates, and produce organisational results, whereas successful managers are described in terms of rapid promotion (p.62). As is often the case in the management literature, Luthans et al. describe a number of skills associated with effective managers that are stated to be trainable, yet go on to say that above all effective managers need good interpersonal skills, which is left undefined (p.175).

Measures of managerial effectiveness in the traditional approach are summarised by Luthans et al., in a table showing 1942 available measures assigned to sixteen categories (p.63). Most measures relate to organisational issues (e.g., production 252 measures, sales 199 measures), with 44 measures related to general managerial effectiveness.

The traditional perspective on managerial effectiveness must be a valuable addition to any model attempting to capture generic needs - these are the factors that have endured over many decades as being key managerial roles and functions, and the human input perceived to underpin the ability to perform in those roles and functions. Katz (1974) in particular, (despite classifying all three categories as 'skills'), heralded the importance of distinguishing between the learnable technical skills of management *versus* the more abstract personal characteristics found in his 'human' and 'conceptual' skill categories. This issue will be revisited in more depth in the section concerning the competency-based approach to managerial effectiveness at the level of the individual. Right now, the focus turns to the strategic management perspective on managerial effectiveness.

The strategic management/organisation competency approach

Mintzberg (1974;1994a,b) has chronicled the rise, and fall, and rise again, of various aspects of the strategic management perspective. In essence, taking a strategic perspective implies there is a long term future orientation that accounts for both internal and external influences on the organisation. Data needs to be gathered on these influences and these data need to be analysed and interpreted. Data will be both quantitative (numerical data appropriate for a range of mathematical calculations) and qualitative (attitudes; perceptions; intuition), each requiring a different approach to analysis and interpretation. The end purpose of the analyses are to provide the information on which to make an informed decision on the long term future direction of the organisation in terms of gaining a competitive advantage over other organisations. This is given the external environment (e.g., local/international competitors, political changes, economic changes, perceived opportunities and so on), and internal environment (e.g., particular strengths and weaknesses, existing structure, systems, resources). From these analyses a vision is created for the future of the organisation, goals are set that will achieve the vision, and plans are developed to achieve these strategic goals.

The strategic perspective is reflected in the work of Hamel and Prahalad (1996), Prahalad and Hamel (1990; 1994, and Turner and Crawford (1992, 1995), where the emphasise in upon identifying and supporting a set of core competences (strengths) of the organisation in order to achieve and sustain a competitive advantage. Identifying and developing organisation competence relies on the skills and characteristics of managers, who must create the systems and environment that will achieve the strategic intent. There is another competency-based approach to managerial effectiveness, but this perspective focuses upon the individual rather than the organisation, and is the next topic of discussion.

The competency-based approach at the level of the individual

This perspective must be included as an extremely strong worldwide influence on management education and development. Many western culture governments (e.g., in the United Kingdom, the Unites States, Australia, New Zealand, Canada) are incorporating the competency-based approach to managerial effectiveness into national qualifications. The purpose of this is to develop transferable (i.e. generic) management skills that are applicable across different circumstances, both nationally and internationally. These skills are defined as demonstrable performance outcomes with pre-determined standards of performance required, as measured by a set of performance criteria. An individual demonstrates (by providing evidence) that they have met the performance criteria pertaining to a particular 'unit' of competence, and they are certified as being competent in that unit. The first point to note is that this approach brings the focus squarely and solely upon the human input provided by individuals. The second point to note is that the skills included in this approach are confined to those that can be objectively defined and assessed - the technical skills of management.

With limited space there are too many different models to discuss here, so the interested reader is referred to some of the key models such as:

- The Management Charter Initiative (MCI) in Great Britain described by Baker (1991), Hamlin and Stewart (1990) and Miller (1991);
- The Managerial Effectiveness model used by the United States government (Perry & Miller, 1991);
- Some of the academic/commercial models developed as reported by Davis, Hellervik & Sheard (1986), Dulewicz (1989), and Quinn (1988);

- Some organisation-specific models such as Safeway (Crabb, 1991), Cadbury Schweppes (Glaze, 1898), and BP (Greatrex & Phillips, 1989).

This competency-based perspective on managerial effectiveness has been heavily criticised. One criticism is that being effective as a manager is contingent upon the circumstances under which the manager is operating, and one learned approach in one context cannot cover all contingencies and contexts. It is for this reason that organisation-specific models (see above) have been developed. Another criticism is that the focus on assessable technical skills ignores the importance of the more abstract personal characteristics (such as sensitivity, emotional stability, communicativeness, credibility) that appear to be most important in the business environment of the 1990s and the foreseeable future (Baker, 1991; Bass & Avolio, 1994; Canning, 1990; Jacobs, 1989; Kouzes & Posner, 1993; Rippin, 1996). In more general terms this approach can be criticised for bringing a short term perspective to managerial thinking and action, and a fragmented 'tick the box' mentality to management education and development. An additional issue to consider is whether demonstrated competence in technical skill equates with effectiveness on the job.

Despite the problems and controversy surrounding the competency-based approach to management effectiveness, as this brief overview has shown, the approach has been adopted at national, industry, and organisational levels. This being the case, models of managerial effectiveness must consider this perspective.

It was against this research background that a five-year research programme was undertaken to integrate these perspectives into a generic model of managerial effectiveness. The approach taken was to identify the human input (skills and characteristics) common to the three perspectives discussed above and distil these into a manageable set of variables predicting managerial effectiveness across contexts. The following section describes the research process used to develop the model to be presented.

A long term integrative study

A study was designed to integrate the key perspectives described above, in order to determine whether it was possible to derive a generic model of managerial effectiveness that encompassed the needs of more managers than are currently being catered for. That is, the current models are either too broad or too narrow for general use, so there was a need to investigate whether it was possible to develop a model that is generally applicable across perspectives. However, given the problems and criticisms seen in previous attempts to introduce a generic model, any new model focusing on the individual needed to:

- Identify valid and reliable predictor skills and characteristics
- Identify the relationship between technical skills, personal characteristics, and managerial effectiveness
- Be specific in issues to do with application of an emergent model
- Explore the means to measure the skills and characteristics described in the model

As will be discussed in due course, most of these objectives were met. Figure 1 below shows a schematic representation of the research process undertaken, where it can be seen that this research had four distinct phases. In phase one the objective was to identify the skills and characteristics perceived to underpin managerial effectiveness in the international literature, and compare these with the perceptions of New Zealand managers gathered in empirical work. The comparative framework referred to in the phase one literature box in Figure 1 is a two by three matrix developed to categorise the skills and characteristics found in the literature, and compare the models. There was a need to develop some such form of analysis, as there was nothing else available (Katz's (1974) typology was found to be too

broad for the purpose) to objectively deconstruct models into composite skills and characteristics, and identify relative emphases in different areas. The development process was to some extent driven by logic and the practicalities of what was required.

Given the need to distinguish between the technical skills and personal characteristics of human input, this factor needed to be represented, and there was a need to identify how these skills and characteristics contribute to perceived managerial effectiveness. For the latter need, it was logically deduced that all managers, no matter what context or set of circumstances they were working with, would need to attend to matters to do with themselves as managers, and would need to be effective in relating to others in the organisation, and lastly, would need to attend to the needs of the organisation. This latter category includes an external perspective that the ‘interacting with others’ domain does not. To certain extent these categories reflect Katz’s categories, where interacting with others in the organisation is similar to Katz’s ‘human skills’, and Katz’s idea of ‘conceptual skills’ relating to organisation needs was taken up as the ‘organisation needs’ category in the framework.

Figure 1. Schematic representation of the research process

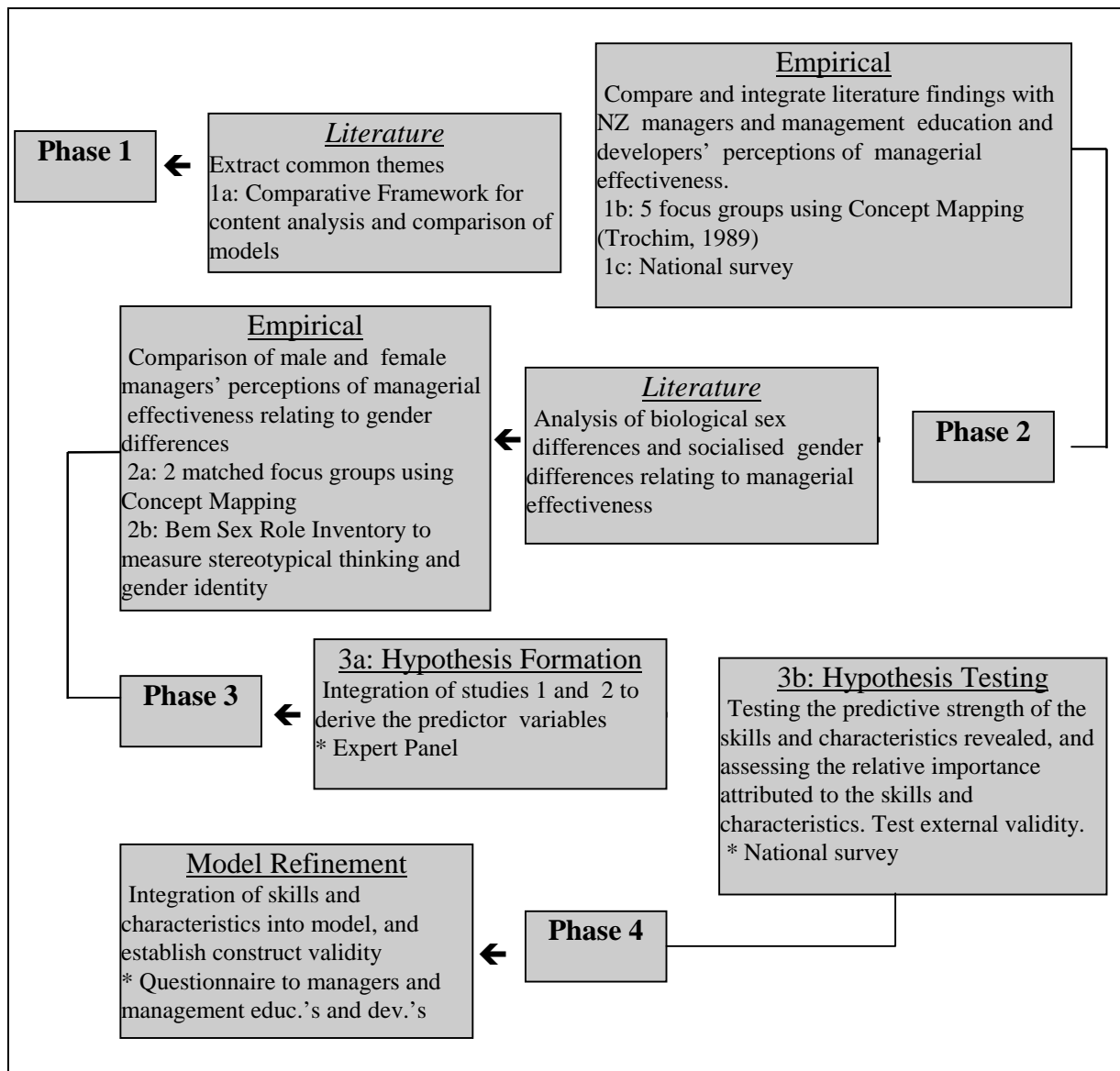


Figure 2. The framework developed to analyse and compare models

DIMENSION OF INPUT	DOMAIN OF APPLICATION		
	SELF	INTERACTIONS (internal)	ORGANISATION (internal & external needs)
SKILLS	Technical skills relating to self, e.g., time management	Technical skills relating to others in the organisation, e.g., verbal communication	Technical skills relating to organisation needs, e.g., business planning
CHARACTERISTICS	Personal characteristics relating to self, e.g., positive attitude	Personal characteristics relating to others in the organisation, e.g., valuing of people	Personal characteristics relating to organisation needs, e.g., goal/results focus

This framework was used to compare the literature models with each other to reveal the different emphases placed on the skills and characteristics. The framework was also used to categorise the skills and characteristics that emerged in empirical work. Figure 2 shows the framework, where it can be seen that the horizontal axis represents three domains where skills and characteristics are applied in managerial action, and the vertical axis represents two dimensions of human input relating to technical skills and personal characteristics.

In phase one this framework was used to deconstruct the models found in the international literature into categories of human input, and as they may relate to different categories of activity contributing to being effective as a manager. It is important to note that in this first phase of research the allocation of skills and characteristics was subjective, and open to debate. However, proportionally few could be considered controversial, and at this stage all that was required were loose groupings for analysis and comparative purposes. The validation and testing was conducted later, and will be reported shortly. After all the models had been deconstructed in this fashion the commonalties and differences in the models became clear, revealing a set of skills and characteristics common to many perspectives.

Empirical work in phase one was designed to assess New Zealand perspectives on managerial effectiveness and compare their perceptions of the critical skills and characteristics with the findings from the international literature. Empirical work consisted of five focus groups with various management groups, followed by a national survey. The Concept System (Trochim, 1989) was used to reveal the perceptions of Executive MBA, MBA, senior managers, a group of managers identified as 'exceptional', and management developers and educators in a series of focus groups. Groups brain stormed the skills and characteristics perceived to underpin managerial effectiveness, rated each skill and characteristic on its importance in contributing to effectiveness, and used a sort procedure to create groups of related skills and characteristics. Each participant independently rated and sorted the skills and characteristics. The data were entered into the Concept System analysis programme to perform multidimensional scaling and hierarchical cluster analyses on the five sets of data.

This initial research produced five visual maps of the concepts produced by each group, and revealed that a relatively small sample of New Zealand managers and management educators produce a similar list of skills and characteristics found in international thinking. Once more, the framework was able to accommodate these five concepts of managerial effectiveness in terms of showing relative emphases on skills and characteristics for domains

of activity and dimensions of input. The international literature and New Zealand lists were combined, redundancies removed, and the resultant list of 99 skills and characteristics was used in a national survey of practicing managers. In this survey, just like the focus groups, managers were asked to rate each skill and characteristic on its importance in contributing to effectiveness, and used a sort procedure to create groups of related skills and characteristics. As expected, the response rate was low (29%), yielding a sample of 290 managers, biased toward the perceptions of male senior managers in large companies. This research integrated international and national perceptions of the skills and characteristics critical to managerial effectiveness, across many perspectives. Once again, the framework was able to accommodate this integrated model, to show how human input may relate to the posited domains and dimensions.

Phase two of the research process investigated gender issues in managerial effectiveness, and although there were some interesting findings (Page, 1996), much of it does not contribute to this discussion on model development. In short, this research used concept mapping with two groups of managers, one male group and one female group (matched for years experience, level, role, size of company) to investigate whether New Zealand managers reflect the gender differences and similarities reported in the literature. These groups revealed nothing new to add to the existing set of skills and characteristics, being remarkably similar in their descriptions of what characterises/defines perceived managerial effectiveness.

Phase three research was designed to further integrate the literature with empirical work to derive the predictor variables to use in a second national survey. To this point the data have emerged as perceptions of what constitutes managerial effectiveness across perspectives. To be more specific, the skills and characteristics are perceived to be indicators of effectiveness; this is the human input managers are judged on, across contexts. To ensure that potentially important factors were not omitted by default (i.e. they were not raised as being critical to effectiveness) the skills and characteristics found in the international literature, but not specifically raised in empirical work, were added to the current set.

That combined set of 120 skills and characteristics was sent to an expert panel comprising management educators (2) and management psychologists (4) representing traditional and non-traditional perspectives. Their task was to provide recommendations on items to be combined as similar or overlapping, or to be removed as duplications. Items were subsequently retained unchanged, combined according to recommendations (e.g., initiative/proactive; responsive/adaptability; manage immediate/current change), and were removed if there was more than one recommendation to remove. This process resulted in 78 skills and characteristics to be used as predictor variables for the next stage of phase three research.

The next stage in research sought to (i) determine which of the 78 skills and characteristics are most strongly related to being perceived effective as a manager and, (ii) establish the external validity of the emergent model. A second national survey (response rate 29%; 437) was conducted asking managers to think of a manager they knew well, and rate the effectiveness of that manager on a 5-point scale where 1 = extremely ineffective and 5 = extremely effective. They were then asked to rate that manager on each skill and characteristic, on a 5-point scale where 1 = extremely poor, and 5 = extremely good. Finally, they were asked to rate the importance of each skill and characteristic on a 5-point scale where 1 = extremely important and 5 = extremely unimportant. Using this format permits analyses that relate ratings in the skills and characteristics to prior categorisations of effectiveness and ineffectiveness, where in this case Multiple Discriminant Analysis was used to reveal the key predictor variables of managerial effectiveness and ineffectiveness.

It should be noted that using this procedure means there is only one dependent/ response variable measure being used - overall rating of effectiveness, or classes of effectiveness. A high degree of multicollinearity between the predictor variables can also be problematic, so a diagnostic check was made, revealing variance inflation factor values of 1.26 to 3.25, well below the test statistic of 5. The condition index summative value was 18.86, well below the test statistic of 40 (Hair, Anderson, Tatham & Black, 1992, p.48). As an additional precaution a conservative stepwise procedure was used to eliminate any problems related to multicollinearity.

Half sample and whole sample comparisons established the internal validity of the emergent model, where the first of four functions explain almost 90% of the variance. As a method of convergent analysis, simple pooled within groups linear correlations were used to assess the extent that function one predictor variables were correlated with function one when all other variables were considered at the same time. Figure 3 shows these correlations.

Figure 3. Predictor variable loadings on function one using pooled within groups' correlations

VARIABLE	<u>Pooled Within Group Correlations</u>
Credibility	.61
Influence on others	.60
Value people	.54
Manage immed./current change	.53
Verbal communication	.47
Conceptual thinking	.33

The MDA model (the skills and characteristics related to function one in particular) accurately classified managers with a rating of extremely effective (70%), or classified them as mostly effective (30%). Managers who had been rated as mostly effective were correctly classified 85% of the time. The model did not discriminate the mediocre particularly well, which is to be expected with scaled data using a neutral midpoint. The model correctly classified the mostly ineffective (77%), but had some trouble classifying the extremely ineffective (57%), where they were also classified as mostly ineffective (36%). On the other hand, there is a clear discrimination between effectiveness and ineffectiveness, where there is close to 100% accuracy in classification of effectiveness based on function one scores.

To check the external validity of the model, the Press statistic was used to test the discriminatory power of the whole sample and half sample classification matrices compared with a chance model (Hair et al., 1992, p.106), with both models discriminating better than by chance. In the whole sample analysis 76% of the sample were correctly classified ($p < .001$), and in the half sample 79% were correctly classified ($p < .001$). The similarity in classification structure and rates suggests sound internal validity.

The perceived importance of each skill and characteristic was then investigated, with Figure 4 below showing the most highly rated skills and characteristics. Figure 4 shows the mean ratings of importance, where a cut-off point of 1.50 average or less was chosen to represent the most important items (more towards extremely important). All significant MDA predictor variables are shown to be amongst the items perceived to also be most important, shown with asterisks in Figure 4. Items are ranked according to their relative importance, where it can be seen that what effective managers are particularly good at, and what

ineffective managers do particularly poorly in (i.e. function one variables) are not necessarily perceived to be the most important aspects of managerial effectiveness, with the exceptions of credibility and valuing people.

Credibility was one of the two strongest (equal to influence on others) predictor variable for function one, and is also rated as being the most important item contributing to managerial effectiveness, with influence on others ranked fifteenth in relative importance. Credibility then, as suggested by Kouzes and Posner (1993), is the single most influential perception by others that managers require. Put another way, to be judged as being effective it is critical that others perceive a manager to be credible, and it is also most important that this is so (unlike for example, influence on others - which effective managers do well, yet is not considered to be as important as fourteen other skills and characteristics).

Figure 4. Most important skills and characteristics

Item	Mean	S.D.	Ranked Importance
Credibility*	1.17	.43	1
Positive attitude	1.24	.52	2
Value people*	1.26	.52	3
Interpersonal skills	1.29	.51	4
Communicate objectives	1.33	.55	5
Communicate vision	1.33	.55	6
Create strategic vision	1.37	.60	7
Self/time management	1.42	.59	8
Initiative/proactive	1.43	.58	9
Verbal communication*	1.44	.56	10
Results/goal focus	1.45	.56	11
Perceptiveness	1.46	.57	12
Delegate	1.47	.61	13
Ability to work under pressure	1.47	.58	14
Influence on others*	1.49	.63	15
Role model	1.49	.65	16
Critical thinking	1.50	.62	17
Conceptual thinking*	1.50	.65	18
Manage immediate/current change*	1.60	.62	30

Notes:

** denotes that the item was a significant function one predictor variable, and had a strong positive pooled within groups' correlation with function one

The valuing of people was another function one predictor variable to emerge as also being important, ranked third in overall importance to positive attitude which was ranked second in overall importance. Having a positive attitude did not emerge as a function one predictor variable, yet has been ranked second in importance to credibility in terms of contribution to overall effectiveness. This finding suggests a separation between what managers rated as effective are perceived to be good at, and what is perceived to be generally important.

To follow on with that argument, verbal communication, having influence on others, managing immediate/current change, and conceptual thinking were other significant function one predictor variables, but these items were not considered to be as important as many other

items such as: having a positive attitude; interpersonal skills; communicating objectives; create strategic vision; communicate vision; self/time management; being proactive; having a results/goal focus; being able to delegate; ability to work under pressure; being a role model; and critical thinking. This finding suggests that ratings of skill level in these items for different groups of managers had a relatively lower impact in differentiating effective and ineffective groups, yet are perceived to be important contributing factors to being effective as a manager, and are, therefore, factors worthy of examination in further research.

The last stage of research (phase four) sought to integrate the emergent core set of skills and characteristics into the validated model, and revalidate it. That is, on the one hand, there was the validated model, and on the other hand there had been a set of 21 key variables identified, but further research was required to represent how the variables relate to the posited model of managerial effectiveness. A small sample study was undertaken to pilot a method that would achieve the integration, and permit further validation of the model from a different data source, using different methods.

METHOD

In phase four managers and management educators and developers completed a simple two-page questionnaire in two sections. The first section had them judge whether each of 21 skills and characteristics were mostly related to one of the three domains of managerial action. The second section had them judge whether each item was more a skill or characteristic.

Correspondence analysis was performed on this frequency data to derive two models (a three factor self/other/organisation model and a full six factor model) which were then subjected to confirmatory factor analyses using previous survey sample data.

The instrument was a simple one page double-sided form divided into sections A and B. In section A participants were asked to judge whether each item related mostly to oneself in a management role, or related mostly to interacting with others in the organisation, or mostly to internal and external organisational needs. In section B they were asked to judge whether each item was more a technical skill or more a personal characteristic. Definitions of these research terms were provided to the participants as follows:

1. Personal characteristic - refers to those things about managerial effectiveness that are abstract, and tend to be hard to objectively define and measure. Many believe these characteristics cannot be taught/developed; either one has it, or one does not.
2. Technical skill - refers to those things that are relatively easy to objectively define and measure. There are development programmes teaching these skills.

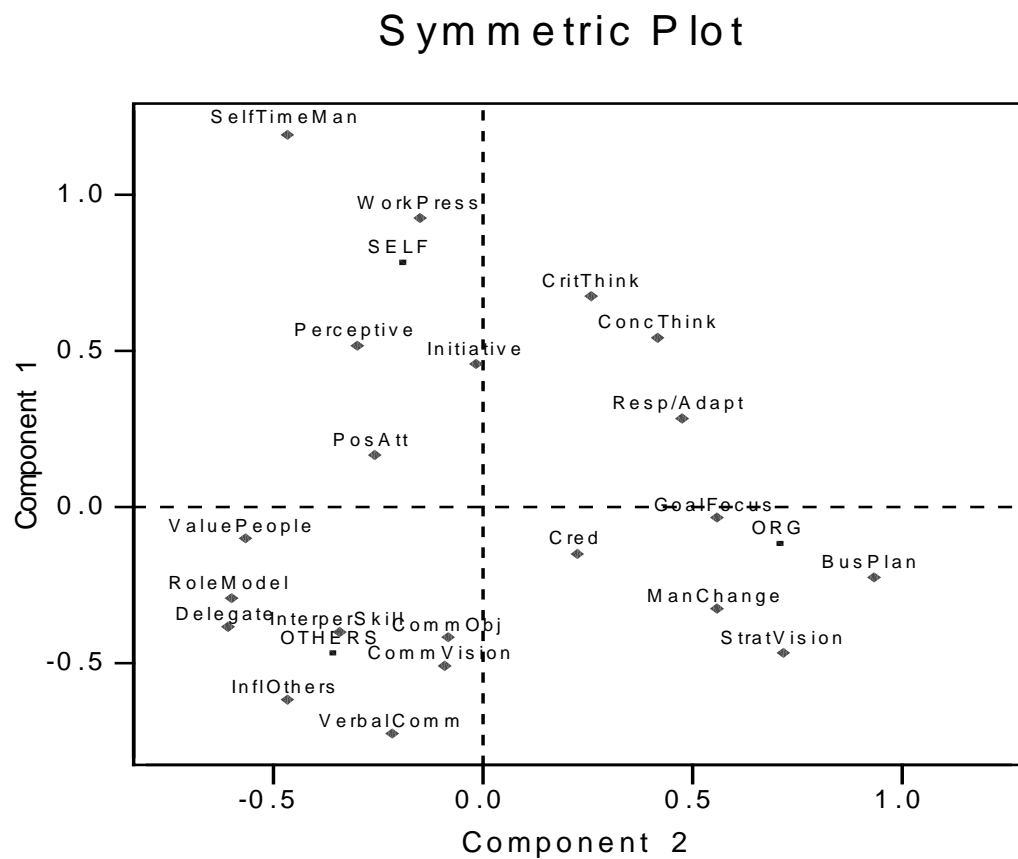
The sample comprised 12 senior local government managers and 13 management educators and developers. The local government participants were managers who had expressed an interest in the research at a seminar. Of the 16 that expressed interest, 12 responded to the questionnaire subsequently sent to them. The management educator and developer group were a convenience sample of 36 management faculty staff at two universities. Administration of the research task was conducted in a group setting with one university educator and developer group (6), and by mail/fax/e-mail with the rest of the participants. Returned forms were coded to indicate group membership, although there were no significant differences found between the management and educator/developer groups.

RESULTS

Correspondence analysis is used to produce a visual display of the association between the rows and columns of a contingency table. Co-ordinates are assigned to each of the various management attributes. These co-ordinates were used in order to classify each of the management attributes included in this study.

Two correspondence analyses were performed using the frequency data set. The first correspondence analysis considers the classification of each management attribute as relating to Self, Other or Organisation. Positive y co-ordinates are indicative of a *Self* attribute. Positive x co-ordinates are indicative of an *Organisation* attribute and negative x co-ordinates are indicative of an *Other* attribute. Figure 5 shows a map of these co-ordinates.

Figure 5. Correspondence analysis for self/other/organisation classification



The second correspondence analysis considers the classification of management attributes as technical skills or personal characteristics. Positive z co-ordinates are indicative of a technical skill and negative z co-ordinates are indicative of a personal characteristic. This method has been used in Figure 6 to classify each of the management attributes considered in this study.

Figure 6. Classification of management attributes using correspondence analysis co-ordinates

Attribute	Co-ordinates			Classification
	y	x	z	
Positive Attitude	0.16	-0.26	-0.67	Self Characteristic
Conceptual Thinking	0.54	0.42	-0.50	Self Characteristic
Manage Change	-0.33	0.56	0.95	Organisational Skill
Credibility	-0.15	0.23	-0.67	Organisational Characteristic
Initiative	0.46	-0.01	-0.67	Self Characteristic
Work Pressure	0.92	-0.15	0.06	Self Skill
Critical Thinking	0.67	0.26	-0.11	Self Characteristic
Self/Time Mgt.	1.20	-0.46	0.86	Self Skill
Comm. Objectives	-0.42	-0.08	0.63	Other Skill
Influence Others	-0.62	-0.47	-0.51	Other Characteristic
Verbal Comm.	-0.74	-0.21	0.22	Other Skill
Communicate Vision	-0.52	-0.09	0.71	Other Skill
Perceptive	0.52	-0.30	-0.76	Self Characteristic
Goal/Results Focus	-0.04	0.56	0.71	Organisational Skill
Interpersonal Skill	-0.41	-0.34	-0.41	Other Characteristic
Delegate	-0.39	-0.61	0.63	Other Skill
Strategic Vision	-0.47	0.72	0.63	Organisational Skill
Role Model	-0.30	-0.60	-0.59	Other Characteristic
Business Planning	-0.23	0.93	1.11	Organisational Skill
Value People	-0.11	-0.57	-0.84	Other Characteristic
Responsiveness	0.28	0.47	-0.76	Self Characteristic

Two confirmatory factor analyses were used to check this correspondence analysis model using the initial survey data. *Only managers who were rated extremely effective were included in this analysis since we wished to determine the skills and characteristics of an extremely effective manager.* The first confirmatory factor analysis allowed for only three correlated factors, namely Self, Other and Organisation attributes. The Goodness of Fit Index for this model was 0.785 with a Root Mean Square Residual of 0.0813. This suggests a reasonable fit for the hypothesised three factor model. Note that this model showed strong correlations between the factors as would be expected.

Correlation	Coefficient
Self : Other	0.79
Self : Organisation	0.98
Organisation : Other	0.79

The second confirmatory factor analysis allowed for six correlated factors, corresponding to Characteristics and Skills for Self, Organisation and Other. The Goodness of Fit Index for this model rose to 0.80 and the Root Mean Square Residual rose to 0.0815. The correlations between the factors were again very high as indicated below.

	Self		Other		Organisation	
	Skills	Char.	Skills	Char.	Skills	Char.
Self Skills	1.00					
Self Char.	0.87	1.00				
Other Skills	0.62	0.80	1.00			
Other Char.	0.77	0.77	0.77	1.00		
Org. Skills	0.94	0.77	0.77	0.77	1.00	
Org. Char.	0.77	0.77	0.77	0.77	0.77	1.00

The confirmatory factor analyses clearly lend support to both the models suggested by the correspondence analyses. The fact that the analyses are performed using data from different sources and different formats suggests that the correspondence analysis models are worth pursuing in more depth. The focus of discussion is now turned to an examination of the skills and characteristics as they relate to the three domains of activity, and two dimensions of human input, as validated by the analyses just discussed.

A three domain, two dimension model of managerial effectiveness

The research programme described in the introduction and immediately above used a multi-method, multi-source approach to developing a model of managerial effectiveness posited to be generic, in that all managers can use this model to identify practice that is extremely effective. Furthermore, the skills and characteristics are shown in relation to three distinct areas, or domains, of effectiveness. This is a model of a core set of skills and characteristics common across perspectives, with no significant differences between demographic groups (either in national surveys or small sample studies). There is, however, still a need to add contextual influences to this core (e.g. industry or sector specific skills), and there are external influences to consider with regard to other influences operating on the ability to be effective (e.g., domestic circumstances, forms and strength of organisation support). These additional issues are beyond the scope of this discussion, but must be included when considering individual cases. Another paper presented at this conference addresses one such aspect, in terms of the influences on the ability to be effective as a manager. In essence, the model under discussion represents the ‘must have’ skills and characteristics that are transferable anywhere, shown in relation to a domain of action.

Figure 7 shows the skills and characteristics in the three domain, two dimension model. At this stage, with a small sample, it was clear even from the raw data that most items shown in the upper half of the matrix are considered to be acquirable, while those in the lower half are not (according to the definition they were provided with). The only exceptions to this notable polarisation were verbal communication and working under pressure, both of which were split between the skills and characteristics dimensions. However, in the final analysis both these variables moved toward the skill dimension as their strongest relationship.

There is substantial evidence that managers seeking to become more effective could follow the example of extremely effective managers and concentrate on developing and applying these 21 skills and characteristics. Furthermore, it would seem that each of these skills and characteristics are most usefully applied in one of three domains of action. The

evidence is described as substantial because even though the correspondence analysis was based on a small sample, it was validated by factor analyses of the previous survey data.

Figure 7. The six factor correspondence analysis model shown in the original framework

DIMENSION	STRONGEST DOMAIN OF APPLICATION		
	SELF	INTERACTIONS	ORGANISATION
SKILLS	Self/time management Work under pressure	<i>Verbal communication¹</i> Communicate objectives Communicate vision Delegate	<i>Manage immed./current change</i> Business planning Goal/results focus Create strategic vision
CHARACTERISTICS	<i>Conceptual thinking</i> Responsiveness/adaptability Critical thinking Initiative/proactive Perceptive Positive attitude	<i>Influence others</i> <i>Value people</i> Interpersonal skills Role model	<i>Credibility</i>

Note: Italics denote a key function one predictor variable

It is all very well to define the technical skills and personal characteristics that predict managerial effectiveness, and identify which are perceived to be most important, but to turn this information into practical guidance for managers is a different matter. The first task is to define what it is that managers need to develop, and the second task is to define how managers may go about that process. In essence, managers need to develop the skills and characteristics shown in Figure 7. However, what the model provides are some clear choices about where to focus development efforts. On the one hand, efforts can be usefully focused upon oneself, or upon relating with others in the organisation, or focused upon organisation needs. On the other hand, managers may focus upon developing personal characteristics they already have, or may learn or develop specific technical skills. The discussion now considers each of these issues in turn.

If a manager were to focus upon developing the skills and characteristics mostly relating to oneself in a management role, development would involve two technical skills (self/time management and working under pressure) and six personal characteristics (critical thinking, initiative/proactive, perceptive, positive attitude, conceptual thinking and responsiveness and adaptability). Note that, according to the definitions provided to respondents, indications are that only the two technical skills are readily learnable; the six characteristics may not be, unless the attribute is already a characteristic attitude or behaviour of the individual.

Figure 7 shows a greater emphasis on one's personal characteristics (6) than technical skills (2) in this domain of action relating to oneself as a manager. Note, however, that three characteristics concern cognitive style (critical thinking, conceptual thinking and responsiveness/adaptability), all of which can be measured using established psychological instruments. Two characteristics relate to a characteristic approach to the job (showing initiative in being proactive, and generally having a positive attitude). These are a little more difficult to measure, although a history of successful initiatives created and driven by an individual must be a sound indicator of using initiative and being proactive. The last characteristic, the need to be perceptive, indicates that extremely and mostly effective managers are difficult to deceive, usually reading data, people and situations with clear eyes.

Perceptiveness as a characteristic ability is difficult to measure, as it is a broad and highly generalisable ability to perceive the facts contained within what may be contradictory and/or incomplete/inaccurate information.

If a manager were to focus upon developing skills and characteristics concerning others within the organisation, there are four technical skills (communicate objectives, communicate vision, delegate and verbal communication), and four personal characteristics (influence others, interpersonal skills, role model and value people). The first notable feature of this domain of action in comparison to the last is that there is an equal balance between the two dimensions of managerial input. This indicates that it would be a little easier to learn to be effective relating to others in the organisation than it is developing oneself as an effective manager, as there are more technical skills that can be learned.

A second notable feature is that there is an anomaly that needs explanation. The characteristic 'interpersonal skills' was included as a key variable in accordance with the demands of the literature and empirical work. However, the term is used in an extremely broad sense, encompassing all aspects of human interaction. Human interaction in the organisation emerged as a primary domain of managerial action in this research programme, and it may be that the various skills and characteristics relating to this domain may in fact eventually provide an overarching definition of 'interpersonal skills'. It may be, for example, that our perception of what defines interpersonal skills has been overly concerned with unclarified generalities, and the skills and characteristics shown in Figure 7 might form the basis of a more clarified, and composite, definition of the factors contributing to superior interpersonal skills. Yet another way of looking at it is that the current literature regards interpersonal skills as just another managerial skill (however important), whereas this research suggests that the skills and characteristics in the central column may define and embody a whole domain of managerial action concerning interactions with others in the organisation.

If a manager were to focus upon developing the skills and characteristics concerning organisational needs, there are four technical skills (business planning, managing immediate and current change, having a goal/results focus and create strategic vision), and one personal characteristic (credibility). The first notable feature in this last domain is that there are four learnable technical skills, and only one personal characteristic. The good news is that with regard to organisation needs, there are many more technical skills that can be learned than there are personal characteristics that a manager must already possess to develop. The bad news is that credibility emerged as being the most powerful predictor variable (along with influencing others) of managerial effectiveness, and in addition, is the most difficult variable to operationally define. It is difficult to define because it is a judgement based upon subjective personal perceptions of whether an individual possesses the required attributes to be judged as credible. This is where the indicators of credibility (e.g., proven honesty, integrity, ethical and fair behaviour, and so on) will have a different value judgement according to the perspective credibility is being judged from. As will soon be discussed, to a great extent perceptions are coloured by gender stereotypical thinking, there are cultural differences in ethics, and this further confounds efforts to clearly define and measure credibility as a manager.

This section has discussed which skills and characteristics managers need to develop, distinguished the skills and characteristics associated with each domain of managerial action, and has signalled that some factors are more learnable and developable than others. The next section of the discussion considers how managers might enhance their effectiveness, where the evidence suggests that the ten technical skills shown in the skills dimension of Figure 7 may be the easiest to target for development. This approach would encompass three distinct areas of development (self, other and organisation), which includes ten skills considered to be

generally learnable, and a further four or five personal characteristics which may also be amenable to measurement.

These skills may be learned from articles and books, and/or learned in management education and development programmes offered by various academic, commercial and government agencies. These skills can, of course, also be learned on the job, in being actively involved in managerial tasks calling upon these skills. Objective performance criteria can be set and measured, as in the competency-based approach.

It must be said, however, that it is the personal characteristics in the lower portion of the matrix that were most strongly associated with managerial effectiveness in the MDA, and this is reflected in the international research literature. In short, the human input perceived to underpin the ability to be effective as a manager appears to rest mostly in innate characteristics to do with (1) how one operates as a person, (2) how one relates to others within the organisation and (3) one's credibility as a manager in the organisation. It is here that the thorny gender issue must be raised, before returning to the discussion of the implications of the model for the competency-based approach.

A full discussion on gender issues is beyond the scope of this paper, yet some issues are critical to the discussion. Rather than say the evidence on men and women as managers is contradictory, it is probably more correct to say that men and women have both similarities and differences as managers. In brief, it can be argued that in all societies gender-related characteristics will be conditioned differently for males and females, resulting in completely different communication strategies, appearance, and demeanour for the two sexes (Henley, 1977; O'Leary & Ickovics, 1992). The differences are primarily testosterone/aggression related, and then socially reinforced (Le Vay, 1993; Santrock, 1983). In relation to overall cognitive function and capacity, men and women are no different. However, in terms of modes of processing, men tend to be much better than women when dealing with spatial information, while women have a distinct advantage when dealing with verbal information (Corballis 1983, Maccoby & Jacklin, 1974). Looking at Figure 7, none of this makes any difference to being effective as a manager (apart from women's superior verbal communication skills), yet there are differences in the way in which men and women are perceived to be effective as managers.

Current research evidence indicates that in the current business environment a woman as a manager appears to have an advantage in being able to relate better to others, probably as a result of social conditioning. A typical management style for women is to be communicative and have a participative approach, where rapport and trust builds relationships where others are valued (Crosthwaite, 1986; Eagly & Johnson, 1990; Handley, 1990; Holmes & Stubbe, 1992). Conversely, the man who is bound by traditionally 'masculine' behaviour is likely to be limiting his effectiveness as a manager by being too directive/autocratic/controlling, and not accounting for the needs of others (Fishman, 1983; Henley, 1977; Tannen, 1995; West, 1979). This is especially true in a business environment where new ideas and growth are desirable. Some researchers go so far as to suggest that women as managers tend to have a transformational style of leadership, whereas men have a transactional style (Alimo-Metcalfe, 1995; Bass & Avolio, 1994).

Overall, the evidence suggests that a communicative and participative style of management and leadership where people are valued, and relationships are built, are primary factors in effective management practice, and women as a group tend to have this management style. Highly masculine behaviour is likely to have an adverse impact. The implication is that managers desiring to enhance their personal characteristics in relating to others may well need to enhance their feminine side.

However, feminine characteristics per se are not perceived to be associated with managerial effectiveness, where to be a woman means it is harder work to be perceived as being effective as a manager (Korndorffer, 1992; Schaefer, 1985). In contrast, simply to be a man increases perceptions of effectiveness, where management has traditionally been a masculine gender role (Brenner, Tomkiewicz & Schein, 1989; Christie, 1994). This is particularly pertinent in the issue of credibility, where men are perceived to be credible managers by virtue of their biological sex and social conditioning, whereas to be credible managers women must prove they have 'overcome' their less desirable feminine characteristics (Fritz, 1988; Pringle, 1994; Sargent, 1983). It is within this gender literature that the differences between the concepts of actual effectiveness and perceived effectiveness become apparent.

Returning now to the main discussion, if following the competency approach managers must be assessed and compared on definable, measurable, standardised performance criteria. The model presented, therefore, poses a serious problem to the competency approach, where approximately half the key variables are generally considered to be innate, not particularly learnable, and for the most part difficult to operationally define. On the other hand, the ten technical skills fit nicely into the competency approach, in being relatively easily defined and measurable, and are generally considered to be learnable and assessable.

The finding that some of the key factors relating to managerial effectiveness are not suitable for the competency approach was expected - this is a common problem and criticism of the competency approach (Canning, 1990; Cockerill, 1989; Jacobs, 1989; Vaughan, 1989). Finding that a good half of the key factors are not suitable, and that four of these were revealed as key predictor variables, adds further evidence to these criticisms. The major concern is, of course, that there is no way around this problem - some aspects of managerial behaviour cannot be defined, learned and measured in the way that other aspects can be. It would seem that the personal characteristics shown in the lower half of Figure 7 represent these elusive factors. Having said that, it must be remembered that if a manager already possesses these characteristics to some extent, then these characteristics may be further developed. From the discussion on gender issues it would appear that men and women would find it easier to develop particular, and different, skills and characteristics.

If organisations, industry sectors, or governments are set on following a competency-based approach to developing managerial effectiveness, it must be recognised that there will be important aspects of effectiveness that are not being measured. In this model derived from international perspectives, one half of the key variables are problematic in this respect. More importantly, four of the six strongest predictor variables fall into this 'difficult' category. The options are to ignore the problem, or recognise it and state which aspects of managerial effectiveness are not being formally addressed. This is not the same as saying the problem should be ignored forever. Ongoing research needs to focus upon developing acceptable, even if indirect, measures of these key personal characteristics. In this regard the psychological research literature and research methods would be particularly useful to the field of study. For example, scales could be developed to measure these characteristics, and ranges/categories of performance assessed rather than performance standards and criteria set.

In addition to guiding the development of individuals, the model has potential to be of use as a human resource management tool to aid management selection. Measuring candidates on the (measurable) skills and characteristics would clearly classify the individual as generally being an extremely or mostly effective manager, or would identify them as being an ineffective manager. The same applies for identifying management potential within the organisation for succession planning. In both cases, individuals can be selected on the basis of

their strengths and weaknesses in each domain of activity, depending upon which skills are most important to the role under consideration. For example, it can be expected that a managerial role involving a lot of interpersonal interaction within the organisation would need to be strong in the skills and personal characteristics shown in the 'interactions' domain. In a similar way, a role focused on organisation requirements for planning, or strategic leadership, as examples, would need strength in the 'organisation' domain. It makes sense that for general selection purposes, all managers should be strong in the first domain relating to managing themselves, and their ways of thinking as managers.

The larger research programme began by asking whether there was an identifiable core set of skills and characteristics that are commonly perceived to define, or characterise, managerial effectiveness, across perspectives. It eventuated that such a core did exist, and those skills and characteristics could be modelled as they relate to one of two dimensions of human input, and to one of three domains of action. Although the model has been shown to be highly robust in statistical terms, further research with a larger sample would strengthen the model even more.

It would also be useful to test the criterion-related validity of the model, by establishing the links between high and low scores in measures of the (measurable) skills and characteristics, and other measures of effectiveness on the job. Put another way, do high scores on these variables relate to subsequent effectiveness on the job? The problem is, of course, we come around full circle to ask what would be the appropriate measures to use as the comparative criteria for general managerial effectiveness.

Conclusions

This programme of research set out to: identify a set of valid and reliable predictor skills and characteristics; identify the associations between skills, characteristics, and managerial effectiveness; take an applied approach; and explore measures for the skills and characteristics. All these objectives were met, except for being able to suggest measures for all the variables revealed, where some are shown to be problematic.

From the 78 variables that resulted from a distillation of the international literature and national empirical work, six were revealed as key predictor variables, and a further fifteen were revealed as being most important to perceived managerial effectiveness. A statistically robust six factor model was developed, relating each of these 21 variables to one of three domains of managerial action, and to one of the two dimensions of human input. The model has a number of potential applications, providing a framework to conceptualise managerial effectiveness, guide management selection and succession planning, and target specific areas for individual development programmes.

The model highlights the problems faced with measurement issues, in that half the variables are difficult to measure. This is a particular problem for the competency-based approach to developing managerial effectiveness, with only half of what it takes to be an effective manager possible to be guided and assessed by the competency approach. However, ten technical skills revealed are suitable for addressing in a competency-based approach.

Overall, this research has provided some practical guidelines for enhancing overall managerial effectiveness, by specifying three domains of managerial action, and two dimensions of managerial input. The model can be considered as a set of core skills and characteristics applied in specific domains, and this appears to transfer across situations. In addition to this transferable core, there will be additional organisation context and other influences that will create different emphases, and/or demand additional skills and characteristics from individual case to case. It would seem that it would be useful to target

these domains and dimensions in development efforts no matter what context the manager is working within, and over time identify the 'tag on' skills required in different contexts. As a final note, this model represents one of the more rigorously developed and validated models available. That in itself must be a worthwhile contribution to an area lacking in validated models, where at the same time managers are expected by organisations and governments to somehow become more effective.

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