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**An Exploratory Study on Employee Roles as Determinants of Organisational
Learning and Innovation: The Australian Experience**

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Introduction

In the current world economic and political climate, some organisations understand the need to learn and be innovative. In order to survive and remain competitive organisational learning is becoming a widely recognised tool. To navigate change, organisations are required to accelerate internal changes to their systems and processes that enable them to learn and be innovative.

In work environments employees continually learn as they engage in their jobs, earn their wages and contribute to the company's performance (Gerber, 1998). The extent to which employees maximise their learning is dependent on factors such as roles, culture, leadership, individual's willingness and the structure (Hong, 1999) of their organisation.

Argyris and Schon (1978) laid the foundation for research into the ways that organisations learn. Organisational Learning can be defined as the ability for an organisation to learn, whereas Cummings and Worley (1997) define organisational learning as a change process aimed at helping organisations develop and use knowledge to change and improve them continually.

Innovation on the other hand, refers to the process through which new ideas, objects, and practices are created, developed, or reinvented (Slappendel, 1996).

This shift in the structural paradigm has changed some of its elements. One of the important elements of an organisation's structure is the employee's role because roles define an employee's position in the organisation. A role may be defined as a set of behaviours that others expect of individuals in a particular context (Floyd and Lane, 2000). Employees learn through the roles they occupy in the organisation. Every organisational position is associated with certain roles and jobs that reflect expectations regarding the position's contribution to tasks and objectives. However, these roles vary from organisation to organisation. Roles are a part of the dynamic organisational system. An employee's role is a combination of skills, experience, and personality factors of the individuals (Bassett and Carr, 1996). In many ways roles tend to control the behaviour of individuals in the workplace.

The importance of organisational structure on the organisational learning and innovation process has been clearly demonstrated through many empirical researches (Lipshitz and Popper, 1998; Duberley and Burns, 1994; Sapolsky, 1967).

Organisational structure is simply defined as the division of labour in an organisation. Earlier empirical studies viewed employee roles as an element of a structure and therefore, took a holistic approach and related structure to organisational variables like size (Baldrige and Burnham, 1975; Damanpour and Evan, 1984; Kimberley and Evasiko, 1981), centralization and innovation ((Kimberley and Evansiko, 1984; Hage and Dewar, 1973; Moch and Morse, 1977), formalisation and innovation (Hage and Dewar, 1973; Balu and McKinley, 1979; Slappendel, 1996).

To the contrary, recent studies have attempted to view employee roles independent of the structure. Empirical studies have clearly distinguished between employee roles and established their relationship to organisational learning and innovation (Ibarra, 1993; Popper and Lipshitz, 1998; Ellinger, Watkins and Barnas, 1999; Elliinger, Watkins and Bostrom, 1999; Hong, 1999; Lang and Wittig-Berman, 2000; Floyd and Lane, 2000; Macneil, 2001; Kickul and Gundry, 2001). The majority of the studies have been carried out in the US or Europe, with few studies from Australia. Consequently, this paper will attempt to look at the employee roles as determinants of organisational learning and innovation in the Australian service and manufacturing industries.

For the purpose of this study, three general employee roles are analysed. They are managerial, supervisory and worker. A manager is defined as an employee who integrates and coordinates the work of others (Robbins, Bergman, Stagg and Coulter, 2000). Middle-line managers are employees between the top managers and supervisors in the organisation. For the purpose of this study, managers and middle line managers are treated synonymously. First-line managers are the lowest role of management and are also called supervisors. Workers are employees who are engaged at the lowest role in the hierarchy and perform functional duties, and not in a decision-making capacity.

Theoretical Framework

The theoretical framework for this study views organisational learning as a process and describes it as a pervasive, ongoing process, which involves knowledge acquisition, information distribution, information interpretation and organisational memory (Huber, 1991).

The theoretical framework for innovation takes on the structuralist perspective. From this perspective innovation is determined by organisational variables (Slappendel, 1996).

Research Question

The study attempted to answer the following research question:

Is there a relationship between the dimensions of organisational learning and organisational innovation and employee roles in the Australian manufacturing and service industries?

Methodology

The study adopted a multi-method approach, which included a 78-item survey and an interview schedule. The Organisational Learning dimension was measured using the 34-item Organisational Learning Profile (OLP) (Pace et al, 1998).

The OLP is based on the 'change in organisational memory' approach described by Levitt and March (1988). From this approach organisations are seen as learning by encoding inferences from history into routines that guide behaviour. In this view learning is defined as a process rather than an outcome.

The original OLP (Pace et al, 1998) scale consists of 34 items that cluster around four factors: Factor 1 - Information Distribution and Memory includes 10 items; Factor 2 - Experimentation and Initiative includes 11 items; Factor 3 - Achievement of Natural Growth Goals includes 7 items; and Factor 4 - Sharing and Reviewing Information included 6 items. All factors had a Cronbach Alpha reliability scores above 0.70.

Using SPSS, responses to the thirty-four items of the OLP were subjected to a principal components analysis.

Suitability of data for factor analysis was assessed using the Kaiser-Meyer Olkin measure of Sampling Adequacy and Bartlett's test of Sphericity. Orthogonal rotation was chosen as an important tool in interpreting factors. Results of the principal component analysis (Dorai, McMurray and Pace, 2002) revealed the presence of four factors with items having Eigen values exceeding 1.0. This resulted in factors that were slightly different from the original study of Pace et al (1998), which had skewed distribution of items where the majority of items loaded on Factor 1 and Factor 2; whereas, the revised OLP (Dorai, McMurray and Pace, 2002) had even distribution of items. It attempted to define organisational learning as a process of influence on the learning practices that prevail in organisations, the achievement mindset of the individuals, the information sharing patterns that occurs across the organisation, and the inquiry climate that is created in the organisation

The factors of the Dorai, McMurray and Pace (2002) OLP scale were renamed and were refined to account for the new clusters of items that were loaded on each of them. They included the following four factors: Learning Practices (F01), Information Sharing Patterns (F02), Inquiry Climate (F03), and Achievement Mindset (F04). Learning Practices items represent the practices that contribute to learning. This factor highlights the importance of organisational variables like structure and culture and their role in the organisational learning process. Information sharing patterns included items that showed the types information patterns they represent thus supporting the definition of organisational learning as the processing of information (Huber, 1991; Leavitt and March, 1988). Inquiry Climate covered inquiring, challenging, and experimenting as elements of organisational climate. This factor supports Amabile's (1997) study on creativity. Achievement Mindset included items that relate to the mindset of workers regarding the desire to achieve. This factor supports Cummings and Worley's (1997) theory that individuals are the units of learning. Essentially achievement mindset is influenced by the mental models (Senge, 1997) created by individuals of the work environment around them.

Organisational Innovation consisted of 34 items with a Cronbach Alpha of $\alpha = 0.96$, and the demographic section consisted of 10 items.

The survey questionnaire was administered to 169 respondents employed in the hospitality, health, finance and manufacturing sectors located in Melbourne, Australia. 162 usable responses yielded a response rate of 97%.

Analysis

The quantitative data was analysed using SPSS (ver.10) to establish the mean values between respondents' employee roles and organisational learning. Descriptive statistics were used to analyse the demographic variables of the respondents. Respondents' countries of origin were Australia (10%), Europeans and Asians (17%). Respondents were aged between 21-30 (21%); 31-45 years (52%) and 46-60 (18%). Employee roles were broadly categorised into managerial (41%), supervisory (33%) and workers (26%). It was found that a large percentage of the respondents were from the service industry (67%) which included hospitality and health.

Results

One-way ANOVA showed a significant relationship between the Achievement Mindset factor of organisational learning and the roles of employees, with Learning Practices showing no significance $p > 0.239$, Information Sharing Patterns $p > 0.272$, Inquiry Climate $p > 0.131$, and Achievement Mindset $p < 0.047$. The items of this factor relate to aspects of the mindset through which workers achieve different things.

In other words, these items are analysed in terms of how they contribute to achieving in the role, they occupy in the organisation. These findings show that employees, irrespective of their position in the organisations, develop a mental model (Senge, 1997) about their workplace that enables them to achieve their personal vis-à-vis organisational goals. However, this is dependent on factors like the culture of the organisation, the mobility within their role, autonomy in their work and career path in their positions. In many ways employee performance is linked to the perception of the employees about their work place. In addition, this factor can be directly linked to motivation theories like Herzberg's Two Factor Theories, and McClelland's Acquired Needs Theory (Robbins et al, 2000), and House's Path Goal Theory of Leadership (Yukl, 1997).

It was found that Innovation Climate ($p < .036$) is significantly related to the roles of the employees. Climate is a psychological multi-dimensional complex phenomenon (McMurray and Dorai, 2001). Climate manifests in different forms and Innovation Climate is an evaluative construct, in contrast to organisational climate, which is descriptive construct. Table 1 shows the comparisons between roles and the three dimensions of Organisational Innovation.

Table 1: Tukey HSD - Multiple Comparisons between roles and the three dimensions of Organisational Innovation

Organisational Innovation			Innovation Climate			Individual Innovation		
		Sig			Sig.			Sig.
Worker	Supervisory	.879	Worker	Supervisory	.668	Worker	Supervisory	.967
Supervisory	Manager	.251	Supervisory	Managerial	.130	Supervisory	Managerial	.087
Managerial	Worker	.828	Managerial	Worker	.072	Managerial	Worker	.203

Source: Authors

Multiple comparisons between roles and the three dimensions of Innovation, Table 2, show no significant relationship between the two concepts. From this it is seen that innovation in organisations is independent of the roles employees occupy in an organisation. Some organisations today, attempt to foster workplace innovation irrespective of the roles employees occupy in the organisation. In addition, performance measurement of employees is linked to the ability to be creative and contribute to new ideas in the workplace.

Table 2: Relationships between the dimensions of organisational innovation and Employee Roles

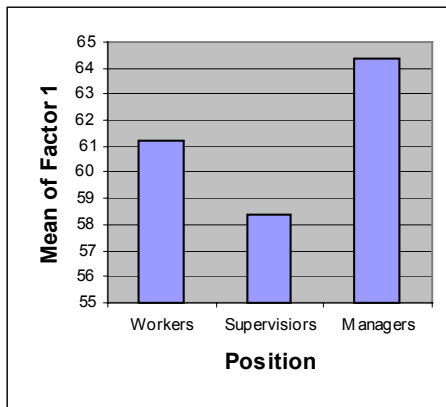
Factors	I1	I2	I3
Roles	Organisational Innovation	Innovation Climate	Individual Innovation
Managerial	High (64.5)	High (25.6)	High (3.6)
Supervisory	Low (58.5)	Medium (23.5)	Low (3.05)
Workers	Medium (61.5)	Low(22.0)	Low (3.0)

Source: Authors

While the one-way ANOVA shows no significant relationship between roles and the dimensions of innovation, however, the mean plot showed that creativity and innovation was low amongst workers and supervisors. These findings further support Hecksher's (1995) study which showed that changes within the organisation such as downsizing, working within their boundaries, lack of initiative due to poor reward systems, act as barriers to the learning process for supervisors.

In the worker's case, possible lack of knowledge and skills, and lack of learning experiences mitigates against learning and innovation. Further, in Australia, as large numbers of employees are from various countries of origin, organisations are forced to create an environment that facilitates learning across different cultures. The high score for managers support the conclusions drawn by Lang and Berman (2000) who state that by developing their leadership skills managers enhance the learning of their subordinates, and simultaneously enhance their own learning and future employability.

Figure 1: Mean Plot between Employee Roles and Organisational Innovation

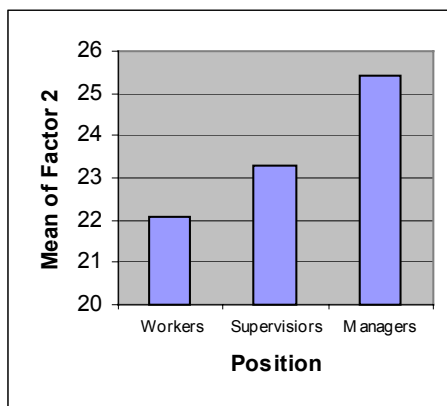


Source: Authors

The mean plot, Figure 1, shows a low relationship between the supervisory role and organisational innovation. These findings show that learning and innovation is limited at the supervisory role. One reason could be the limited autonomy given to supervisors in organisations today. Generally, supervisory roles are restricted to maintenance, monitoring and coordination of individuals. This does not give enough freedom to make decisions, especially in organisations that have a mechanistic structure. Opportunities to be creative at this role are limited. The results also show that Innovation is high at the managerial role.

The mean plot at Figure 2 shows that Innovation Climate factors remain or increase with the employees as their role in the organisation changes.

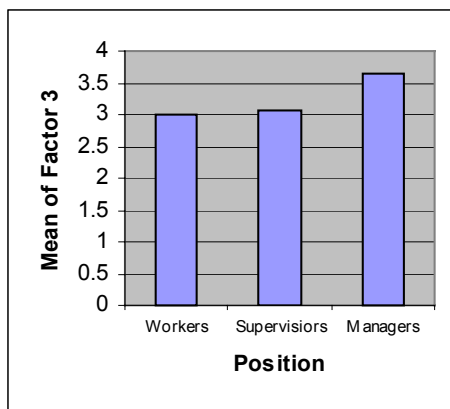
Figure 2: Mean Plot showing the relationship between Innovation Climate and Employee Roles



Source: Authors

The mean plot between individual innovation and employee roles, Figure 3, shows that both workers and supervisors score low on this factor. Innovation at the worker and supervisory role is limited, and is influenced by many factors such as the manager’s leadership style, the relationship with the immediate supervisor, the degree of responsibility and accountability, the nature of tasks, the degree of authority and the climate within the Department. The blurring of roles between supervisors and workers is another factor that contributes to the low score.

Figure 3: Mean Plot showing the relationship between Individual Innovation and Employee Roles



Source: Authors

Conversely, this factor scores high for the managers. This is because employees in managerial roles are expected to be innovative, and achieve strategic goals and objectives. They are expected to empower their subordinates at the lower role. Performance criteria for managers include the ability to empower and to get tasks completed by their subordinates.

Table 3 is a summary of the four dimensions of organisational learning and their relationship to employee roles.

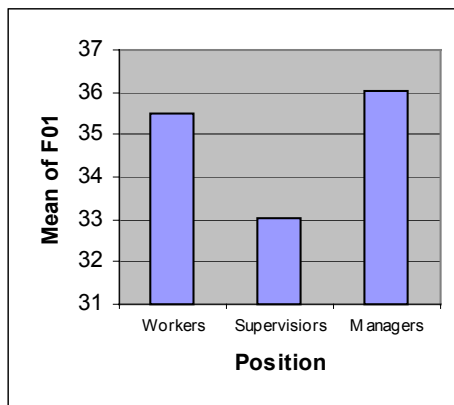
Table 3: Relationships between factors of Organisational Learning and Roles of employees

Factors	F1	F2	F3	F4
Roles	Learning Practices	Info.Sharing Patterns	Inquiry Climate	Achievement Mindset
Managerial	High (36.08)	Medium (28.0)	High (18.0)	High (23.6)
Supervisory	Low (33.1)	Low (26.0)	Low (16.0)	Low (19.2)
Workers	High	High	Medium	High

Source: Authors

The Learning Practices items are analysed in terms of how they contribute to learning. The mean plot at Figure 4 shows a significant relationship between worker and managerial roles and the learning practices dimensions of organisational learning.

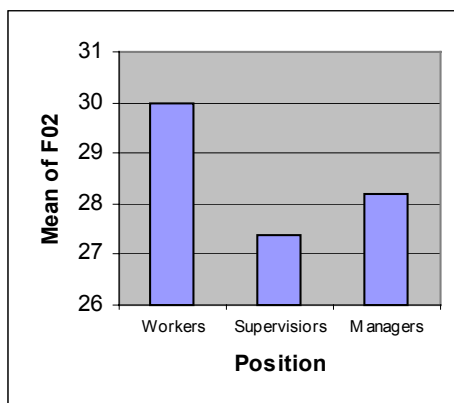
Figure 4: Mean Plot Distribution of employees Learning Practices (Factor 1)



Source: Authors

This could be attributed to two reasons. Firstly, at the functional role employees attempt to adapt to the learning practices that are followed in the work environment. This can also be seen as an acculturation process. On the other hand, managers tend to adapt to the learning practices quickly to demonstrate their leadership effectiveness, and to control the information dissemination process in the work environment around them. It is seen that the relationship between learning practices and the supervisors is low or not significantly related. One of the reasons that can be attributed to this is that, in many organisations today, the role of the supervisor is more one of monitoring and co-ordinating with very little scope to learn anything new. In some organisations, team based structures with self- directed learning among team members have become a work related norm (Confessore and Kops, 1998).

Figure 5: Mean Plot Distribution of employees Information Sharing Patterns (Factor 2)



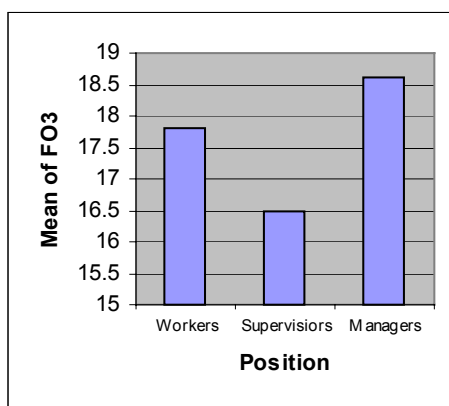
Source: Authors

Information Sharing Patterns can be analysed in terms of what type of pattern they represent.

The mean plot for this factor, Figure 5, showed a high correlation to workers and managers. This factor can be closely linked to Learning Practices. This high correlation can be attributed to the nature of work carried out by workers and managers.

At the functional role, it is known that information sharing amongst workers is very powerful, especially informal channels of communication in all organisations. Managers show a strong relationship to information sharing patterns, as knowledge distribution is seen as a function of learning (Huber, 1991), and often the measure of effectiveness of managers is dependent on information sharing. However, this factor scores low with the supervisor role. In many organisations, information dissemination plays no part in the role of the supervisor.

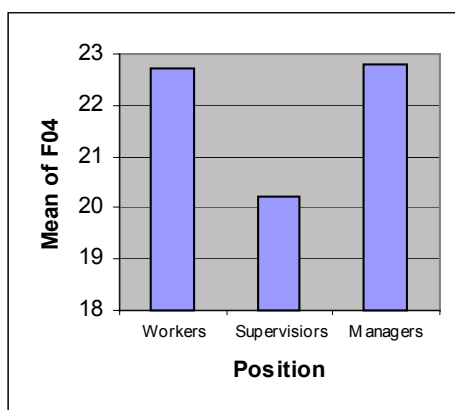
Figure 6: Mean Plot Distribution of Inquiry Climate (Factor 3)



Source: Authors

Inquiry Climate items have to do with inquiring, challenging, experimenting, and can be analysed in terms of what element of climate they represent. The mean plot for this factor, Figure 6, showed a low correlation amongst managers and workers. At the supervisory role, the opportunity to question or influence decision-making at top management level is limited. However, in the functional and the managerial role, performance management is based on the individual's ability to be creative and innovative (Amabile, 1997).

Figure 7: Mean Plot Distribution for Achievement Mindset (Factor 4)



Source: Authors

The Achievement Mindset items relate to aspects of the mindset in workers to achieve different things.

They may be analysed in terms of how they contribute to achievement. The mean plot for this factor, Figure 7, had a high correlation with managers and workers and a low correlation with supervisory roles. This could be attributed to the fact that in the functional and managerial roles there is a greater scope for creativity as at the functional role, in many instances, employees may be paid productivity linked bonuses, incentive schemes may be linked to innovative ideas, and so workers can develop a mindset to achieve different things in the workplace. Managers, on the other hand, are put under tremendous pressure to provide a work environment that aims to increase productivity. Hence, their score is high on this factor. Supervisors score low on this factor. The low score can again be attributed to the role of supervisors in the organisation because organisations view supervisors as a 'link pin'. Another perspective would be that their roles are viewed as task-oriented with an emphasis achieving goals and objectives. Therefore, in this role, scope for achievement and creativity is limited.

Conclusion

The findings from this study suggest that employee roles have a significant impact on the learning and the innovation process. While the findings showed a greater degree of learning for managers and workers, learning and innovation is significantly lower for supervisors. With the blurring of roles in the organisations today, it is important for organisations to foster learning and innovation at all levels in the organisation to ensure that it achieves its goals and objectives effectively.

In Australia, middle management plays a significant role, in achieving the goals and objectives of the organization.

The Federal Government in Australia has introduced the Front line Management Initiative Program, whose aims and objectives include enhancing the skills of the Supervisors of all organizations, to perform better, and to develop their abilities to their full potential. The findings of this study will add value to the Frontline Management Program, by making recommendations that will make supervisory learning more effective.

References

- Amabile, M.T. and Conti, R. (1999) Changes in the Work Environment for Creativity during Downsizing. *Academy of Management Journal* **42**,
- Argyris, C. and Schon, D. (1978) *Organizational Learning*, Addison Wesley Reading.
- Baldrige, J. and Burnham, R. (1975) Organizational Innovation: Individual, Organizational and Environmental Impacts. *Administrative Science Quarterly* **20**, 165-176.
- Basett, G. and Carr, A. (1996) Role Sets and Organization Structure. *Leadership and Organization Development Journal* **17**, 37-45.
- Blau, R.J. and McKinley, W. (1979) Ideas Complexity and Innovation. *Administrative Science Quarterly* **24**, 200-219.
- Confessore, J.S. and Kops, J.K. (1998) Self-Directed Learning and the Learning Organization: Examining the connection between the individual and the learning environment. *Human*

- Resource Development Quarterly* **9**, 365-375.
- Daft, L.R. (1998) *Essentials of Organization Theory and Design*, 1st edn. SouthWestern Publishing, Ohio.
- Damanpour, F. and Evan, M.W. (1984) Organizational Innovation and Performance: The problem of 'Organizational Lag'. *Administrative Science Quarterly* **29**,
- Dorai, R., McMurray, A., and Pace, W.R., (2002) 'The Study of the Organizational Learning Profile' paper presented, International Conference, *Academy of Human Resource Development*, 27th February-3rd March, 2002, Hawaii.
- Duberley, P.J. and Burns D. Neil (1993) Organizational Configurations: Implications for the Human Resource/Personnel Management Debate. *Personnel Review* **22**, 26-34.
- Ellinger, D.A., Watkins, K. and Barnas, M.C. (1999) Responding to New Roles: a Qualitative Study of Managers as Instructors, *Management Learning* **30**, 387-412.
- Floyd, S.W. and Lane, P.J. (2000) Strategizing Throughout The Organization: Managing Role Conflict in Strategic Renewal. *Academy of Management Review*. **25**, 1, 154-177
- Gerber, R. (1998) How do workers learn in their work? *The Learning Organization* **5**, 168-175.
- Hage, J. and Dewar, R. (1973) Ethics, Values versus organization structure in predicting innovation. *Administrative Science Quarterly* **18**, 279-290.
- Hecksher, C. (1995) *White Collar Blues: Management Loyalties in an Age of Corporate Restructuring*, New York: Basic.
- Hong, J. (1999) Structuring for Organizational Learning. *The Learning Organization* **6**, 173-185.
- Huber, G.P. (1991) Organizational Learning: An Examination of the Contributing Processes and a Review of the Literature. *Organizational Science* **2** , 88-115.
- Ibarra, H. (1993) Network Centrality, Power, and Innovation Involvement: Determinants of Technical and Administrative Roles. *Academy of Management Journal*. **36**, 3, 471-501.
- Kickul, J. and Gundry, L.K. (2001) Breaking through Boundaries for Organizational Innovation: New managerial roles and practices in e-commerce firms. *Journal of Management* **27**, 347-361.
- Kimberly, R.J. and Evanisko, J.M. (1981) Organizational Innovation: The Influence of Individual, Organizational and Contextual Factors on hospital adoption of technological and administrative innovations. *Academy of Management Journal* **24**, 689-713.
- Knight, E.K. (1967) A Descriptive Model of the Intra-Firm Innovation Process, *Journal Of Business* **40**, 478-496.
- Lang, D. and Wittig-Berman, U. (2000) Managing Work Related Learning for Employee and Organizational Growth *SAM Advanced Management Journal* **Autumn**, 37-43.
- Levitt, B. and March, S. (1988) Organizational Learning. *Annual Review of Sociology* **14**, 319-340.
- Macneil, C. (2001) The Supervisor as a facilitator of informal learning in work teams. *Journal of Workplace Learning* **13**, 246-253.
- McMurray, A. and Dorai, R. (2001) 'Exploring the Relationship between Organizational Learning and Organizational Climate in Australian Hotels', paper presented, *Australia New Zealand Associations of Management (ANZAM) Conference*, 5th – 8th December, 2001, UNITEC, Auckland.

- Moch, K.M. and Morse, V.E. (1977) Size, centralization and organizational adoption of innovations. *American Sociological Review* **42**, 716-725.
- Popper, M. and Lipshitz, P. (1998) Organizational Learning Mechanisms: A Structural and a Cultural Approach to Organizational Learning. *Journal of Applied Behavioural Science* **34**, 161-180.
- Robbins, P.S., Bergman, R., Stagg, I. and Coulter, M. (2000) *Management*, 2nd edn. Prentice Hall, New South Wales.
- Sapolsky, M.H. (1967) Organizational Structure and Innovation. *Journal of Business* **40**, 497-510.
- Senge, M.P. *The Fifth Discipline: the Art and the Practice of the Learning Organization*, 2nd edn. Random House, Australia.
- Slappendel, C. (1996) Perspectives on Innovation in Organizations. *Organization Studies* **17**, 107-129.
- Smith, V. (1997) New Forms of Work Organization. *Annual Review of Sociology* **23**, 315-339.
- Tannenbaum, S.I. (1997) Enhancing Continuous Learning: diagnostic findings from multiple companies. *Human Resource Management* **36**, 437-452.
- Yukl, G. (1998) *Leadership in Organizations*, 4th edn. New Jersey: Prentice Hall.