Innovation at work:
The influence of transformational leadership and context.

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ABSTRACT
Transformational leadership is theoretically predicted to influence both context and outcomes. Although evidence of a link among transformational leadership and innovation exists, the relationship is often not direct; rather leadership exerts its influence through mediating elements of the organizational context. A study of the influence of facets of transformational leadership may address equivocal results. One hundred and fifty-two managers from the top three layers of an Australian manufacturing company were surveyed. Findings indicate that context did not mediate the relationship between transformational leadership and innovation, rather a single facet of transformational leadership – individualised consideration - had a direct effect on innovation and Inspirational motivation alone directly affected organisation context. Implications for research and practice are discussed.

Key words: Transformational Leadership, Context, Innovation
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In the competitive world of commerce and service provision, survival and success requires innovation, not only in products, but in services, processes and systems. Indeed, the flexibility and agility for renewal, reinvention and even revolutions within the soft systems (people, culture, and human resource strategies) distinguish winners from losers across many domains of human endeavour (Kanter, 1988). Innovation allows organisations to not only stay ahead of competition but to lead the way into new markets and discoveries. In doing so, these organizations attract creative staff, loyal customers and consumers, repeat business and achieve greater funding gains and investments (Lok & Crawford, 2003). However, finding the key to ignite the flame of innovation (Wilson-Evered, Hartel & Neale, 2001c, 2004) in an organisation is not easy despite a vast empirical and popular literature and guides for managers.

Evidence exists for a link between leadership (Amar, 1998), resources, organisational culture, climate or structure and innovation (for examples see Andriopoulos, 2001, Spanyi & Eibel-Spanyi, 2004). However, there is no clear formula to ensure business innovation. Notwithstanding, “the ten steps to innovation” approach, such a formula is unlikely to exist, and even less likely to be empirically contested (Sharma, 1999). Scholars can pave the way to understanding the role of leadership in innovation through systematic investigation of the degree to which different aspects of business inspire innovation and by unpacking implicated facets and identifying those that may hold the greatest influence. Broadly speaking, innovation results from enabling environments at the local and management levels (Mumford & Licuanan, 2004). Evidence to support this contention arises from strong positive correlations found among facets of transformational leadership and facets of climate for innovation (Wilson-Evered et al, 2004) in health care teams.

Two influences that have often been linked with successful business innovation are leadership style (Jung, Chow & Wu, 2003) and the context (culture, climate, environment, the essence of the business) (Koene, Vogelaar & Soeters, 2002). The extent to which these influence each other in this process has been explored with equivocal results. The present study explores theoretical associations among leadership style, organizational context and perceived support for innovation leading to
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innovation outcomes. Recent research and theories relating to leadership and innovation, organisational Context and innovation will be examined and an integration of leadership and organisational Context and innovation will be discussed. From this exploration, a set of hypotheses are derived that are tested and reported in an empirical field study of leaders in the Australian manufacturing.

Leadership and Innovation

Bass and Avolio (1996) propose that transformational leadership comprises four separate behaviour groups, idealised influence (including attributes and behaviour), individual consideration, inspirational motivation and intellectual stimulation. Leadership behaviours that build trust, confidence and attract following fall within ‘idealised influence’, while ‘individual consideration’ involves understanding each individual as unique, determining their individual needs and raising them to a higher level. Leaders demonstrating ‘inspirational motivation’ raise expectations and beliefs concerning the mission/vision, and the engagement of ‘intellectual stimulation’ behaviours challenges old assumptions and stimulates idea generation. Of these four behaviour groups, the two that are theoretically most likely to influence creative thought and action in employees are intellectual stimulation, which involves stimulating idea generation among employees and encouragement of non-traditional thinking; and individual consideration whereby the leader promotes self development and assists the employee to develop their strengths through teach and coaching. This study will test these theoretical relationships.

Studies that have investigated the influence leadership styles as measured by the Multifactor Leadership Questionnaire - MLQ (Bass & Avolio, 1997) have found that transformational leadership has been a major influence of positive organisational outcomes such as creativity and innovation in the organisation (Bossink, 2004; Jaussi, & Dionne, 2003; Jung, Chow, & Wu, 2003). One such study investigated the effect of transformational leadership on innovation and found that leadership does impact on innovative ideas within an
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organisation. In a multi-source study of leadership and innovation in 32 Taiwanese companies, Jung, Chow and Wu (2003) found that transformational leadership had a significant relationship with innovation through empowerment and support for innovation. Furthermore, Wilson-Evered and colleagues (2001a, b, c, 2004) demonstrated a positive pathway from leadership to morale and implemented innovations. However, authors recognise that ongoing research is required to further understand those aspects of transformational leadership have the greatest influence on innovation. Therefore, transformational leadership and particularly the facet of intellectual stimulation is a theoretically a key contender for influencing innovation.

Hypothesis 1: Transformational leadership will positively impact innovation.

Hypothesis 1a: Intellectual Stimulation will have the greatest influence on Innovation when compared with the other facets of Transformational leadership

Leadership and Organisational Context

Whereas theorists have identified a link between leadership and culture, little empirical research has been able to explicate this link. For example, Tucker and Russell (2004) and Bass and Avolio (1993) theorise that transformational leaders generate a transformational culture in the organisation, leading an organisation to ‘a sense of purpose, long term commitments and mutual interests.’ Research conducted to test theories (Block, 2003) have provided mixed results, some supportive, some with no relationship detected and some with contrasting views (see Block, 2003; Parry & Proctor-Thomson, 2002; Shamir, et. al, 1998).

Although there are conceptual and methodological difficulties in determining a common set of dimensions for organizational context, there have been some clearly implicated elements for innovation. The first, and probably the strongest of these is an open culture, so that the degree to which a company has positive and balanced culture which includes an emphasis on open systems and the generation of new ideas, products and services (Goodman, Zammuto & Gifford, 2001) the more likely there will be a positive effect on organizational performance in general and innovation in particular. Second, perceptions about the degree to which the human resource systems within the
Leadership, Context and Innovation

organisation are viewed by employees as transparent and fair will improve a range of outcomes including profit (see Pfeffer, 1998). A third important factor is the affective climate of the group. Scholars such as Perola-Merlo and colleagues (2002) and George (1990) have implicated affect as a key factor in innovation. Furthermore, the level of enthusiasm, energy, esprit de corps and drive in the organization (Bass, 1998; Shamir, et. al, 1998; Wilson-Evered et. al., 2001) has been shown to predict tangible outcomes in military and medical groups. Finally, a likely strong influence on innovation will be a positive attitude towards openness to change and innovation. The degree to which employees perceive the context to be characterised in such a way will be related to innovation (King & Anderson, 2002).

Hypothesis 2: Transformational leadership will influence organisational context being represented by positive and open culture, high morale and fair and transparent people management practices.

Organisational Context and Innovation

Martins and Terblanche (2003) note that organisational culture plays a substantial role in the innovative activities of organisations. They define organisational culture as ‘the way we do things around here’. Such norms, values and unwritten rules are a significant component of organisational environment that can facilitate innovation. In a positive and open systems culture, there will be high morale and innovation (Goodman, et. al, 2001).

Hypothesis 3: Organisational context will influence Innovation

Given the espoused relationships between leadership and organisational Context and each of these with innovation, it is also likely that a mediation effect for context may be evident. To follow on from Ogbonna and Harris’ (2000) finding that organisational culture mediates the relationship between leadership and performance, it is expected that organisational Context will play a similar role in the relationship between leadership and innovation.

Hypothesis 4: Organisational context in particular an open systems culture and positive attitude to change, will mediate the relationship between transformational leadership and innovation.
METHOD

The study was conducted with a large Australian Manufacturing company employing over 2200 employees across seven divisions and dispersed mainly among the major eastern capital cities. The survey was distributed as a part of a business diagnosis and leadership development program. With the pressures facing manufacturing as a result of increasing globalisation, especially the influence that the growing Chinese economy and Indian resource sector has on Australian businesses, it is more crucial than ever to ensure companies have develop new business models through innovation and developing the potential of its leadership and employee base.

Sample and Procedure: All leaders in the top two (leadership) levels below General Manager of a large Australian manufacturing organisation (made up of seven independently functioning businesses) were invited to complete an on-line survey designed to gain an understanding of aspects related to leadership and organisational characteristics and functioning.

Respondents were invited to complete the on-line survey via initial and reminder emails sent out by the company on the researcher’s behalf. Respondents accessed and anonymously completed the survey on an external host site within a one month period in late 2004.

Measures. All measures were based on Likert Scales using validated research tools. The Multifactor Leadership Questionnaire – MLQ (Bass and Avolio, 1997) was used to assess transformational leadership. Organisational Context was assessed through four scales – People Relationships and Attitude Towards Change, Workplace (Organizational) Morale, that were derived from a number of climate scales eg Carnell, 2003 and QPASS (Hart, Wearing, Griffin & Cooper, 1996). Open Systems culture was theoretically derived from. Quinn’s competing values model includes the conceptualization of Open Systems Culture. (Lamond, 2002). Scales from Team Climate Inventory (TCI) Support for Innovation,(West & Anderson, 1998) and, Team Performance Inventory (TPI) Team Innovation - were used to assess the area of Innovation,(West, 2003). Together, support for new ideas and team innovation were conceived as the dependent variable – innovation – in the present study.
RESULTS

The survey was completed by 152 (80%) of the 190 leaders in a leading manufacturing organization. Participant occupations included Engineering, Management, Science, Commerce, Law, Human Resource, and Fitter and Turner, however all were either Executives or Senior Managers.

A series of three simple multiple regressions and one hierarchical regression were undertaken in order to assess the predicted relationship between leadership style, organisational environmental context and innovation experience. The means, standard deviations, alpha coefficients and correlations of the six variables investigated in the study along with initial regression results are presented in Tables 1 through 6 in the Appendix.

All scales had a good internal reliability, Cronbach alpha ranging from 0.742 to 0.890 (all above the Nunnally (1978) criterion of 0.7). As expected, correlations among the four leadership scales that are said to constitute Transformational Leadership were relatively strongly. Similarly, a reasonably strong relationship between the measures of Organisational Context and Innovation was evident. While the correlations between the leadership variables and Organisational Context and Innovation were relatively small all were significant. For all regression equations presented, tests for multicollinearity, normality, linearity, homoscedasticity and independence of residuals were conducted with all assumptions satisfied. Similarly all reliability and correlations of composite scales were undertaken and satisfied.

a) Transformational leadership style will influence Organisational Context: These results suggest that only the facet of Individualised Motivation is associated with Organisational Context, although only accounting for 32.4% of the variance exhibited.

b) Transformational leadership style will influence innovation. Results of regression procedure investigating the path between the leadership styles and innovation reveal that only Individual Consideration has a direct effect on innovation experience.

c) Organisational context will influence innovation. In addition to the leadership style of Individual Consideration, Organisational Context has a highly significant impact on Innovation. Investigation of the standardised regression coefficients, the adjusted $R^2$ and the F value of the path reveals a very strong predictive relationship (75.8% of variance accounted for).
d) Transformational leadership style will influence innovation (controlling for Organisational Context). Finally, hierarchical multiple regression was performed to investigate the relationship of all variables in the proposed model. The results indicate that 57.2% of the variance is explained by the Organisational Context domain, with an additional 2.1% provided by the direct effect of Individual Consideration. Neither Intellectual Stimulation nor Idealised Influence had any effect, either directly or indirectly, on Innovation, while Inspirational Motivation did directly impact Innovation, this facet does influence Organisational Context as discussed above.

Table 7. Results of Regression Leadership Style on Innovation (controlling for Organizational Context)

<table>
<thead>
<tr>
<th>Step 1</th>
<th>OE</th>
<th>0.76</th>
<th>13.95</th>
<th>0.57</th>
<th>194.67**</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>OE</th>
<th>0.79</th>
<th>12.14</th>
<th>0.59</th>
<th>42.98**</th>
</tr>
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<tbody>
<tr>
<td>IS</td>
<td>-0.02</td>
<td>-0.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>0.26</td>
<td>2.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>-0.14</td>
<td>-1.23</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>IM</td>
<td>-0.15</td>
<td>-1.54</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

* p<0.05  **p<0.01

Finally, a hierarchical regression was performed on Inspirational Motivation, Organisational Context and Innovation to confirm the mediational model. Table 8 establishes the independent variable has no effect when the mediator is controlled. Therefore, a perfect mediation is confirmed according to the criteria for mediation stipulated by Baron and Kenny (1986).
Table 8. Results of Regression Inspirational Motivation on Innovation (controlling for Organizational Context)

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>T</th>
<th>R² Change</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
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<td>12.92</td>
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<tr>
<td></td>
<td>IM</td>
<td>-0.06</td>
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<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>OE</td>
<td>0.54</td>
<td>11.74</td>
<td>0.004</td>
</tr>
</tbody>
</table>

*p<0.05 **p<0.01

Figure 1 illustrates the research findings of the positive relationships between Transformational leadership styles of Individual Consideration and Inspirational Motivation, Organisational Context and innovation.

DISCUSSION

Transformational leadership is theoretically predicted to influence both context and outcomes. Although evidence of a link among transformational leadership and innovation exists, it is often not
direct, rather leadership exerts its influence through mediating elements of the organizational context. Bass describes four facets of transformational leadership, which should produce transformation and by definition innovation. Theoretically, inspirational motivation, idealized influence (charismatic behaviour and attributions) and more particularly intellectual stimulation would be expected to predict innovative behaviours by influencing or creating a context in which innovation should flourish.

Similarly, individualized consideration should enable followers to go beyond expectations and achieve remarkable, possibly innovative performance. This study explored the relationship between leadership, context and innovation. A number of hypotheses were generated from the literature and tested. First, hypothesis 1 and la predicted a positive relationship between leadership and innovation and in particular the facet of intellectual stimulation was expected to have the strongest impact. These hypotheses were partially supported. Two of the four facets of transformational leadership positively impacted innovation; individualized consideration had a direct effect on innovation and inspirational motivation had an affect on innovation through impacting on the organizational context. Although, theoretically implicated, intellectual stimulation did not relate to innovation in the manufacturing context. Second, organizational context, specifically, open culture, positive attitude to change, effective and transparent people management practices and high morale was strongly implicated in support for new ideas and innovative performance. Finally, leadership and context were examined simultaneously in terms of their relative contribution to innovation. We found that context emerged as the strongest predictor of innovation, and as noted a single facet of transformational leadership, inspirational motivation and individualised consideration respectively continued to have small direct and indirect effects on innovation. This model however, accounted for a substantial 57% of variance in innovation, which paves the way for explicating those elements on which organizations need to focus in order to generate innovation.

In summary, this study has further unpacked those contextual elements important for innovation and identified particular leader behaviours that specifically impact context and innovation. Determining those leadership behaviours that result in innovation is important for both selection and development of future leaders - a finer analysis at the facet level impacts of transformational leadership offers specific guidance for such interventions.
REFERENCES


Table 1: Age and Employment Data of Survey Sample

<table>
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<th>Min</th>
<th>Max</th>
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<td>Age at 1 Nov 2004</td>
<td>44.19</td>
<td>8.89</td>
<td>20</td>
<td>64</td>
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<tr>
<td>Length of employment in company (yrs)</td>
<td>8.98</td>
<td>8.13</td>
<td>0.1</td>
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<tr>
<td>Length of employment in organisation (yrs)</td>
<td>9.24</td>
<td>8.03</td>
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<tr>
<td>Length of employment in role (yrs)</td>
<td>5.68</td>
<td>5.44</td>
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<tr>
<td>Length of people management position (yrs)</td>
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<td>9.75</td>
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<td>40</td>
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<tr>
<td>Direct Reports</td>
<td>7.32</td>
<td>11.77</td>
<td>0.0</td>
<td>83</td>
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Table 2: Gender of Survey Sample

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<tr>
<th></th>
<th>Number</th>
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<tr>
<td>Male</td>
<td>131</td>
<td>86.18%</td>
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<tr>
<td>Female</td>
<td>21</td>
<td>13.82%</td>
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<tr>
<td>Total</td>
<td>152</td>
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Table 3. Mean, standard deviations, alphas and correlations of study variables

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach α</th>
<th>IC</th>
<th>II</th>
<th>IM</th>
<th>OE</th>
<th>Innovat</th>
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<td>IS</td>
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<td>0.75(**)</td>
<td>0.71(**)</td>
<td>0.60(**)</td>
<td>0.46(**)</td>
<td>0.35(**)</td>
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<tr>
<td>IC</td>
<td>13.23</td>
<td>3.51</td>
<td>0.77</td>
<td>0.77(**)</td>
<td>0.71(**)</td>
<td>0.50(**)</td>
<td>0.43(**)</td>
<td></td>
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<tr>
<td>II</td>
<td>28.73</td>
<td>6.56</td>
<td>0.86</td>
<td>0.82(**)</td>
<td></td>
<td>0.53(**)</td>
<td>0.34(**)</td>
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</tr>
<tr>
<td>IM</td>
<td>14.98</td>
<td>3.86</td>
<td>0.88</td>
<td></td>
<td></td>
<td>0.55(**)</td>
<td>0.35(**)</td>
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<tr>
<td>OE</td>
<td>17.97</td>
<td>3.80</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.76(**)</td>
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</table>
** Correlation is significant at the 0.01 level (2-tailed)

Table 4. Results of Regression Leadership Style on Organizational Context

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<th>t</th>
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<td>0.32</td>
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<td>.09</td>
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<tr>
<td>IM</td>
<td>.32</td>
<td>2.67*</td>
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* p<0.05  ** p<0.01

Table 5. Results of Regression Leadership Style on Innovation

<table>
<thead>
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<th>T</th>
<th>Adjusted R²</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>IS</td>
<td>.06</td>
<td>0.51</td>
<td>0.17</td>
<td>8.29**</td>
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<td>IC</td>
<td>.36</td>
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<td>IM</td>
<td>.11</td>
<td>0.79</td>
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* p<0.05  ** p<0.01

Table 6. Results of Regression Organizational Context on Innovation

<table>
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<th>T</th>
<th>Adjusted R²</th>
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<tbody>
<tr>
<td>OE</td>
<td>0.76</td>
<td>14.10**</td>
<td>0.57</td>
<td>198.73**</td>
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* p<0.05  ** p<0.01