Examining the validity of The Leadership Challenge inventory: the case for law enforcement

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ABSTRACT
The purpose of this study is to examine the validity of the Leadership Practices Inventory. Previous research has used exploratory factor analysis and internal consistency for this sort of analysis without specifying the validity for a specific group or sample. We propose to use confirmatory factor analysis — via structural equation modelling — of responses from police officers from around the country. This type of analysis will allow us to determine if the factors of the Leadership Practices Inventory provide valid measures of police leadership performance as an assessment tool. We determined that the measures were indeed valid and that differences of opinion existed between the police managers assessed and their observers regarding their perceived performance under the Leadership Challenge Model.

INTRODUCTION
Leadership is a valued commodity in all types of organisations, both public and private. Police departments have both sought and treasured effective leaders. Police leaders are expected to be competent managers who inspire their followers to do effective work in the pursuit of organisational goals. Villiers (2003, p. 33) notes that leaders motivate their followers to:

- transcend self-interest for the sake of organisational goals and values
- raise their need level up from security and safety to self-esteem or autonomy
share with the leader a common vision of the importance of the leader’s goals or values to the future of the organisation.

In this fashion, leaders motivate followers to achieve more than they thought possible, strengthen their commitment to the organisation and induce feelings of trust, admiration, loyalty and mutual respect.

Police executives have been admonished to recognise that leadership can be exercised at any level of the department. Haberfeld (2006, p. 3) defines police leadership as ‘the ability to make a split-second decision and take control of a potentially high-voltage situation that evolves on the street’. She also asserts that line officers are ‘the true leaders on the streets, using their leadership skills in daily encounters with the community, and police executives and policy makers need to realize it’ (Haberfeld, p. 3). Baker (2006, p. 41) contends that effective leadership is exercised by police managers in different ways, depending upon their rank in the department. Senior leadership should spend its time developing and sharing the vision for the organisation, charting the journey by establishing strategic objectives and practising collaboration and delegation of tasks. Police middle managers coordinate and plan, mentor and coach, build teams and empower and reward their subordinates. First-line supervisors provide leadership by example, supervising and training teams while evaluating performance.

LITERATURE REVIEW

Research assessing the level and style of police leadership demonstrates that the state of the art is less than ideal. In their survey of 155 police managers, Kuykendall and Unsingher (1982) found that the most common management style was that of a salesman. These managers reported that they worked as team managers who avoided ‘risky’ styles, particularly those involving delegating high-level tasks to their subordinates. Girodo (1998) surveyed police chiefs from departments around the world. They characterised their management style under four categories. Transformational leaders felt they were considerate, charismatic and personable. Bureaucratic leaders identified with the management of a police organisation structured by its rules. Social contract leaders felt that their approach was professional. Most of the police leaders stated that they followed the Machiavellian model that stressed the manipulation of subordinates to achieve management ends. The paramilitary structure of police departments has been held responsible for this leadership style. Police leaders are typically authoritarians who eschew participatory management.

Yet, support for a more democratic style exists in the ranks. For example, Bruns and Shuman (1988) surveyed 365 law enforcement officers in 10 managerial training programmes in Arizona from 1978–1982 using the Likert Management Systems Scale. The scale provides descriptions along a continuum from authoritarianism (System 1) to full participation (System 4). The respondents clearly supported a highly participative management style for police leaders.

Bureaucratic structure is also often cited as a major influence upon police leadership. Stamper (1992) surveyed 52 police chiefs and 92 of their immediate assistants from departments that served populations of at least 200,000 in 28 States. They responded to a 100-item questionnaire. The chiefs were asked whether they should do what the scale items suggested, and their immediate assistants were questioned as to whether their superiors actually did do what the items described. The chiefs placed a premium on sharing their vision of the future, practising openness and honesty, fostering teamwork by helping their employees get the work done and recognising excellence.
in performance. Externally, the chiefs promoted questioning of agency policies while working closely with the members of their community. They professed the adoption of an intuitive and creative approach to their work while taking a stand against discriminatory practices. They also felt that these leadership functions were most deserving of their time and attention on the job.

However, their immediate assistants did not perceive that the behaviour of the chiefs was consistent with their expressed beliefs about leadership. They felt that the chiefs tended to be much more involved in the technical and procedural aspects of management than their leadership functions. These findings led Stamper (1992) to conclude that leadership had been ‘structured out’ of police administration. Devoting too much attention to management concerns had caused police chiefs to lose credibility as leaders of their organisations.

Other authors also noted the manner in which the police organisational structure hinders the exercise of leadership. Mayo (1985, p. 411) asserts that police chiefs spend too much of their time directing the daily operations of their departments because they have little faith in the talents and loyalties of their subordinates. These structural realities prevent them from providing leadership functions, particularly attention to broad, long-term issues. Archambault and Weirman (1983) contend that the bureaucratic model of police departments results in a work environment that discourages productivity, initiative and commitment among its workforce members. It also promotes the pursuit of individual self-interest and adversarial relationships between police managers and their employees. This atmosphere features game playing and an impersonal work climate.

Recent studies assessing the state of police leadership have been more positive. Densten (2003) surveyed 480 Australian senior police officials concerning the frequency of leadership behaviours as recorded under the Multifactor Leadership Questionnaire (MLQ). He found that the effectiveness of leaders was perceived to be a function of: leader reputation and followers’ satisfaction with job performance of their leaders; impression management and image building by leaders; how dependent followers are on direction and resources from the followers; and how dependent leaders are upon the followers’ completion of activities to achieve success (Densten, p. 412). For more than 15 years, MLQ has been a prominent feature in police leadership research. To date, others have explored and developed alternative theories and measurements of understanding police leadership that can further understand police leadership.

For instance, Murphy and Drodge (2004) interviewed 28 Royal Canadian Mounted Police officers on their views of police leadership within the framework of transformational leadership theory. The heart of transformational leadership theory is the ‘Four I’s’ (Murphy & Drodge, pp. 2–3).

1. Idealised influence: the leader stands for something that followers aspire to.
2. Inspirational motivation: a sense of collective identity inspired by the leader’s vision.
3. Intellectual stimulation: challenges followers to examine ways to enhance their productivity.
4. Individualised consideration to followers.

The RCMP officers stressed that leaders can emerge at all levels of the organisation and that leadership skills can be learned. They stressed the significance of the ‘Four I’s’ and how leaders must be genuinely
concerned with the needs of followers. Interviews with 150 British officers revealed that they wanted leaders to make them feel proud of their work and their contributions. Effective leadership involved offering high quality service, maintaining high personal and professional standards, empowering staff and possessing relevant knowledge and skills. The way officers feel about how they are treated by the organisation affects both the quality of their performance and the service they provide to the community (Dobby, Anscombe, & Tuffin, 2004).

The competency of police executives was also found to influence their leadership reputation. Krimmel and Lindemuth (2001) surveyed 205 municipal managers in Pennsylvania to determine their assessment of the performance of police chiefs under their supervision. The analysis revealed that these managers ranked the performance of police chiefs who managed a union shop, had some college credits, were graduates of the FBI National Academy and were promoted from within, consistently higher than those who did not possess these attributes. Similarly, Rowe (2006) conducted an ethnographic study (both observation and interviewing) of British police officers concerning their views of leadership. He determined that these officers respected those superiors who had direct experience with and maintained their ties with the street, where ‘real police work’ was done. These credentials were the basis of the credibility of police leaders. Supervisors who moved up the ranks without such experience were viewed with suspicion and were less likely to be accepted.

These researchers have developed different theories and ways to understand police leadership. The Leadership Challenge Model may be another theoretical perspective and measurement may be used to understand police leadership.

THE LEADERSHIP CHALLENGE MODEL

The basis for this analysis was the model created by Kouzes and Posner (2002). Their research determined that leaders exhibit ‘Five Practices’.

1. Model the way (by setting an example).
2. Inspire a shared vision.
3. Challenge the process (willingness to confront the status quo).
4. Enable others to act (to nurture and empower followers).
5. Encourage the heart (by recognising accomplishments).

Each of the Five Practices contains commitments that specify what leaders do within each practice.

Under ‘model the way’, commitment 1 states that leaders find their voice by clarifying their values. Values are significant because they influence how leaders respond to others. They inspire passion and strengthen moral principles. Leaders must determine what their values are and express them to empower and motivate others. Naturally, these beliefs must be genuine. Modelling the way is ultimately tied to competence. Commitment 2 finds leaders aligning their actions with shared values. The value of a leader is determined by the foundation of their values and their ability to act upon them. This practice also features building firm values with followers, plainly setting an example and building consensus. Leaders reinforce values by teaching and storytelling, making values live by personal example.

Under commitment 2, leaders inspire a shared vision among followers. Vision requires recognition of the possibilities facing an organisation, while working towards their realisation. Accordingly, commitment 3 states that leaders envision the future by imagining exciting and ennobling possibilities through positive messages. Clearly
articulating their vision aids leaders in inspiring followers, by listening to them and heeding their desires. Under commitment 4, leaders enlist others in a common vision by appealing to shared aspirations. Leaders breathe life into their vision, finding a common ground with followers and speaking from the heart.

Leaders challenge the process — existing organisational operations. They are proactive and seek to move followers to action that will improve organisational performance. Leaders seize the initiative in their area of responsibility, seeking to improve and make the organisation more effective and efficient by making long-term improvements. Thus, commitment 5 states that leaders seek innovative ways to change, grow and improve. They create meaningful challenges for their charges, inviting them to seek out opportunities for change. Leaders experiment and take risks. They inspire followers to take small steps, create small wins and thus generate enthusiasm and support. When followers take a risk to move the organisation forward and make a mistake, they do not punish or chastise, because doing so would stifle and destroy initiative. Under these circumstances, making a mistake is a learning experience that will benefit followers and the organisation in the future. Commitment 6 directs students to experiment, and to take risks while generating small wins while learning from mistakes.

Leaders use these methods to enable others to act. They foster collaboration by creating a climate of trust in the organisation, taking the lead by trusting others to complete tasks. The most effective leaders are servant leaders who assume their roles and responsibilities for the purpose of meeting the needs of others — not seeking power and status. They recognise that followers must take the initiative and feel the need to do so. Commitment 7 states that leaders foster collaboration by promoting cooperative goals and building trust. They recognise that giving up their power to their followers ultimately increases their own. They teach and coach their charges to solve problems and implement solutions. They inspire confidence and competence. Followers are ready to assume responsibility for their actions and their performance. Leaders personify commitment 8, strengthening others by sharing power and discretion with followers.

Leaders encourage the heart by recognising and celebrating the accomplishments of their collaborators. They focus on high standards and holding people accountable. They personalise recognition when individual performance is outstanding and commendable. They are creative with rewards, personalising them and making recognition public, sending positive messages to peers. Commitment 9 states that leaders recognise contributions by showing appreciation for individual excellence. Celebrating performance reaffirms values and creates a spirit of community within the organisation (commitment 10).

Kouzes and Posner (2002) assert that leadership is a skill that can be learned and developed via the study of these practices and commitments. Leaders who have followed these tenets have made a difference. Individuals can develop leadership skills and move their organisations forward. Assuming a servant stance makes leadership an affair of the heart — bringing people together for common purposes.

This instrument has been extensively used in research on the effectiveness of student leaders. Studies of the student leadership challenge inventory found that gender did not make a difference in the performance of student leaders (Adams & Klein, 2000; Posner & Brodsky, 1994). College orientation advisors were found to be more effective, by both their supervisors and their clients, if they engaged in the Five Practices (Posner & Rosenberger, 1997).
Greek chapter leaders who rated themselves as more effective noted more use and involvement with the Five Practices than those who ranked themselves as less effective (Posner, 2004).

The Leadership Challenge Model has been translated into a survey instrument, the Leadership Challenge Inventory (LCI) that is designed to assess leadership capabilities. Figure 1 shows one version of how Kouzes and Posner’s Leadership Challenge Model may be presented, but the instrument and this model may not be valid with all individuals in all organisations. One organisation where the LCI may be used is a police organisation. That is, police managers may be able to understand their leadership and the perceptions of their fellow officers by using the LCI. This may be a useless exercise if the LCI is not valid for police managers. Thus, for police managers, the five commitments are indicators of the larger concept of leadership as Kouzes and Posner (1998) pointed out. This study examines the validity of this model for a sample of police managers.

The Student Leadership Practices Inventory

The Student Leadership Practices Inventory (LPI) was developed by Kouzes and Posner (1998) as a 360 degree leadership assessment tool to help individuals measure their leadership competencies as gauged by the Five Practices of the Leadership Challenge model (Kouzes & Posner, 2002). Both the student (self) and persons identified by the student (both persons whom they supervise (subordinates) and persons to whom they report (superiors)) are considered observers. However, the scale does not differentiate between the subordinates and superiors. They are combined in the observer group.

The individual identifies his or her strengths and weaknesses under the Leadership Challenge model and then compares this self-assessment with those provided by the observers. This assessment process is valid...
designed to give feedback to the individual student. The assessment will assist students in their leadership development by indicating which of the Five Practices they need to work on and improve. Each survey features 30 statements based on five important leadership practices: challenging the process; inspiring a shared vision; enabling others to act; modelling the way; and encouraging the heart.

Sample
The targets of this assessment were police managers attending the Administrative Officers Course of the Southern Police Institute at the University of Louisville during the years 2005–2007. They were assigned the Leadership Challenge as the textbook for a course on police leadership. The assessments were conducted as an assignment that was part of their coursework. These police manager students selected the observers who then conducted their assessment of the students’ leadership capabilities and performance. The observers were persons who report to (subordinates) and the supervisors for whom the students worked in their police department. The aim of this study was to determine how these police officers defined leadership as presented under the Leadership Challenge model. In addition, comparison of the opinions provided by the Southern Police Institute (SPI)/Administrative Officers Course (AOC) officers (the self group) and their identified observers will provide an indication of whether they agreed on the leadership attributes and performance of the self group. The total sample size for this study was 576, and this included 493 observers for 83 ‘selfs’. To be clear, the sample has the proper ratio for understanding the validity of the Leadership Challenge Model. This study was approved by the Institutional Review Board and Human Subjects Protection Program at the university.

ANALYSIS
The analysis for the present study takes place in a few stages. The first stage of the study is a presentation of the demographic information. To be clear, we present the means and standard deviations for the demographics of this study. The second stage is an exploration of the means and standard deviations for the items that comprise the Leadership Challenge Inventory (LCI). The third stage of the study provides an examination of the means and standard deviations for each of the subscales of the LCI, along with their internal consistency coefficients as a measure of reliability.

The fourth stage of the study is a presentation of the bivariate correlations for the sample. This indicates how intercorrelated are the subscale measures of the LCI for this sample. The inter-correlation provides an indication that the subscales may indicate a latent measure (ie, leadership).

In the fifth stage of the study we use structural equation modelling (SEM) (using the Mplus 5.2, statistical modeling program with maximum likelihood estimation). SEM contains a number of statistical tests (ie, confirmatory factor analysis for measurement models and structural models) (Byrne, 1998; Kaplan, 2005; Raykov & Marcoulides, 2006) to test the a priori hypothesised relations of a statistical model such as the one in Figure 1. To test Figure 1, we used correlations from the fourth stage of the analysis to develop our SEM. Our use of SEM involves confirmatory factor analysis (CFA) because it allows us to test simultaneously the pathways in the model, and to test the connections of the observed measures (ie, the components of the LCI) without the influence of measurement error to the latent measure. Thus, CFA is used to
test the adequacy of a measurement model of the LCI found in Figure 1.

The measurement model allows us to explore the validity of the measures that we used (Bollen, 1989) to indicate a latent factor of leadership via the LCI. The CFA model employed is shown in Figure 1. First, researchers using SEM must determine the fit between the observed data and the hypothesised model. A number of fit statistics are necessary for use. For instance, the chi-square goodness-of-fit statistic provides a direct test of whether the model fits the observed data. Kline (2005) argued that chi-squares that are not statistically significant indicate proper model fit. This rarely occurs in actual research. Additional fit statistics help to understand how well the model fits the data. For example, a confirmatory fit index (CFI) coefficient of 0.95 and above, a root mean square error of approximation (RMSEA) of 0.08 and below, and a standardised root mean of the residual of 0.05 and below, indicate proper fit of a model to data (Hu & Bentler, 1999). Second, the size of the factor loading is important because it indicates relative strength. Hatcher (1994) pointed out that proper fit between the model and the data may be taken as an indication of discriminant validity. Discriminant validity is seen when different measurements (ie, subscales) come together to measure a construct that they were designed to measure. Thus, a measure does not have discriminant validity if the model does not fit well with the data. For this study, a poor-fitting model would be an indication that the subscales measure a different construct other than leadership.

The factor loadings are an important part of this stage. Two issues arise in this area: (1) size of the factor loadings, and (2) the significance of the factor loadings. Kline (2004) argued that factor loadings that are above 0.50 indicate a strong factor loading. Hatcher (1994) argued that the size and statistical significance of the factor loadings is an indication of convergent validity. Convergent validity is found when the instruments (ie, subscales) of different measurements indicate the same construct. For this study, significant factor loadings would be an indication that the different measurements indicate the same construct.

RESULTS
Stage 1
We present the demographic information for the sample. The sample is overwhelmingly male (M = 1.85 or 83.2 per cent (n = 479)) and white (M = 1.31 or 84.2 per cent (n = 485)). The mean level of rank for this sample is Captain (M = 5.66 (n = 69)), but the largest percentage of the respondents were sergeants (24.7 per cent (n = 142)). The average age of the respondents was 40. The sample did not seem to have military service (M = 1.70 or 69.3 per cent (n = 399)). The average number of years as a sworn police officer was 13.81. The majority of the sample were observers (85.4 per cent (n = 492)).

Stage 2
Table 1 presents the means and standard deviations for each of the five leadership practices evaluated by the LCI. The average total scores for all three groups (ie, total, self and observer) were examined in this study. The authors also present their internal consistencies to explore the reliability of the subscales.

Table 1 shows the ranking of the subscales using the mean, for all three groups (ie, total, self and observer), to determine a ranking pattern of five practices under the Leadership Challenge Model. While the mean levels varied between and within the groups, the pattern of the rankings...
remained the same for the highest ranking. ‘Enabling others to act’ (total = 24.38; self = 23.61; observer = 24.5) was the leadership practice that showed itself to be a strength of the assessed self subgroup across the board.

The lowest mean values assessed against the abilities of the self subgroup were for the practice ‘challenging the process’ for the total (M = 22.72) and observer (M = 22.86) categories. However the self subgroup gave themselves the lowest mean score value (21.4) for the practice of ‘inspiring a shared vision’.

Table 1 also shows the reliability via internal consistency for the subscales. For the total sample, all of the levels of internal consistency were above the 0.60 level that is deemed acceptable by Nunnally and Bernstein (1994). In fact, the internal consistency levels were acceptable for all of the subscales except for modelling the way for the self subsample. We believe that this result may be due to the sample size of the self subsample (ie, n = 83). These levels of internal consistency are not in accord with those from the Leadership Challenge Inventory. To be clear, the internal consistency for this stage indicates that the reliability is not as high as expected from other uses of the LCI. However, these levels of internal consistency are high enough to continue to the other parts of our analysis.

### Stage 3

Table 2 presents the means and standard deviations of the items that demonstrate leadership behaviour for the 360 degree assessment. The items make specific the leadership behaviours that comprise the Five Practices under the Leadership Challenge Model. The statistics are presented for the total sample as well as for the self and observer subgroups. Again, the highest total mean value provides an indication of what both the self and observer subgroups identify as the leadership strength of the subsample under the Leadership Challenge Model. Here, the item with the highest mean (4.59) is ‘treats others with respect’.

Alternatively, the lowest total mean value represents what both subgroups assess as a leadership weakness of the self subsample. Here, the lowest total mean value was for the item ‘finds ways to publicly celebrate’ (3.43). However, different items registered the lowest mean value across subgroups (self: ‘initiates experiment’ — M = 3.23)

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**Table 1: Means and standard deviations for self and observers for leadership challenge inventory**

<table>
<thead>
<tr>
<th>Leadership Challenge Inventory Sub-Scale</th>
<th>Total mean</th>
<th>Total SD</th>
<th>Self mean</th>
<th>Self SD</th>
<th>Observer mean</th>
<th>Observer SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenging the process</td>
<td>22.72 (0.64)</td>
<td>3.79</td>
<td>21.82 (0.66)</td>
<td>3.04</td>
<td>22.86 (0.64)</td>
<td>3.87</td>
</tr>
<tr>
<td>Inspiring a shared vision</td>
<td>23.05 (0.81)</td>
<td>3.88</td>
<td>21.40 (0.78)</td>
<td>3.62</td>
<td>23.31 (0.80)</td>
<td>3.86</td>
</tr>
<tr>
<td>Enabling others to act</td>
<td>24.38 (0.80)</td>
<td>3.59</td>
<td>23.61 (0.68)</td>
<td>2.80</td>
<td>24.50 (0.81)</td>
<td>3.69</td>
</tr>
<tr>
<td>Modelling the way</td>
<td>23.87 (0.76)</td>
<td>3.48</td>
<td>22.63 (0.44)</td>
<td>2.38</td>
<td>24.07 (0.78)</td>
<td>3.58</td>
</tr>
<tr>
<td>Encouraging the heart</td>
<td>24.04 (0.86)</td>
<td>4.09</td>
<td>23.08 (0.73)</td>
<td>3.13</td>
<td>24.19 (0.87)</td>
<td>4.21</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses are alpha coefficients.
and observers: lets others take risks — $M = 3.39$). Yet, these different items are common attributes under the leadership practice of ‘challenging the process’ — a practice that the observer group had previously identified as a leadership weakness of the self subsample.

Table 2: Items from Leadership Challenge Inventory

<table>
<thead>
<tr>
<th>LCI subscale</th>
<th>Item</th>
<th>Total mean</th>
<th>Total SD</th>
<th>Self mean</th>
<th>Self SD</th>
<th>Observer mean</th>
<th>Observer SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenging the</td>
<td>Seeks challenges</td>
<td>3.78</td>
<td>1.51</td>
<td>3.73</td>
<td>0.83</td>
<td>3.78</td>
<td>1.60</td>
</tr>
<tr>
<td>process</td>
<td>Keeps current</td>
<td>4.22</td>
<td>0.85</td>
<td>4.00</td>
<td>0.73</td>
<td>4.26</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>Initiates experiment</td>
<td>3.58</td>
<td>1.01</td>
<td>3.23</td>
<td>0.87</td>
<td>3.63</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td>Looks for ways to improve</td>
<td>3.98</td>
<td>0.82</td>
<td>4.01</td>
<td>0.69</td>
<td>3.97</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>Ask: ‘What can we learn?’</td>
<td>3.79</td>
<td>0.99</td>
<td>3.55</td>
<td>0.91</td>
<td>3.82</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Lets others take risks</td>
<td>3.73</td>
<td>0.98</td>
<td>3.24</td>
<td>0.86</td>
<td>3.39</td>
<td>1.00</td>
</tr>
<tr>
<td>Inspiring a shared vision</td>
<td>Describes ideal capabilities</td>
<td>3.91</td>
<td>0.88</td>
<td>3.66</td>
<td>0.77</td>
<td>3.95</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>Looks ahead and communicates future</td>
<td>3.89</td>
<td>0.89</td>
<td>3.73</td>
<td>0.83</td>
<td>3.92</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>Upbeat and positive communicator</td>
<td>4.04</td>
<td>0.85</td>
<td>3.73</td>
<td>0.96</td>
<td>4.09</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>Finds common ground</td>
<td>3.63</td>
<td>0.90</td>
<td>3.24</td>
<td>0.86</td>
<td>3.70</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>Communicates purpose and meaning</td>
<td>3.75</td>
<td>1.01</td>
<td>3.49</td>
<td>0.94</td>
<td>3.79</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>Enthusiastic about possibilities</td>
<td>3.82</td>
<td>0.94</td>
<td>3.53</td>
<td>0.86</td>
<td>3.87</td>
<td>0.94</td>
</tr>
<tr>
<td>Enabling others to act</td>
<td>Includes others in planning</td>
<td>3.90</td>
<td>0.95</td>
<td>3.80</td>
<td>0.73</td>
<td>3.91</td>
<td>0.98</td>
</tr>
<tr>
<td></td>
<td>Treats others with respect</td>
<td>4.59</td>
<td>0.64</td>
<td>4.57</td>
<td>0.68</td>
<td>4.60</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>Supports decisions of others</td>
<td>3.94</td>
<td>0.77</td>
<td>3.78</td>
<td>0.75</td>
<td>3.97</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>Fosters cooperative relationships</td>
<td>4.03</td>
<td>0.85</td>
<td>3.94</td>
<td>0.75</td>
<td>4.05</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>Provides freedom and choice</td>
<td>4.03</td>
<td>0.89</td>
<td>3.84</td>
<td>0.69</td>
<td>4.06</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>Lets others lead</td>
<td>3.89</td>
<td>0.94</td>
<td>3.67</td>
<td>0.90</td>
<td>3.92</td>
<td>0.94</td>
</tr>
<tr>
<td>Modelling the way</td>
<td>Shares beliefs about leading</td>
<td>4.15</td>
<td>0.82</td>
<td>3.90</td>
<td>0.76</td>
<td>4.20</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Breaks projects into steps</td>
<td>3.72</td>
<td>0.88</td>
<td>3.39</td>
<td>0.68</td>
<td>3.77</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>Sets personal example</td>
<td>4.36</td>
<td>0.71</td>
<td>4.25</td>
<td>0.71</td>
<td>4.38</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>Talks about guiding values</td>
<td>3.51</td>
<td>1.00</td>
<td>3.39</td>
<td>0.91</td>
<td>3.53</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>Follows through on promises</td>
<td>4.33</td>
<td>0.77</td>
<td>4.35</td>
<td>0.71</td>
<td>4.32</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td>Sets clear goals and plans</td>
<td>3.79</td>
<td>0.92</td>
<td>3.35</td>
<td>0.86</td>
<td>3.86</td>
<td>0.91</td>
</tr>
<tr>
<td>Encouraging the heart</td>
<td>Encourages other people</td>
<td>4.11</td>
<td>0.78</td>
<td>4.00</td>
<td>0.73</td>
<td>4.13</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>Recognises people’s contribution</td>
<td>4.07</td>
<td>0.87</td>
<td>3.88</td>
<td>0.77</td>
<td>4.10</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>Praises people for job well done</td>
<td>4.32</td>
<td>0.81</td>
<td>4.20</td>
<td>0.66</td>
<td>4.34</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Gives support and appreciation</td>
<td>4.11</td>
<td>0.83</td>
<td>4.00</td>
<td>0.66</td>
<td>4.13</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>Finds ways to publicly celebrate</td>
<td>3.43</td>
<td>1.08</td>
<td>3.27</td>
<td>0.99</td>
<td>3.46</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>Tells others about group’s good work</td>
<td>3.99</td>
<td>0.92</td>
<td>3.73</td>
<td>0.93</td>
<td>4.04</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Stage 4

Table 3 presents the bivariate correlations for the sample. The correlations indicate that the subscales for the LCI are highly correlated. For instance, all of the correlations among the subscales range between 0.57 and 0.75. This indicates that the subscales may be an indicator of leadership as hypothesised, suggesting that enough evidence is present to proceed to the CFA stage of the analysis.

When considering the demographic information, none has a correlation with any of the subscales. However, tenure has a correlation with being male ($r = 0.17$), tenure is highly correlated with age.
(r = 0.56) and is correlated with rank (r = -0.25), while military service is correlated with age (r = -0.25). Upon further examination, these correlations make intuitive sense given this particular sample.

Stage 5

Figure 2 presents our CFA of the Leadership Challenge Inventory. Because of the sample size used, the chi-square statistic is not statistically significant (chi-square = 15.26, p<0.00). Following the recommendations from Hu and Bentler (1999), the authors examined other measures of fit. For example, the confirmatory fit index (CFI) is acceptable (0.99); as is the root mean squared error of approximation (RMSEA) (0.07); and as is also the standardised root

![Figure 2](image)

Table 3: Bivariate correlations between the measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Challenging the process</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Inspiring a shared vision</td>
<td>0.67**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Enabling others to act</td>
<td>0.55**</td>
<td>0.60**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Modeling the way</td>
<td>0.69**</td>
<td>0.75**</td>
<td>0.66**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>5. Encouraging the heart</td>
<td>0.57**</td>
<td>0.69**</td>
<td>0.66**</td>
<td>0.68**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note:
**p<0.01; *p<0.05.
mean of the residual (SRMR) (0.01). These indicate acceptable fit of the model to the data. Overall, these statistics indicate that the model fits the data well. This means that the results from this model are valid. From a theoretical perspective, the model fitting the data is our first indication that LCI is a valid instrument for this sample. While there may be some indication that the reliability may not be as strong as anticipated, the model fit indicates that the LCI items are valid for this sample.

Figure 2 presents the factor loadings for each of the observed measures used to indicate the latent measure. All of the factor loadings are all above Kline’s (2004) 0.50 cutoff for large factor loadings. Further, each of the factor loadings, except challenge, were statistically significant. For identification purposes, one measure has to be set to unity (ie, 1) for the measurement model (see Kline for a complete explanation of the identification process). In this model, the measure that was set to unity was challenge. Thus, the measure cannot be examined for statistical significance. The other measures were tested for statistical significance and their factor loadings are: inspire (0.85); enable (0.72); model (0.89); and encourage (0.77). This indicates that the factor loadings are good indicators of the latent measure. The large factor loadings provide the last piece of information suggesting that the LCI is a valid instrument for understanding leadership capabilities in this particular sample as Kouzes and Posner (1998) have argued. The combination of model fit and large factor loadings provides evidence of discriminant and convergent validity for the LCI using this sample.

DISCUSSION
The purpose of the present study was to provide an examination of the Leadership Challenge Inventory. The result would be a model for understanding and assessing the leadership capabilities of police managers. This examination is important for several reasons. First, this is the first study to examine the Leadership Challenge Model using law enforcement officers, especially with police sergeants and middle managers as the sample. Second, the results of this study will supply information that provides support for ranking the leadership practices, the reliability of the leadership practices, and the validity of the Leadership Challenge Inventory as a whole, for law enforcement’s use to improve leadership performance and the perceptions of leadership. Third, this study will help those in law enforcement to understand their leadership practices. To provide these important results, a number of statistical tests were performed that bear discussion. Again, it must be remembered that the purpose is a 360 degree assessment of the police officer students in the self subgroup.

First, examination of the mean score values for the five practices of the Leadership Challenge Model revealed that ‘enabling others to act’ was the most dominant leadership practice evidenced by the self subgroup. Thus, these police managers seek to empower their subordinates, sponsor their development and prepare them for excellent performance.

In terms of the least important leadership behaviour in the model, a different pattern was revealed that depended on the type of sample. For instance, the total group did not see that the self subgroup established public
celebrations of excellent individual performance. However, the self subsample members felt that they were deficient in initiating experiments, while the observers felt that the self subsample failed to allow others to take risks. It should be noted that all of these behaviours may be more difficult for line and middle managers to implement and may be issues that are more appropriate for top-level police managers.

Another set of statistical tests has a number of results that need to be discussed. We examined the internal consistency (ie, cross-sectional reliability) of the subscales of the model for the entire sample, self and observers. The results indicate that, for the entire sample, subscales are reliable. The items of the subscales correlate well for the entire sample. Further, the subscales are internally consistent for the observers, but the subscales have trouble being internally consistent for the self subgroup. On the one hand, this suggests that the subscales may not be as reliable for the self as the observer, indicating psychometric problems when using the subscales for the self. On the other hand, the poor performance of the subscales may be due to the small sample size for the self subsample. Overall, the results indicate that the subscales have inconsistent reliability, and that the reliability for this study seems to be lower than for other studies. This indicates that the reliability of the model may be suspect for understanding law enforcement leadership capabilities, but more information is necessary. This factor clearly limits the findings of this study.

We also performed a confirmatory factor analysis (CFA) to examine the model with our data. The results showed good model fit and large statistically significant factor loadings, suggesting that convergent and discriminant validity were present in these data. This seems to contradict information in the reliability results. Recalling that the reliability results were inconsistent, the CFA shows that the model is valid for these data. Invoking the assumption that validity is about measuring what we think we are measuring, we believe that we are measuring the components of leadership proposed by the Leadership Challenge model; thus, over time, using these measures, we will be capturing leadership. In our view, the results of validity are more telling of the model than the internal consistency. This suggests that law enforcement agencies that wish to understand and assess the leadership capabilities of their personnel may use the Leadership Challenge model, understanding that it has been shown to be valid. With this information, it is important that we investigate whether differences in the perception of leadership performance exist.

LIMITATIONS
While these results are important, the study does have limits. First, the study does not have a large sample of the self subsample. However, the sample used in this study does maintain the 1:5 self-to-observer ratio that Kouzes and Posner suggest for use of their model. Second, we do not compare other models of leadership (eg, the Multifactor Leadership Questionnaire) capabilities against the Leadership Challenge model. This would provide more insight into understanding the strength, resilience and validity of the Leadership Challenge model. Third, the data that we use are cross-sectional, suggesting that we have only captured one ‘snapshot’ of leadership capabilities. Longitudinal data may provide more insight into leadership capabilities by allowing us to determine how leadership capabilities change over time.

CONCLUSIONS
Despite the limits, the present study provides important information about the capabilities of leadership through the
Leadership Challenge model. In particular, the results suggest that the Leadership Challenge model is valid for understanding leadership capabilities among law enforcement officers. The results further suggest that police managers have different views of their leadership capabilities from those who work with them. Future studies that use large samples of self, compare other models with the Leadership Challenge model and that use longitudinal data will advance our understanding of leadership capabilities. For now, the present study supports the use of the Leadership Challenge model for law enforcement officers.

The findings also indicate that this sample of police managers values the leadership practices of empowerment and respect for the individual. It may well be that the authoritarian style evidenced by police leaders in the past is on the way out.

NOTES

1. The most recent national data on police personnel (from 2003) reveal that males accounted for 88.7 per cent and whites 76.4 per cent of all sworn officers nationwide (Hickman & Reeves, 2006, p. 7). Given that these survey results are from a different time frame from this study, our availability sample slightly under-represents males and over-represents whites. The Law Enforcement Management and Administrative Statistics (LEMAS) survey does not collect data on rank, educational level, military service, rank or years of service.

REFERENCES


