



*MANAGEMENT OF INNOVATION
AND NEW TECHNOLOGY
RESEARCH CENTRE*


**THE MEASUREMENT OF
TRANSFORMATIONAL LEADERSHIP REVISITED:
CONFIRMING THE MLQ FACTOR STRUCTURE
IN AUTONOMOUS WORK TEAMS**

by
Laurent M. Lapierre

Management of Innovation and New Technology
Research Centre

WORKING PAPER NO. 91
1999

McMaster
University
MICHAEL G. DEGROOTE
SCHOOL OF BUSINESS



Innis
~~REF.~~
HD
45
.W657
no.91

**THE MEASUREMENT OF
TRANSFORMATIONAL LEADERSHIP REVISITED:
CONFIRMING THE MLQ FACTOR STRUCTURE
IN AUTONOMOUS WORK TEAMS**

by
Laurent M. Lapierre

Management of Innovation and New Technology
Research Centre

WORKING PAPER NO. 91
1999

The Working Paper series is intended as a means whereby a researcher may communicate his or her thoughts and findings to interested readers for their comments. The paper should be considered preliminary in nature and may require substantial revision. Accordingly, this Working Paper should not be quoted nor the data referred to without the written consent of the author. Your comments and suggestions are welcome and should be directed to the author.

McMASTER UNIVERSITY LIBRARY

The measurement of transformational leadership revisited: Confirming the MLQ factor
structure in autonomous work teams

by

Laurent M. Lapierre

October 13, 1999

Michael G. DeGroote School of Business

McMaster University

Abstract

The purpose of this study was to confirm the factor structure of the Multifactor Leadership Questionnaire (MLQ) when used to measure leadership behaviours in self-managed teams. Many leadership theorists argue that leadership plays a fundamental role in the success of teams. Research by Bernard M. Bass and associates suggests that transformational versus transactional leadership results in positive outcomes for individuals, groups, as well as organizations. This study sought to assess whether Bass and Avolio's (1998) MLQ scale can be used to accurately measure transformational and transactional behaviours in a leaderless team setting. Results suggest the MLQ does not retain its factor structure in such a setting, thereby eliminating any practical use for the scale in that setting. Practical and theoretical implications are discussed.

The measurement of transformational leadership revisited: Confirming the MLQ factor structure in autonomous work teams

The use of teams in organizations has been increasing significantly over the past few years. The Conference Board of Canada has collected data indicating that only 13 percent of 109 surveyed member organizations have not implemented some form of teamwork (Booth, 1994). The rapidly growing interest by organizations in using teams as a strategic human resource management tool is explained by the fact that they face constant pressure to flatten the traditional resource intensive hierarchy and maintain a structure that fosters employee involvement and constant adaptation to the changing environment (Handy, 1989). One particular type of team that has been perceived by organizations as a useful means of attaining these objectives is the autonomous work team (Cohen, 1993; Hollenbeck, LePine, Ilgen, 1996). Autonomous work teams (also referred to as self-managed work groups) are characterized by the team taking responsibility for completion of a whole task and for team maintenance functions (e.g., conflict resolution, leadership, decision making, etc.), as well as having discretion over work allocation within the team (Cannon-Bowers, Oser, & Flanagan, 1992). The use of such teams is increasingly popular in organizations (Cohen, 1993). There is also evidence suggesting these teams can produce dynamic benefits when implemented correctly (Jourden & Heath, 1996; Martha, Harker, & Messerman, 1994; Morley & Heraty, 1995; Kirk, 1995; Steven, 1995; Philips, 1994; Davenport, 1994; Buggie, 1995; Anfuso, 1994; Reiste & Hubrich, 1995).

Many would argue that one of the requirements for effective team functioning is team leadership. Likert (1961) has suggested that in highly effective groups, many of the

group functions are performed either by the leader or by the group member, depending upon the situation or requirements of the moment. Leaders establish and maintain the atmosphere and relationships within the team, thereby enabling communication, influence, decision-making, and the effective performance of group processes.

Greenberg, Baron, Sales, and Owen (1997) stated that “team leaders have to build consensus and must allow team members to make decisions together.” Greenberg et al. suggest that leadership in teams is not like the traditional leadership concept. It is a special leadership situation in which the leader must be able to provide leadership while acting as an equal to other team members. In a similar vein, Maier (1970) suggested that a group leader must be skillful in conducting a discussion so that (s)he does not appear to be dominating the group.

Rubin and Beckhard (1972) presented yet another important consideration for the role of leadership in the team context, where they suggest that for effective functioning, a group needs many acts of leadership, not necessarily one leader but many leaders. Guion (1998) seems to support this view and asserts that “anyone in the group can play a leadership role, that different members serve leadership functions at different times. Such functions include deflecting a group from an unproductive path, suggesting alternative courses, raising critical questions, evaluating the group’s options, planning, coordinating, monitoring progress, giving useful feedback to others – in short, influencing group activity. If a group is truly functioning as a team, each member must at times play a leadership role – and do it effectively.” However, recent research on emergent leadership in initially leaderless work groups suggests that groups with one or

two emergent leaders can outperform groups where there is no emergent leadership (De Souza & Klein, 1995).

In short, there is considerable support for the importance of leadership perceptions or behaviours within a group or team, though there is still debate as to whether effectiveness is contingent upon all members sharing the leadership responsibility, or upon one or two members assuming or emerging within a leadership role. This question is important since leaders are not assigned to autonomous work teams. The leadership function must be worked out among the members.

One of the difficulties in addressing this issue is the diverse methods with which leadership has been measured in groups. Where some researchers would use scales addressing established constructs such as socioemotional and task-oriented leadership (Sorrentino, 1973; Sorrentino & Field, 1986), others have used measures as simple as asking group or team members to identify who they believe has emerged as the leader (Anderson & Wandberg, 1991). In addition, the potential validity these measures might have in predicting leader or group effectiveness has rarely been explored. Thus, before empirically investigating whether team effectiveness is contingent upon one or two emergent leaders or on leadership being demonstrated by the majority of team members, it is necessary to first determine which scale would be most valid as a measure of members' leadership style or behaviours within autonomous groups.

Bernard Bass' work on scales of transformational versus transactional leadership has received considerable attention in the academic literature (Bass, 1998). This conceptualization of leadership was intended as an improvement over previous leadership models that fell short in explaining the "full range" of leadership styles (Bass

& Avolio, 1998). Building upon ideas generated by Burns (1978), Bass (1985) developed the concepts of transformational and transactional leadership within business organizations. Specifically, leaders who identified the needs of their followers and exchanged rewards for appropriate levels of effort and performance are viewed as transactional leaders. Transformational leadership on the other hand is seen as moving beyond transactions to increase the level of followers' awareness for valued outcomes by expanding and elevating their needs and encouraging them to transcend their self-interests. These value shifts in employees have been shown to result in greater employee motivation, self-efficacy, commitment, and individual, group as well as organizational performance (Avolio & Bass, 1995; Bass, 1998; Bass & Avolio, 1994; Bycio, Hackett, & Allen, 1995). Such results would lend support to the "augmentation hypothesis", which states that measures of transformational leadership should predict performance and satisfaction outcomes beyond what can be accounted for by the transactional scales but not vice-versa (Hater & Bass; Waldman, Bass, & Yamarino, 1990).

The current and most common scale used to measure components of both transformational and transactional leadership is the Multifactor Leadership Questionnaire (MLQ – Form 5x-short). This scale is said to measure a total of nine factors, five transformational factors, three transactional factors, and one nonleadership factor. The five transformational factors include:

- Idealized Influence (or Charisma), which refers to the extent to which leaders are perceived as role models by their subordinates. These leaders are admired, respected, and trusted. Such leaders consider the needs of others over their own, share risks with followers, and are consistent rather than arbitrary. Finally, these leaders can be

counted on to do the right thing, demonstrating high standards of ethical and moral conduct. Idealized Influence has been broken down into “Attributed” and “Behaviour” factors, where the former refers to the impact charisma has on followers and the latter refers to actual charismatic behaviours exhibited by the leader.

- Inspirational Motivation, which refers to the extent to which leaders provide meaning and challenge to their followers’ work. Team spirit would be aroused by such leaders, as well as enthusiasm and optimism. This leader gets followers involved in envisioning attractive future states. He or she creates clearly communicated expectations that followers want to meet and also demonstrates commitment to goals and a shared vision.
- Intellectual Stimulation, which refers to the extent to which leaders stimulate their followers’ efforts to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways.
- Individualized Consideration, which refers to how leaders pay special attention to each individual’s needs for achievement and growth by acting as a coach or mentor.

The three transactional factors include:

- Contingent Reward, where the leader assigns or gets agreement on what needs to be done and rewards others in exchange for satisfactorily carrying out the assignment. Within the context of the team, rewards could include publicly recognizing another member’s efforts or contributions to the team’s goal.
- Management-by-Exception (MBE), which is divided into two factors, active and passive management-by-exception. In active MBE, the leader arranges to actively

monitor deviances from standards, mistakes, and errors in the follower's assignments and to take action immediately. In passive MBE, the leader waits passively for deviances, mistakes, and errors to occur and then takes corrective action.

Finally, the nonleadership component consists of Laissez-Faire Leadership (LF), which essentially is the avoidance or absence of leadership and is, by definition, the most inactive (as well as the most ineffective according to almost all research on the style).

Little research has investigated the extent to which the MLQ can be applied to the leaderless or autonomous work team context. Bass (1998) reported a study where ratings of transformational and transactional leadership behaviours in leaderless group discussions (LGDs) correlated .35 on average with subsequent ratings of these leadership facets obtained by participants' subordinates back on the job. Unfortunately, this study did not investigate the construct validity of the leadership scales in the leaderless context. The purpose of this study is therefore to confirm the factor structure of the latest form of the MLQ within the context of autonomous work teams.

The most recent version of the MLQ, the MLQ 5x-short, represents Avolio and Bass' (1991) attempt to address concerns other scholars have had with the lack of discriminant validity among the factors comprising previous versions of the MLQ (Hunt, 1991; Yukl, 1994). Avolio and Bass have argued that form 5x-short offers a more refined measurement scale of transformational, transactional, and LF leadership.

This study will employ Confirmatory Factor Analysis (CFA) as opposed to exploratory factor analysis (e.g., Principal Axis Factoring) given the extensive body of research on the general MLQ components which provides an adequate conceptual basis for confirming Form 5x-short's structure.

As is customary with confirmatory factor analyses, it is useful to compare several competing theoretical models in order to assess which one represents the data best. The competing models tested in this study included: (1) one general or global leadership factor model where all MLQ 5x-short items are highly intercorrelated; (2) a three correlated factors model which would involve a Transformational factor consisting of Idealized Influence (attributed and behaviour), Intellectual Stimulation, Individualized Consideration, and Inspirational Motivation, a Transactional factor consisting of MBE-Passive, MBE-Active, and Contingent Reward, and finally a nonleadership factor consisting only of Laissez-Faire; (3) a nine correlated factors model, consisting of Idealized Influence (attributed and behaviour), Intellectual Stimulation, Individualized Consideration, Inspirational Motivation, MBE-Passive, MBE-Active, Contingent Reward, and Laissez-Faire.

Method

Measure

As previously mentioned, the scale used in this study was the MLQ 5x-short, comprised of 45 items, 4 per leadership factor, and 3 per outcome measure factor (satisfaction with leadership, effectiveness of leadership, and extra effort given by follower). Scale items were slightly modified in order to permit both self- as well as peer-ratings of leadership. For example, instead of “treats me as an individual rather than just a member of a group” (Rater Form) or “I treat others as individuals rather than just as a member of a group” (Leader Form), the new item would be “treated group members as individuals rather than

just members of the group". Bass and Avolio (1998) have reported an average estimate of internal consistency across all nine factors of .85.

The MLQ items were part of a larger survey which included other items measuring leadership traits and behaviours. The total number of items in the survey was 79.

Sample and Procedure

The participants in this study were 144 undergraduate commerce students enrolled in a third-year course on Human Resource Management. The average participant age was approximately 22 years. One of the requirements of the course was to work on a group project with fellow students (approximately 3 to 5 students per group/team) and hand in a report at the end of the course. At the end of the 13-week course, the students were asked to use the questionnaire to evaluate themselves as well as each of their group project teammates. They were also informed that participation in this study was important for their class participation grade. Elimination of missing cases resulted in a usable sample of 114 for self-ratings and 127 for peer-ratings.

Analysis

Confirmatory Factor Analysis was executed using LISREL 8.14. Fit indices indicate the degree of empirical support for the conceptual distinctions of the different factors included in each model. Bollen (1989) suggested that several fit indices should be used in confirmatory factor analysis because of specific problems associated with each fit index. The following indices were used in the analysis: Chi-square, Normed Fit Index,

Nonnormed Fit Index, Parsimony Normed Fit Index, Comparative Fit Index, Incremental Fit Index, Goodness of Fit Index, Adjusted Goodness of Fit Index, Parsimony Goodness of Fit Index, and Standardized Root Mean Square Residual. These different fit indices will be compared across all three models in order to assess which one offers the best fit to the data. Separate CFAs will be run for both self- and peer-ratings. The use of the peer-ratings was deemed appropriate given the overall estimate of interrater agreement (*rwg*; James, Demaree, & Wolf, 1993) of .89 calculated for this sample, which falls above the .70 ballpark figure of a “good” amount of agreement (L.R. James, personal communication, February 4, 1987).

Results

Self-ratings

The correlations amongst all MLQ 5x-short leadership self-rating items are presented in Table 1. The fit indices for each of the three models are shown in Table 2. The LISREL fit indices suggest the nine-factor model Avolio and Bass argue underlies the MLQ 5x-short scale does not fit the self-ratings data. Specifically, the significant chi-square test ($\chi^2 = 906.81$, $p = 0.0$) indicates that the covariance matrix of the scale items constructed from the tested model was significantly different than the original covariance matrix. In addition, the alternative fit indices reported are all below the .90 benchmark recommended by Bentler and Bonett (1980).

However, despite the lack of fit between the nine-factor model and the data, it would appear this model offers a significant increase in fit compared to both the three-factor and the global factor models. Specifically, the chi-square associated with the nine-

factor model is significantly lower than the chi-squares associated with the three-factor ($\chi^2 = 1114.62$, $p = 0.0$) and the global factor ($\chi^2 = 1162.12$, $p = 0.0$) models at the .01 level of significance. The increments across all other fit indices from the single global factor to the nine-factor model also support this increase in fit. Unfortunately, this information is moot since the purpose of this study was to confirm the proposed factor structure of the MLQ 5x-short in order to eventually use the scale to measure leadership in autonomous work teams. The data have failed to support this structure.

Peer-ratings

The correlations amongst all MLQ 5x-short leadership peer-rating items are presented in Table 3. The fit indices for each of the three models are shown in Table 4. As with the self-ratings results, the nine-factor model does not appear to fit the peer-ratings data. The chi-square test ($\chi^2 = 1800.93$) was shown to be significant ($p = 0.0$) and the alternative fit indices reported are all below Bentler and Bonnett's (1980) .90 benchmark.

Again, it would appear the nine-factor model offers a significant increase in fit compared to both the three-factor and the global factor models. The difference between the chi-square associated with the nine-factor model is significantly lower than the chi-squares associated with the three-factor ($\chi^2 = 1725.08$, $p = 0.0$) and the global factor ($\chi^2 = 1800.93$, $p = 0.0$) models at the .01 level of significance. The increments across all alternative fit indices from the single global factor to the nine-factor model also support this increase in fit. However, as previously argued, these secondary results do not allow us to ignore the primary findings of this study, that the data have failed to support the MLQ's nine-factor structure.

Discussion

There are several possible reasons for which the suggested nine-factor structure did not fit the observed data. It is possible that the MLQ be inappropriate for an autonomous work team context where there is no assigned or formal leadership. In such a team context where equity is most certainly desired amongst team members, it might be difficult for them to differentially rate themselves or their fellow team members on traits or behaviours which obviously put the ratee “above” others in the team. It would not be surprising that the raters evaluate all of their members the same on most items, thereby reducing discrepancies between members as well distinctiveness among MLQ factors. This might especially be the case for transactional leadership behaviours such as Contingent Reward. It would be unlikely that team members acknowledge that another team member on equal footing be in a position to exchange particular rewards for a desired level of performance. This explanation is indirectly supported by Howell (1992) who suggests that transformational leadership is more likely to emerge in situations where the leader has more power and information than the follower(s). The autonomous work team does not present such a situation.

Also, it is possible that the conditions within which team members were working did not favor the emergence of transformational leadership. Bass (1985) has suggested that conditions of crisis, uncertainty, and turbulence make the emergence of charismatic leadership more likely than would stable, routine conditions. The fact that the group project students were working on only constituted twenty percent of their final grade in the course could therefore have reduced the likelihood or need for transformational

leadership. Thus, even if they were to produce a poor project, this might not result in a “crisis” for many students.

Another potential cause for these results is the level of motivation the students had in filling out the questionnaire. They could simply have not taken to survey seriously, especially given the little weight given to the group project. Motivation could have also been reduced by the fact that the course was essentially finished and that most students were probably more concerned with preparing their imminent final exams than filling out this survey. Finally, after handing in the completed survey some students commented that they found it quite lengthy. Thus, by having to rate themselves as well as each of their group members on each of the 79 items, it is likely they were less than conscientious when filling out the questionnaire.

Finally, it is possible that the relatively small sample size used for this study has yielded unreliable LISREL parameter estimates, thereby casting doubt on their interpretation.

Future confirmatory research on the factor structure of the MLQ in the autonomous work team context would probably yield more internally valid results by asking external observers to evaluate the leadership styles of team members, thereby reducing the potential impact of equity perceptions on ratings. Also, the questionnaire used to make the ratings should probably only include the MLQ in order to ensure that respondents conscientiously answer each item. Finally, it is important that ratings of leadership be evaluated in a situation where leadership is likely to emerge, such as one where the accomplishment of the project is of significant importance to group members.

Confirmatory research in an applied setting where the research project has been endorsed by senior management would probably be beneficial to this end.

References

- Anderson, S.D., & Wandberg, K.W. (1991). A convergent validity model of emergent leadership in groups. Small Group Research, 22 (3), 380-397.
- Anfuso, D. (1994). L.L. Bean's TQM efforts put people before processes. Personnel Journal, 73, 66-71.
- Avolio, B.J., & Bass, B.M. (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. Leadership Quarterly, 6, 199-218.
- Bass, B.M. & Avolio, B.J. (1998). MLQ Multifactor Leadership Questionnaire For Research Manual. Mind Garden, Redwood City, CA.
- Bass, B.M. (1985). Leadership and performance beyond expectations. New York: Free Press.
- Bass, B.M. (1998). Transformational leadership: Industry, military, and educational impact. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bass, B.M., & Avolio, B.J. (1994). Improving organizational effectiveness through transformational leadership. Thousand Oaks, CA: Sage Publications.
- Bentler, P.M., & Bonnett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin, 88 (3), 588-560.
- Bollen, K.A. (1989). Structural equations with latent variables. New York, NY: Wiley.
- Booth, P. (1994). Challenge and change: Embracing the team concept. Conference Board of Canada, report 123-94.
- Buggie, F.A. (1995). Expert innovation teams: A new way to increase productivity dramatically. Planning Review, 23(4), 26-31.
- Burns, J.M. (1978). Leadership. New York: Harper & Row.
- Bycio, P., Hackett, R.D., & Allen, J.S. (1995). Further assessments of Bass's (1985) conceptualization of transactional and transformational leadership. Journal of Applied Psychology, 80 (4), 468-478.
- Cannon-Bowers, J.A., Oser, R., & Flanagan, D.C. (1992). Work teams in industry: A selected review and proposed framework. In R.W. Swezey and E. Salas (Eds.), Teams: Their training and performance (pp.335-377). Norwood, NJ: Ablex Publishing.

- Cohen, S.G. (1993). New approaches to teams and teamwork. In J.R. Galbraith & E.E. Lawler III (Eds.) Organizing for the future: The new logic for managing complex organizations. New York: Jossey-Bass.
- Davenport, E.W. (1994). Winning the Baldrige Award. Chief Executive, 95(June), 36-39.
- De Souza, G., & Klein, H.J. (1995). Emergent leadership in the group goal-setting process. Small Group Research, 26 (4), 475-496.
- Greenberg, J., Baron, R., Sales, C., & Owen, F. (1997). Behavior in Organizations. New York: Prentice Hall.
- Guion, R.M. (1998). Assessment, measurement, and prediction for personnel decisions. Mahwah, NJ: Lawrence Erlbaum Associates.
- Handy, C. (1989). The Age of Unreason. London: Hutchinson.
- Hater, J.J., & Bass, B.M. (1988). Superiors' evaluations and subordinates perceptions of transformational and transactional leadership. Journal of Applied Psychology, 73, 695-702.
- Hollenbeck, J.R., LePine, J.A., & Ilgen, D.R. (1996). Adapting to roles in decision making teams. In K.R. Murphy, (Ed.), Individual Differences and Behavior in Organizations, San Francisco, CA: Jossey-Bass.
- Howell (1992)
- Hunt, J.(1991). Leadership: A new synthesis. Thousand Oaks, CA: Sage Publications.
- James, L.R., Demaree, R.G., & Wolf, G. (1993). rwg: An assessment of within-group interrater agreement. Journal of Applied Psychology, 78 (2), 306-309.
- Jourden, F.L., & Heath, C. (1996). The evaluation gap in performance perceptions: Illusory perceptions of groups and individuals. Journal of Applied Psychology, 81(4), 369-379.
- Kirk, J. (1995). DMB&D, Meldrum and Fewsmith test the reengineering waters. Adweek, 36(35), 7.
- Likert, R. (1961). The nature of highly effective groups: New patterns of management. New York: McGraw-Hill Book Company.
- Maier, N.R.F. (1970). Leadership principles for problem solving conferences. Problem Solving and Creativity.

Martha, W., Harker, J.O., & Messerman, L.I. (1994). Interdisciplinary team training and diversity: Problems, concepts and strategies. Gerontology and Geriatrics Education, 15 (1), 65-82.

Morley, M. & Heraty, N. (1995). The high-performance organization: Developing team work where it counts. Management Decision, 33 (2), 56-63.

Philips, S. (1994). Competitive advantage through people: Unleashing the power of the work force. Boston: Harvard Business School Press.

Reiste, K.K. & Hubrich, A. (1995). How to implement successful work teams: Learning from the frigidaire experience. National Productivity Review, 14(4), 45-55.

Rubin, I., & Beckhard, R. (1972). Factors influencing the effectiveness of health teams. Milbank Quarterly, July, 317-335.

Sorrentino, R.M. (1973). An extension of theory of achievement motivation to the study of emergent leadership. Journal of Personality and Social Psychology, 26 (3), 356-368.

Sorrentino, R.M., & Field, N. (1986). Emergent leadership over time: The functional value of positive motivation. Journal of Personality and Social Psychology, 50 (6), 1091-1099.

Steven, M.G. (1995). New England: Non-traditional services expand. Practical Accountant, 28 (4), 55-56.

Waldman, D.A., Bass, B.M., & Yamarino, F.J. (1990). Adding to contingent-reward behavior: The augmenting effect of charismatic leadership. Group & Organizational Studies, 15, 381-394.

Yukl, G. (1994). Leadership in Organization. Englewood Cliffs, NJ: Prentice-Hall.

Table 1

Covariance matrix for self-ratings data.

	CR1	IS1	MBE-P1	MBE-A1	LF1	II-B1	LF2	IS2	IM1	II-A1	CR2
CR1	1.08										
IS1	0.38	0.98									
MBE-P1	-0.12	0.04	1.22								
MBE-A1	0.09	0.35	0.28	2.04							
LF1	-0.12	-0.19	0.28	0.18	0.91						
II-B1	0.29	0.31	0.17	0.43	0.19	1.72					
LF2	-0.13	-0.21	0.16	-0.01	0.37	0.08	0.62				
IS2	0.36	0.48	-0.13	0.44	-0.02	0.35	-0.01	1.36			
IM1	0.48	0.56	-0.08	-0.01	-0.20	0.38	-0.05	0.70	1.90		
II-A1	0.65	0.43	-0.08	0.09	0.02	0.52	-0.03	0.59	0.89	1.77	
CR2	0.39	0.29	-0.05	0.20	-0.27	0.35	-0.22	0.20	0.43	0.72	1.50
MBE-P2	0.03	-0.14	0.29	0.14	0.40	0.11	0.29	0.03	-0.05	0.02	-0.14
IM2	0.73	0.43	-0.18	0.03	-0.05	0.42	-0.10	0.47	0.80	0.86	0.55
II-B2	0.54	0.38	-0.17	0.31	-0.09	0.30	-0.03	0.32	0.66	0.82	0.57
IC1	0.57	0.37	0.01	0.32	-0.10	0.39	-0.09	0.51	0.58	0.77	0.20
CR3	0.28	0.58	-0.05	0.39	-0.06	0.44	-0.14	0.47	0.86	0.50	0.52
MBE-P3	0.21	0.17	0.23	0.17	0.20	0.19	0.21	0.45	0.33	0.42	-0.07
II-A2	0.40	0.33	-0.14	0.23	-0.22	0.16	-0.25	0.53	0.39	0.58	0.49
IC2	0.35	0.33	-0.12	-0.10	-0.16	0.16	-0.18	0.23	0.43	0.40	0.00
MBE-P4	-0.05	0.04	0.59	0.26	0.51	0.31	0.21	0.06	0.05	0.14	-0.16
II-A3	0.35	0.31	-0.05	0.09	-0.26	-0.08	-0.31	0.23	0.45	0.46	0.40
MBE-A2	0.30	0.44	0.21	0.76	0.00	0.48	-0.02	0.38	0.54	0.72	0.52
II-B3	0.51	0.59	-0.01	0.55	-0.03	0.58	0.05	0.54	0.56	0.63	0.32
MBE-A3	0.12	0.30	0.13	0.70	0.35	0.32	0.14	0.10	0.12	0.10	-0.22
II-A4	0.41	0.44	-0.02	0.43	-0.02	0.33	-0.18	0.51	0.56	0.70	0.54
IM3	0.39	0.43	-0.01	0.25	-0.16	0.21	-0.22	0.23	0.68	0.57	0.54
MBE-A4	0.22	0.53	0.41	0.97	0.23	0.36	0.05	0.25	0.22	0.16	-0.08
LF3	-0.20	-0.06	0.43	-0.01	0.19	0.16	0.20	-0.25	0.15	-0.18	-0.51
IC3	0.28	0.25	-0.15	0.12	-0.12	0.09	-0.08	0.42	0.57	0.42	0.33
IS3	0.38	0.53	-0.01	0.38	-0.19	0.38	-0.19	0.67	0.55	0.48	0.31
IC4	0.38	0.39	-0.07	-0.05	-0.17	0.20	-0.06	0.50	0.71	0.56	0.35
IS4	0.46	0.26	-0.10	0.06	0.04	0.37	-0.13	0.17	0.46	0.70	0.35
LF4	-0.18	-0.15	0.41	-0.12	0.23	0.12	0.23	-0.10	0.03	-0.13	-0.38
II-B4	0.43	0.64	-0.22	0.20	-0.27	0.26	-0.21	0.57	0.86	0.75	0.60
CR4	0.27	0.23	-0.22	0.02	-0.17	0.12	-0.18	0.12	0.26	0.52	0.24
IM4	0.36	0.36	-0.37	0.09	0.02	0.21	-0.12	0.31	0.63	0.61	0.35

Note. II-A = Idealized Influence (Attributed), II-B = Idealized Influence (Behaviour), IM = Inspirational Motivation, IS = Intellectual Stimulation, IC = Individual Consideration, CR = Contingent Reward, MBE-A = Mgt-by-Exception (Active), MBE-P = Mgt-by-Exception (Passive), and LF = Laissez-Faire Leadership.

MBE-P2	IM2	II-B2	IC1	CR3	MBE-P3	II-A2	IC2	MBE-P4	II-A3	MBE-A2	II-B3
--------	-----	-------	-----	-----	--------	-------	-----	--------	-------	--------	-------

0.98											
-0.15	1.54										
-0.04	0.71	1.42									
0.10	0.64	0.76	1.79								
-0.12	0.41	0.60	0.85	1.79							
0.50	0.09	0.06	0.29	0.04	1.85						
-0.18	0.48	0.34	0.53	0.44	0.04	1.32					
-0.10	0.37	0.26	0.32	0.12	0.13	0.44	1.76				
0.46	-0.16	0.08	0.13	0.19	0.49	-0.19	-0.14	1.52			
-0.21	0.41	0.35	0.29	0.44	-0.12	0.55	0.39	-0.12	0.98		
0.00	0.30	0.62	0.46	0.27	0.33	0.31	0.52	0.10	0.31	2.07	
0.14	0.46	0.69	0.79	0.53	0.26	0.44	0.35	0.29	0.25	0.83	1.86
0.22	-0.03	0.22	0.28	0.36	0.29	-0.01	-0.03	0.55	0.05	0.54	0.79
0.07	0.53	0.44	0.59	0.52	0.42	0.51	0.18	0.20	0.35	0.60	0.50
-0.08	0.46	0.46	0.63	0.83	0.10	0.47	0.32	0.01	0.47	0.40	0.47
0.20	0.30	0.38	0.43	0.42	0.39	0.26	-0.06	0.36	0.04	0.55	0.71
0.21	-0.14	-0.13	0.01	0.11	0.33	-0.31	0.15	0.29	-0.17	0.10	0.05
-0.04	0.45	0.37	0.35	0.46	0.15	0.56	0.37	-0.16	0.39	0.39	0.28
-0.29	0.48	0.44	0.47	0.46	0.07	0.46	0.19	0.07	0.28	0.49	0.58
-0.06	0.59	0.54	0.67	0.55	0.09	0.61	0.52	-0.19	0.37	0.46	0.58
0.06	0.59	0.53	0.78	0.67	0.11	0.44	0.48	0.15	0.51	0.29	0.57
0.25	-0.14	-0.19	-0.04	-0.15	0.33	-0.26	-0.03	0.34	-0.21	-0.05	0.15
-0.19	0.65	0.78	0.77	0.99	0.20	0.77	0.63	-0.07	0.60	0.54	0.68
-0.14	0.23	0.31	0.27	0.28	-0.17	0.44	0.51	-0.12	0.35	0.33	0.19
-0.09	0.59	0.53	0.40	0.61	0.07	0.47	0.45	0.01	0.38	0.43	0.37

MBE-A3 II-A4 IM3 MBE-A4 LF3 IC3 IS3 IC4 IS4 LF4 II-B4 CR4

2.02												
0.38	1.43											
0.22	0.85	1.42										
0.90	0.57	0.45	1.96									
0.45	-0.09	0.09	0.24	1.53								
0.18	0.39	0.43	0.10	-0.05	1.36							
0.16	0.59	0.48	0.36	-0.36	0.49	1.28						
0.12	0.53	0.66	0.44	-0.12	0.53	0.65	1.57					
0.42	0.55	0.66	0.30	-0.03	0.46	0.49	0.82	1.63				
0.36	-0.12	0.01	0.30	0.65	-0.06	-0.16	0.11	0.03	1.33			
0.32	0.92	1.05	0.50	-0.09	0.66	0.65	0.95	0.81	-0.04	1.83		
0.09	0.33	0.25	-0.03	-0.13	0.41	0.21	0.40	0.54	-0.19	0.54	1.18	
0.30	0.56	0.47	0.23	-0.02	0.41	0.31	0.64	0.66	-0.20	0.86	0.68	

IM4

1.18

Table 2

LISREL 8.14 Fit Statistics for the one-, three-, and nine-factor models (self-ratings).

Model	Chi-Square	df	NFI	NNFI	PNFI	CFI	IFI	GFI	AGFI	PGFI	SRMSR
1 Factor	11662.12	594	0.44	0.58	0.41	0.6	0.61	0.6	0.55	0.54	0.11
3 Factor	1114.62	591	0.46	0.61	0.43	0.63	0.64	0.63	0.58	0.56	0.11
9 Factor	906.81	558	0.56	0.73	0.5	0.76	0.77	0.71	0.65	0.6	0.09

Note. NFI = Normed Fit Index, NNFI = Nonnormed Fit Index, PNFI = Parsimony Normed Fit Index, CFI = Comparative Fit Index,

IFI = Incremental Fit Index, GFI = Goodness of Fit Index, PGFI = Parsimony Goodness of Fit Index,

AGFI = Adjusted Goodness of Fit Index, and SRMR = Standardized Root Mean Square Residual.

Table 3

Covariance matrix for peer-ratings data.

	CR1	IS1	MBE-P1	MBE-A1	LF1	II-B1	LF2	IS2	IM1	II-A1	CR2
CR1	0.58										
IS1	0.28	0.48									
MBE-P1	-0.10	-0.13	0.51								
MBE-A1	0.22	0.17	-0.03	0.91							
LF1	-0.15	-0.13	0.18	0.06	0.50						
II-B1	0.12	0.13	-0.02	0.18	0.07	0.64					
LF2	-0.05	-0.13	0.25	0.07	0.23	0.13	0.73				
IS2	0.25	0.28	-0.06	0.24	-0.09	0.14	0.00	0.72			
IM1	0.23	0.20	-0.07	0.12	-0.15	0.19	-0.04	0.29	0.61		
II-A1	0.33	0.26	-0.10	0.24	-0.10	0.13	-0.01	0.36	0.40	0.68	
CR2	0.30	0.23	-0.13	0.11	-0.21	0.03	-0.06	0.27	0.19	0.38	0.67
MBE-P2	-0.03	-0.05	0.19	-0.01	0.21	0.15	0.33	-0.03	-0.02	-0.04	-0.06
IM2	0.31	0.21	-0.19	0.03	-0.12	0.11	-0.05	0.17	0.33	0.35	0.27
II-B2	0.27	0.20	-0.12	0.18	-0.14	0.12	0.01	0.21	0.33	0.37	0.28
IC1	0.39	0.34	-0.15	0.21	-0.15	0.21	-0.03	0.30	0.32	0.40	0.33
CR3	0.21	0.23	-0.06	0.18	-0.14	0.14	-0.03	0.29	0.27	0.29	0.27
MBE-P3	-0.02	-0.04	0.09	0.16	0.14	0.09	0.18	0.10	0.02	0.08	-0.08
II-A2	0.31	0.21	-0.20	0.24	-0.23	-0.02	-0.21	0.23	0.22	0.39	0.34
IC2	0.15	0.15	-0.21	-0.09	-0.18	0.08	-0.08	0.17	0.30	0.37	0.18
MBE-P4	-0.05	-0.09	0.18	0.12	0.13	0.14	0.26	0.10	0.01	0.03	0.04
II-A3	0.21	0.10	-0.11	0.14	-0.11	0.03	-0.05	0.09	0.18	0.21	0.19
MBE-A2	0.34	0.18	0.02	0.28	-0.05	0.17	-0.01	0.28	0.31	0.45	0.30
II-B3	0.32	0.23	-0.07	0.22	-0.05	0.18	0.11	0.26	0.19	0.26	0.18
MBE-A3	0.22	0.16	0.04	0.44	0.20	0.20	0.22	0.16	0.16	0.17	0.03
II-A4	0.25	0.29	-0.06	0.36	-0.09	0.15	-0.01	0.25	0.07	0.22	0.20
IM3	0.28	0.20	-0.05	0.23	-0.19	0.11	0.02	0.25	0.26	0.31	0.30
MBE-A4	0.23	0.12	0.11	0.47	0.12	0.20	0.14	0.12	0.07	0.11	-0.02
LF3	-0.19	-0.14	0.21	-0.05	0.27	0.12	0.26	-0.23	-0.06	-0.17	-0.31
IC3	0.14	0.10	-0.08	-0.03	-0.04	-0.01	-0.03	0.07	0.19	0.19	0.10
IS3	0.23	0.24	-0.10	0.16	-0.17	0.11	-0.07	0.27	0.22	0.25	0.20
IC4	0.14	0.13	-0.10	-0.04	-0.14	-0.02	-0.09	0.09	0.17	0.18	0.17
IS4	0.28	0.23	-0.20	0.19	-0.17	0.14	-0.05	0.15	0.20	0.28	0.30
LF4	-0.19	-0.13	0.28	-0.04	0.22	0.00	0.31	-0.08	-0.13	-0.18	-0.23
II-B4	0.21	0.30	-0.18	0.17	-0.19	0.09	-0.14	0.29	0.35	0.39	0.33
CR4	0.27	0.24	-0.27	0.23	-0.15	0.06	-0.17	0.12	0.17	0.30	0.28
IM4	0.26	0.25	-0.23	0.21	-0.05	0.09	-0.18	0.09	0.22	0.33	0.21

Note. II-A = Idealized Influence (Attributed), II-B = Idealized Influence (Behaviour), IM = Inspirational Motivation, IS = Intellectual Stimulation, IC = Individual Consideration, CR = Contingent Reward, MBE-A = Mgt-by-Exception (Active), MBE-P = Mgt-by-Exception (Passive), and LF = Laissez-Faire Leadership.

MBE-P2	IM2	II-B2	IC1	CR3	MBE-P3	II-A2	IC2	MBE-P4	II-A3	MBE-A2	II-B3
0.52											
-0.08	0.62										
-0.08	0.34	0.61									
-0.02	0.35	0.40	0.78								
0.02	0.14	0.35	0.47	0.73							
0.19	-0.18	-0.01	-0.08	-0.05	0.81						
-0.18	0.28	0.22	0.32	0.20	-0.07	0.73					
-0.06	0.32	0.09	0.21	-0.07	-0.13	0.41	1.15				
0.25	-0.18	0.04	-0.03	0.11	0.25	-0.22	-0.14	0.67			
-0.05	0.21	0.21	0.24	0.18	-0.07	0.30	0.19	-0.12	0.43		
-0.01	0.29	0.26	0.30	0.13	0.11	0.33	0.20	-0.06	0.18	0.95	
0.04	0.29	0.26	0.35	0.21	-0.01	0.24	0.20	0.03	0.12	0.34	0.66
0.13	0.11	0.17	0.21	0.10	-0.01	0.00	-0.03	0.13	0.06	0.17	0.26
-0.04	0.13	0.18	0.25	0.12	0.04	0.19	0.09	0.03	0.10	0.20	0.18
-0.01	0.18	0.32	0.37	0.32	-0.05	0.28	0.17	0.09	0.22	0.23	0.20
0.14	0.09	0.09	0.18	0.09	0.12	0.06	-0.21	0.08	0.04	0.28	0.28
0.23	-0.17	-0.14	-0.04	0.02	0.04	-0.29	-0.11	0.17	-0.11	-0.14	0.03
-0.01	0.21	0.15	0.19	0.12	-0.18	0.15	0.29	-0.13	0.20	0.07	0.06
-0.08	0.20	0.25	0.23	0.23	-0.08	0.23	0.17	-0.08	0.14	0.23	0.16
-0.04	0.25	0.18	0.29	0.17	-0.26	0.21	0.18	-0.19	0.15	0.12	0.11
-0.07	0.32	0.29	0.40	0.25	-0.23	0.27	0.29	-0.08	0.25	0.11	0.21
0.24	-0.18	-0.18	-0.15	-0.12	0.11	-0.24	-0.20	0.10	-0.06	-0.14	-0.07
-0.06	0.25	0.32	0.40	0.39	-0.15	0.34	0.26	-0.05	0.20	0.25	0.15
-0.19	0.20	0.16	0.31	0.16	-0.15	0.33	0.42	-0.17	0.22	0.17	0.19
-0.07	0.30	0.20	0.28	0.19	-0.11	0.39	0.32	-0.16	0.24	0.27	0.22

MBE-A3	II-A4	IM3	MBE-A4	LF3	IC3	IS3	IC4	IS4	LF4	II-B4	CR4
--------	-------	-----	--------	-----	-----	-----	-----	-----	-----	-------	-----

0.92											
0.27	0.62										
0.20	0.38	0.66									
0.47	0.27	0.21	0.74								
0.15	-0.18	-0.18	0.06	0.78							
0.05	0.02	0.08	-0.10	0.00	0.47						
0.09	0.25	0.25	0.07	-0.19	0.15	0.51					
0.02	0.10	0.22	0.00	-0.05	0.24	0.21	0.59				
0.24	0.26	0.36	0.09	-0.08	0.23	0.32	0.34	0.70			
0.15	0.00	-0.05	0.14	0.29	-0.02	-0.15	-0.03	-0.10	0.65		
0.11	0.22	0.38	0.05	-0.11	0.21	0.24	0.38	0.39	-0.17	0.73	
0.11	0.16	0.13	-0.05	-0.14	0.19	0.19	0.11	0.31	-0.31	0.25	0.66
0.13	0.15	0.13	0.10	-0.07	0.20	0.20	0.18	0.30	-0.24	0.33	0.40

IM4

0.63

Table 4

LISREL 8.14 Fit Statistics for the one-, three-, and nine-factor models (peer-ratings).

Model	Chi-Square	df	NFI	NNFI	PNFI	CFI	IFI	GFI	AGFI	PGFI	SRMSR
1 Factor	1800.93	594	0.41	0.47	0.38	0.5	0.51	0.51	0.45	0.46	0.13
3 Factor	1725.08	591	0.43	0.5	0.41	0.53	0.54	0.54	0.48	0.48	0.12
9 Factor	1461.47	558	0.52	0.58	0.46	0.63	0.64	0.62	0.55	0.52	0.11

Note. NFI = Normed Fit Index, NNFI = Nonnormed Fit Index, PNFI = Parsimony Normed Fit Index, CFI = Comparative Fit Index,

IFI = Incremental Fit Index, GFI = Goodness of Fit Index, PGFI = Parsimony Goodness of Fit Index,

AGFI = Adjusted Goodness of Fit Index, and SRMR = Standardized Root Mean Square Residual.

MANAGEMENT OF INNOVATION AND NEW TECHNOLOGY
WORKING PAPER SERIES

1. R.G. Cooper and E.J. Kleinschmidt, "How the New Product Impacts on Success and Failure in the Chemical Industry", February, 1992.
2. R.G. Cooper and E.J. Kleinschmidt, "Major New Products: What Distinguishes the Winners in the Chemical Industry", February, 1992.
3. J. Miltenburg, "On the Equivalence of JIT and MRP as Technologies for Reducing Wastes in Manufacturing, March, 1992.
4. J.B. Kim, I. Krinsky and J. Lee, "Valuation of Initial Public Offerings: Evidence from Korea", February, 1992.
5. M. Basadur and S. Robinson, "The New Creative Thinking Skills Needed for Total Quality Management to Become Fact, Not Just Philosophy", April, 1992.
6. S. Edgett and S. Parkinson, "The Development of New Services Distinguishing Between Success and Failure", April, 1992.
7. A.R. Montazemi and K.M. Gupta, "Planning and Development of Information Systems Towards Strategic Advantage of a Firm", April, 1992.
8. A.R. Montazemi, "Reducing the Complexity of MIS Innovation Through Hypermedia and Expert Systems", May, 1992.
9. M. Basadur and Bruce Paton, "Creativity Boosts Profits in Recessionary Times - Broadening the Playing Field", June, 1992.
10. Robert G. Cooper and Elko Kleinschmidt, "Stage-Gate Systems for Product Innovation: Rationale and Results", June, 1992.
11. S.A.W. Drew, "The Strategic Management of Innovation in the Financial Services Industry: An Empirical Study", July, 1992.
12. M. Shehata and M.E. Ibrahim, "The Impact of Tax Policies on Firms' R & D Spending Behavior: The Case of R & D Tax Credit", July, 1992.

13. Willi H. Wiesner, "Development Interview Technology: Implications for Innovative Organizations", July, 1992.
14. Isik U. Zeytinoglu, "Technological Innovation and the Creation of a New Type of Employment: Telework", August, 1992.
15. John W. Medcof, "An Integrated Model for Teaching the Management of Innovation in the Introduction to Organizational Behaviour Course", October, 1992.
16. Min Basadur, "The Why-What's Stopping Analysis: A New Methodology for Formulating Ill-Structured Problems", October, 1992.
17. Stephen A.W. Drew, "Strategy, Innovation and Organizational Learning an Integrative Framework, Case Histories and Directions for Research", November, 1992.
18. Stephen A.W. Drew, "Innovation and Strategy in Financial Services", November, 1992.
19. Scott Edgett, "New Product Development Practices for Retail Financial Services", November, 1992.
20. Robert G. Cooper and Elko J. Kleinschmidt, "New Product Winners and Losers: The Relative Importance of Success Factors - Perception vs. Reality", November, 1992.
21. Robert G. Cooper and Elko J. Kleinschmidt, "A New Product Success Factors Model: An Empirical Validation", November, 1992.
22. Robert G. Cooper & Elko J. Kleinschmidt, "Stage Gate Systems: A Game Plan for New Product Success", November, 1992.
23. Min Basadur, "Optimal Ideation-Evaluation Ratios", March, 1993.
24. Christopher K. Bart, "Gagging on Chaos", March, 1993.
25. Yufei Yuan, "The Role of Information Technology in Business Innovation", July, 1993.
26. Isik Ural Zeytinoglu, "Innovation in Employment: A Telework Experiment in Ontario", July, 1993.
27. John Miltenburg and David Sparling, "Managing and Reducing Total Cycle Time: Models and Analysis", August, 1993.
28. R.G. Cooper, C.J. Easingwood, S. Edgett, E.J. Kleinschmidt and C. Storey, "What Distinguishes the Top Performers in Financial Services", September, 1993.
29. B.E. Lynn, "Innovation and Accounting Research", September, 1993.

30. Min Basadur and Peter Hausdorf, "Measuring Additional Divergent Thinking Attitudes Related to Creative Problem Solving and Innovation Management", November, 1993.
31. R.G. Cooper and E.J. Kleinschmidt, "Determinants of Time Efficiency in Product Development", December, 1993.
32. Christopher K. Bart, "Back to the Future: Timeless Lessons for Organizational Success", February, 1994.
33. Ken R. Deal and Scott J. Edgett, "Determining Success Criteria for New Financial Products; A Comparative Analysis of CART, Logit and Discriminant Analysis", February, 1995.
34. Christopher K. Bart and Mark C. Baetz, "Does Mission Matter?", February, 1995.
35. Christopher K. Bart, "Controlling New Products: A Contingency Approach", February, 1995.
36. Christopher K. Bart, "Is Fortune Magazine Right? An Investigation into the Application of Deutschman's 16 High-Tech Management Practices", February, 1995.
37. Christopher K. Bart, "The Impact of Mission on Firm Innovativeness", February, 1995.
38. John W. Medcof, "Transnational Technology Networks", April, 1995.
39. R.G. Cooper and E.J. Kleinschmidt, "Benchmarking the Critical Success Factors of Firms' New Product Development Programs", April, 1995.
40. John W. Medcof, "Trends in Selected High Technology Industries", July, 1995.
41. Robert C. Cooper & E.J. Kleinschmidt, "Benchmarking Firms' New Product Performance & Practices", September, 1995.
42. Min Basadur and Darryl Kirkland, "Training Effects on the Divergent Thinking Attitudes of South American Managers", November, 1995.
43. Min Basadur, "Organizational Development Interventions for Enhancing Creativity in the Workplace", November, 1995.
44. Min Basadur, "Training Managerial Evaluative and Ideational Skills in Creative Problem Solving: A Causal Model", December, 1995.

45. Min Basadur, Pam Pringle and Simon Taggar, "Improving the Reliability of Three New Scales Which Measure Three New Divergent Thinking Attitudes Related to Organizational Creativity", December, 1995.
46. N. P. Archer and F. Ghasemzadeh, "Project Portfolio Selection Techniques: A Review and a Suggested Integrated Approach", February, 1996.
47. Elko J. Kleinschmidt, "Successful new product development in Australia: An empirical analysis", February, 1996.
48. Christopher K. Bart, "Industrial Firms & the Power of Mission," April, 1996.
49. N. P. Archer and F. Ghasemzadeh, "Project Portfolio Selection Management through Decision Support: A System Prototype," April, 1996.
50. John W. Medcof, "Challenges in Collaboration Management in Overseas Technology Units," April, 1996.
51. Susan L. Kichuk and Willi H. Wiesner, "Personality and Team Performance: Implications for Selecting Successful Product Design Teams," May, 1996.
52. Susan L. Kichuk and Willi H. Wiesner, "Selection Measures for a Team Environment: The Relationships among the Wonderlic Personnel Test, The Neo-FFI, and the Teamwork KSA Test, " May, 1996.
53. Susan L. Kichuk and Willi H. Wiesner, "Personality, Performance, Satisfaction, and Potential Longevity in Product Design Teams," June, 1996.
54. John W. Medcof, "Learning, Positioning and Alliance Partner Selection," June, 1996.
55. Scott J. Edgett, "The New Product Development Process for Commercial Financial Services," July, 1996.
56. Christopher K. Bart, "Sex, Lies & Mission Statements," September, 1996.
57. Stuart Mestelman and Mohamed Shehata, "The Impact of Research and Development Subsidies on the Employment of Research and Development Inputs," November, 1996.
58. Mark C. Baetz and Christopher K. Bart, "Developing Mission Statements Which Work," November, 1996.
59. Fereidoun Ghasemzadeh, Norm Archer and Paul Iyogun, "A Zero-One Model for Project Portfolio Selection and Scheduling," December, 1996.

60. R. G. Cooper, S. J. Edgett, E. J. Kleinschmidt, "Portfolio Management in New Product Development: Lessons from Leading Firms," February 1997.
61. R. G. Cooper, S. J. Edgett, E. J. Kleinschmidt, "Portfolio Management in New Product Development: Lessons from Leading Firms -- Part II," February 1997.
62. C. K. Bart, "A Comparison of Mission Statements & Their Rationales in Innovative and Non-Innovative Firms," February 1997.
63. R. Bassett, N. P. Archer and W. G. Truscott, "Data Webs: An Evaluation of an Innovative Information Management Tool that Integrates Databases with the World Wide Web," April 1997.
64. S. Taggar, "Intelligence, Personality, Creativity and Behaviour: The Antecedents of Superior Team Performance," April 1997.
65. R. Deaves and I. Krinsky, "New Tools for Investment Decision-Making: Real Options Analysis," May 1997.
66. J. W. Medcof (ed.), "Trends and Events in Selected High Technology Industries," May, 1997. (On the WEB only)
67. C. K. Bart, "Product Innovation Charters: A State-of-the-Art Review," May, 1997.
68. John W. Medcof, "Strategic Contingencies and Power in Networks of Internationally Dispersed R&D Facilities", August, 1997.
69. John W. Medcof, "Research Intensity and the Identification of High Technology Industries," September, 1997.
70. Christopher K. Bart and John C. Tabone, "Mission Statements in the Not-for-profit Health Care Sector: A State of the Art Review," September, 1997.
71. Elko J. Kleinschmidt, "In-house and Partnership New Product Development in Austria: An Empirical Analysis on Outcome and Explanatory Factors," October, 1997.
72. Robert G. Cooper, Scott J. Edgett and Elko J. Kleinschmidt, "R&D Portfolio Management Best Practices: Methods Used & Performance Results Achieved," January, 1998.
73. Christopher K. Bart and Simon Taggar, "A Model of the Impact of Mission Rationale, Content, Process and Alignment on Firm Performance," March, 1998.
74. Christopher K. Bart, John Parkinson and Simon Taggar, "The Implementation of Strategy: Behavioural vs Budgetary Approaches and the Effect of Participation," March, 1998.

75. John W. Medcof, "The Resource Based View and the New Competitive Landscape: Characterizing Positions of Dynamic Capability," May, 1998.
76. F. Ghasemzadeh and N. P. Archer, "Project Portfolio Selection Through Decision Support," June, 1998.
77. Y. Yuan, N. Archer, and R. Bassett, "The Impact of Electronic Commerce Innovations on Marketing Management," June, 1998.
78. Kenneth S. Chan, James Chowhan, Stuart Mestelman, Mohamed Shehata, "Value Orientations and Income and Displacement Effects," July 1998.
79. Min Basadur, Laurent Lapierre, "Predicting Creative Problem Solving Behaviors within Teams," September, 1998.
80. Min Basadur, "Simplex: Modelling the Phases and Stages of the Innovation Process in Open-System Organizations", October, 1998.
81. Ken Deal, Ben Long and Bryan Scott, "New Pricing Product Design for Competitive Advantage", November, 1998.
82. Min Basadur, Mark A. Runco and Luis A. Vega, "Understanding How Creative Thinking Skills, Attitudes and Behaviors Work Together in Real World Managerial Problem Solving," November, 1998.
83. Min Basadur, "The Basadur Simplex Creative Problem-Solving Profile Inventory: Development, Reliability and Validity", December, 1998.
84. Min Basadur, "Improving the Psychometric Properties of the Basadur Simplex Creative Problem Solving Profile Inventory," December, 1998.
85. Min Basadur, "Discovering the Right Questions about the Management of Technology Using Challenge Mapping," December, 1998.
86. Nick Bontis, "Managing an Organizational Learning System by Aligning Stocks and Flows of Knowledge: An Empirical Examination of Intellectual Capital, Knowledge Management, and Business Performance," January, 1999.
87. Nick Bontis and John Girardi, "Teaching Knowledge Management and Intellectual Capital Lessons: An Empirical Examination of the Tango Simulation," January, 1999.
88. Karen Boehnke, Nick Bontis, Joseph J. DiStefano and Andrea C. DiStefano, "Transformational Leadership: An Examination of Cross-Cultural Differences and Similarities," January, 1999.

89. John W. Medcof, "The Resource Based View and Transnational Technology Strategy," May 1999.
90. Harish C. Jain and Parbudyal Singh, "Innovative Recruitment and Selection Strategies for Visible Minority Police Officers in Selected Canadian Police Organizations," June 1999.

innova/papers.irc