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Adrian Furnham, John Crump, Tomas Chamorro-Premuzic

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Managerial level, personality and intelligence

Adrian Furnham and John Crump

Department of Psychology, University College London, London, UK, and

Tomas Chamorro-Premuzic

Department of Psychology, Goldsmiths, University of London, London, UK

Abstract

Purpose – The purpose of this paper is to investigate whether managers at different levels differ in terms of ability and personality.

Design/methodology/approach – Assessment centre results for over a thousand managers on two cognitive and two non-cognitive tests were subject to analysis of variance.

Findings – Non-manager specialists scored highest on one ability test, but lowest on the other. Senior managers had highest Expressed Inclusion and Control scores but lowest Wanted Inclusion and Control scores. Non-managers were found to be most diligent and dutiful.

Research limitations/implications – Level is inevitably confounded with age and experience, which may impact onto the individual difference variables making it difficult to accurately attribute causality.

Practical implications – It is important to use psychometric test data to help in selection of all managers. Different levels require different profiles.

Originality/value – An exploration of individual differences in a large sample of managers that may relate to promotion to senior management levels.

Keywords Intelligence, Personality, Managers, Psychometric tests

Paper type Research paper

Introduction

Although personality and intelligence are established predictors of job performance, in particular cognitive ability (IQ) and trait Conscientiousness (Chamorro-Premuzic and Furnham, 2005; Salgado, 1997), there is more speculation than scientific evidence on whether individual difference predictors of performance are actually manifested across different levels of management (e.g., from lower or junior to higher or more senior). That is, do senior managers have a different ability and personality profile from less senior managers? This paper explores this issue using test data on a large working sample.

The job of a manager is essentially about planning, organising, directing and controlling. It is about the effective use of financial, human, information and physical organisational resources to achieve specific goals. However, the nature of managerial jobs differs from organisation to organisation and, more particularly, level (or grade) to level.

In one of the few studies aimed at answering this question, Moutafi et al. (2007) examined a sample of 900 British managers categorised at three levels, namely junior/specialist, middle and senior management. Using scores on the Five Factor Inventory (Costa and McCrae, 1992) they found senior managers to be more...
Conscientious and Extraverted, but less Neurotic, than their more junior counterparts, even when gender and age were controlled for. They also found using the Myers Briggs Type Inventory (MBTI) that seniority was associated with being an Intuitive rather than a Sensing type. It is however unclear whether those differences occur because of self-selection, formal selection or a simple process of attrition. They called for further work in this neglected field. This paper is a response to that call, using different measures of cognitive ability, personality and also potential derailers or management challengers (Hogan and Hogan, 1997). To our knowledge, other measures of personality and intelligence have not yet been explored in connection to managerial level. This study will examine scores on four tests.

**Intelligence at work**

There is a literature going back nearly one hundred years which has examined the predictive validity of intelligence (or general mental ability) at work (Bertua et al., 2005; Hunter, 1986; Hunter and Hunter, 1986; Kanfer et al., 1995; Kuncel et al., 2004; Schmidt and Hunter, 2004). Ones et al. (2006), in an excellent, comprehensive and up-to-date meta-analysis of the role with cognitive ability, and success at work came to five clear conclusions. First, they argue that training success at work, as measured by such things as supervisor ratings or job knowledge is acquired, is predicted by cognitive ability test-scores and the more complex the job, the more powerfully it predicts. Second, they observed that regarding job performance cognitive ability tests predict outcomes across many jobs, situations and outcomes – i.e. validity is transportable across occupational group and is cross-culturally generalisable. Third, their results lead them to believe that tests of specific ability do not have incremental validity over general measures of intelligence. Fourth, they point out that intelligence predicts job performance well because it is linked to the speed and quality of learning, adaptability and problem solving ability. Fifth, they argue that cognitive ability tests are predictively fair to minority groups but can have an adverse impact which is a sensitive political issue. In short, their conclusion is that intelligence is one of the best, if not the best predictor of success in applied settings.

Various meta-analyses have been done over the last five years that have attempted a critical, comprehensive overview of the role of intelligence in predicting work related outcomes. Some reviewers have tended to concentrate on data from one country, like America (Schmidt and Hunter, 2004) or Britain (Bertua et al., 2005) or from wider areas like the European Community (Salgado et al., 2003). Despite these differences the results are essentially the same and all reviewers argue for the practical use of cognitive ability tests which are good predictors of both overall job performance as well as training success.

Salgado et al. (2003) looked at the predictive validity of general mental ability as well as specific cognitive abilities like verbal, numerical, spatial-mechanical, perceptual and memory to predict measurable job performance and training success. Different selection and personnel practices could, they argue, lead to differences when comparing American and European data. Following the rigorous demands of meta analysis found over 250 studies that tested over 25,000 Europeans, they found an operational validity of 0.62 which means intelligence is an excellent predictor of job performance. The data on training ratings was broadly similar if slightly lower. Their conclusion was that, internationally, despite differences in intelligence tests used;
measures/conceptualisations of job performance and training; differences in unemployment rates, cultural values, demographics, still cognitive ability wins out as the best individual difference psychometric measure. Indeed the results are strikingly similar to earlier data coming out of America (Hunter, 1986; Hunter and Hunter, 1984; Viswesvaran et al., 1996; Kuncel et al., 2004).

Another meta-analysis focused exclusively on British data, which had 283 samples of, in total, over 13,000 people (Bertua et al., 2005). This analysis looked at the predictive validity of specific abilities (i.e. verbal, numerical, etc.) as well as measures of cognitive ability over seven main groups (clerical, engineer, professional, driver, operator, manager, sales). They also found cognitive and ability valid predictor of job performance and training success (performance rho = 0.48; training rho = 0.50). The greater the job complexity, the higher the operational validities between the different cognitive tests and job performance and training success. One of the rewards of job performance success is usually promotion. Further as one moves up the management hierarchy often jobs become more complex and cognitively demanding. Hence it is predicted that senior managers are overall more intelligent than middle managers.

**Personality (FIRO-B)**

This study will look at personality as measured by FIRO-B scores of people in different managerial roles. Because of its popularity especially with organisational psychologists and management consultants in Great Britain and elsewhere in the English-speaking world it has been standardised for use in Great Britain (Dancer and Woods, 2006; Leigh et al., 1997; Warr et al., 2001). Its psychometric qualities have recently been assessed (Furnham, 2007a).

The FIRO theory identifies three dimensions concerned with an individual’s typical interpersonal behaviour (Schutz, 1958, 1988, 1992). The measure however appears to be unique in that a person receives two scores for every dimension: the extent to which a person expresses, manifests or shows a particular behaviour (that is the extent to which it is overt and observable) and the extent to which a person wants from other people with respect to a particular class of behaviours. The measure therefore allows for the possibility of measuring a difference or disparity score. The theory asserts that high difference scores lead to conflict for each of the three dimensions. The measure is theoretically based on people’s fear of rejection, failure and intimacy: the three dimensions measured by this test. The theory asserts that striving for compatibility in interactions, leads to the development of three primary interpersonal needs that must be satisfied.

The first dimension or trait in the test is the need for Inclusion, which is a need to maintain a relationship with other people, to be included in their activities, or to include them in the individual’s own activities. All individuals seek to belong to a group, but at the same time they want to be left alone. There is always a trade-off between tendencies toward introversion and extraversion. Therefore, individuals differ in their relative need strength on two aspects of the need for inclusion: the need to include others, or Expressed Inclusion (EI), and the need to be included by others, or Wanted Inclusion (WI).

A second fundamental interpersonal need, according to Schutz (1958), is a need for Control: a need to maintain a satisfactory balance of power and influence in relationships. All individuals supposedly need to exert control or direction over other
people, while also remaining independent from them. They also feel the need to be controlled, directed or structured by others, but at the same time to maintain their freedom and personal discretion. Individual differences arise, therefore, in the need to control others, or Expressed Control (EC), and the need to be controlled by others, or Wanted Control (WC).

A third need, according to the model, relates to Affection, or the need to form close personal relationships with others. This need is not restricted to physical affection or romantic relationships, but includes need for warmth, intimacy and love. All individuals need to form close, personal relationships with other people, but at the same time want to avoid becoming overcommitted or smothered by them. There is a trade-off between high affiliative needs and high independence needs. Individuals therefore vary in their needs for Expressed Affection (EA), towards other people and for Wanted Affection (WA) to be expressed towards them.

Mahoney and Stasson (2005) reported highly satisfactory Cronbach alpha scores in excess of 0.83 for all six scales. A number of important FIRO-B studies were published by Di Marco and colleagues in the 1970s (DiMarco, 1974; DiMarco and Kaprick, 1974; DiMarco and Norton, 1974; DiMarco et al., 1975; Kuehl et al., 1975). DiMarco (1974) found that low incompatibility scores result in more favourable attitudes of subordinates toward managers. DiMarco et al. (1975) found FIRO scores logically, but modestly, related to leadership style. Kuehl et al. (1975) found strong significant correlations between leadership style (specifically consideration and structure) and all the six FIRO dimensions.

Few studies have looked at the overlap between the FIRO-B and the Big Five Scores. Furnham (1990) found four of the traits correlated with the FIRO-B but most correlations were modest. Extraversion was positively significantly correlated with five of the six FIRO-B measures and Conscientiousness with none. More recently Mahoney and Stasson (2005) found Expressed Inclusion was positively correlated with Extraversion and Agreeableness; Wanted Inclusion with Extraversion; Expressed Control with Extraversion; Wanted Control with Neuroticism and negatively with Conscientiousness and Extraversion, Expressed and Wanted Affection with Extraversion, Agreeableness and Openness.

There is little in the FIRO-B literature that speaks directly to which scores predict managerial success. However, it may be possible that senior managers would have the highest Expressed but lowest Wanted Inclusion score. This is because of the necessity of constant interaction with stakeholder groups but the need also to deep distance from them. Also senior Managers may have the highest Expressed Control score and the biggest disparity score. This is because it is the role of senior managers to direct, delegate and lead and take control. Similarly managers would have the lowest Expressed and Wanted Affection score because of their needs to distance themselves from personal involvements.

Management derailment (Hogan Development Survey)
The Hogan Development Survey (HDS) was explicitly based on the DSM Axis II personality disorder descriptions, but it was not developed for the assessment of all DSM disorders. The test essentially measures the dark-side of human behaviour and explores the dimensions of personality that are likely to derail senior managers. The idea is that when under stress those with high scores on these negative traits are prone
to act in dysfunctional ways. The authors call these risk factors for counter-productive behaviours under stress. It focuses only on the core construct of each disorder from a dimensional perspective (Hogan and Hogan, 2001, p. 41). The HDS has been cross-validated with the MMPI personality disorder scales. Correlations ($n = 140$) range from 0.45 for Antisocial to 0.67 for Borderline (Hogan and Hogan, 2001). Fico et al. (2000) report coefficient alphas between 0.50 and 0.70, with an average 0.64 and test-retest reliabilities ($n = 60$) over a three month interval ranging from 0.50 to 0.80, with an average of 0.68. There were no mean-level differences between sexes, racial/ethnic groups, or younger versus older persons (Hogan and Hogan, 2001). This study will use the HDS to measure the leadership risk factors as it is now widely used in organisational research and practice, especially in selection decisions and counselling.

Furnham and Crump (2005) showed correlations between the HDS and NEO, showing neuroticism correlating (as predicted) with excitable (borderline) and cautious (avoidant); introversion correlating with avoidant (cautious), schizoid (detached), and (negatively) with colourful (histrionic); openness correlating with schizotypal (imaginative) and conscientiousness with diligent (obsessive-compulsive). Many of the “overlaps” were suggested by Widiger et al. (2002). Self-evidently it may be stated that it is unlikely that any managers of managers would have high scores on any of these dimensions otherwise they would be likely to derail. However, Furnham (2007b) has argued that paradoxically some of those potential derailers, which are essentially manifestations of the personality disorders, may be advantageous for business success, whilst others are clearly going to lead to lack of promotion. Thus it is predicted that senior managers will have the highest Bold and Mischievous scores but the lowest Diligent and Dutiful scores.

This study will also explore gender difference in these results though they are not the focus of the paper. It has long been argued that for various reasons the experience of women trying to reach senior management positions is quite different than that of men (Furnham, 2007b). Hence gender differences will be explored for each of the four tests.

**Method**

Participants: Participants were middle and senior managers aged between 27 and 61 (Median Age Group 40-45 years) attending a series of assessment centres in Great Britain. There were 2,863 males and 628 females but numbers varied in the analysis as not all candidates completed all tests used in this analysis. Based on their level, they were divided into three groups across the organisations. The first was the most senior group which comprised those managers who managed other managers. They were usually at board level or else reported to board level managers. The second were managers who were essentially middle managers. In most instances supervisors reported to them and they reported to the first group. The third group were not strictly junior managers but rather those in more specialist roles that have few or little management responsibilities. Many organisations recognising the limited natural management and people skills of certain highly capable specialists (often in finance, engineering, IT) give them limited management responsibility. They were described as non-managers. Two consultants classified participants into one of these three groups. Their agreement over all exceeded 95 per cent.
Measures

Each participant completed the following measures:

Intelligence. The Watson Glaser Critical Thinking Appraisal (WG: Watson and Glaser, 1980): this is a timed (40 min.) ability test assessing the ability to define a problem, to select pertinent information for its solution, to recognise stated or un-stated assumptions, to formulate and select hypotheses, and to draw valid conclusions. The test consists of five subtests:

1. The Inference test consists of three statements, each followed by a number of proposed assumptions. Participants have to discriminate among degrees of truth of falsity of the assumption based on the given data.

2. The Recognition of Assumptions test consists of five statements, each followed by several proposed assumptions. Participants have to decide for each assumption whether a person, in making the given statement, is really making that assumption.

3. The Deduction test consists of six statements, each followed by several assumptions. Participants have to determine whether certain conclusions necessarily follow from the information given in the statements.

4. The Interpretation test consists of given short paragraphs, each followed by several conclusions. Participants have to decide whether the given conclusions logically follow beyond a reasonable doubt from the information given in the paragraph.

5. The evaluation of arguments test consists of five questions, each followed by several arguments. Participants have to distinguish between strong and weak arguments.

Studies on the WG have provided evidence for the test’s reliability and validity (Watson and Glaser, 1980). Kline (1994, p. 422) has noted that this test is a “good measure of crystallised ability” with good evidence of reliability and concurrent validity. He also notes: “Because more reading is required to complete this test than is usual for any intelligence, and because as a result the items do not resemble those of conventional measures of intelligence, the Watson-Glaser is useful where there might be hostility towards psychological testing, as in some selection contexts”.

Graduate and Managerial Assessment: Abstract (GMA: Blinkhorn, 1985): this is a timed (30 min) high level test of abstract reasoning ability, which measures the ability to think conceptually, to discover underlying patterns within a set of information, and to switch easily between contexts and level of analysis. The test is made up of 115 questions split into 23 groups of five questions. There are two different scoring methods, the Lenient score (GMA-L), which measures the total number of individual questions that are correct, and the Harsh score (GMA-H), in which a mark is assigned for each group of five questions that are answered correctly. The manual provides evidence of the test’s reliability (alpha coefficients ranging from 0.83 to 0.92) and validity (correlation of 0.50 with Raven’s Progressive Matrices; Blinkhorn, 1985). This is essentially a measure of fluid intelligence or intuitive insight. Jones (1993, p. 87) notes that: “This test is based on the notion that the discovery and understanding of patterns and systems within the abstract problems is fundamental to a wide range of..."
intellectual work, and high scores are gained by those who are able to switch easily between contexts and levels of analysis”.

**Personality.** Hogan Development Survey, (Hogan and Hogan, 1997). The Hogan Development Survey (HDS) was explicitly based on the DSM Axis II personality disorder descriptions, but it was not developed for the assessment of all the DSM disorders. The HDS focuses only on the core construct of each disorder from a dimensional perspective (Hogan and Hogan, 2001, p. 41). An overview of the item selection guidelines can be found in Hogan and Hogan (2001). The survey includes 154 items, scored for 11 scales, each grouping 14 items. Respondents are requested to “agree” or “disagree” with the items. The measure has a social desirability scale.

**FIRO-B** (Schutz, 1958). This is a 54 item questionnaire: 24 questions are completed on a six-point scale (ranging from “nobody” to “most people”) where respondents compare their behaviour preferences and patterns with other people. The remaining questions are completed on a six-point scale (from “never” to “usually”) which describes usual patterns of behaviour. The test manual provides impressive evidence of the reliability of the measure and also evidence of concurrent and predictive validity.

**Procedure**

Participants were required/mandated by their organisation to attend a middle management development centre where they completed these questionnaires amongst other exercises. Participants were from over a dozen large British and European organisations both in the public and private sector. The organisations chose to do this primarily as a developmental but also an assessment, experience to have a better understanding of their management group. A psychological consultancy ran the day long course and attendance was compulsory. Each manager was given detailed feedback on the results of the questionnaires by a trained and certificated assessor.

**Main effects.** Table I shows the results of the one-way ANOVA with post hoc Scheffe comparisons. Both were significant and showed opposite results. Compared to non-managers, senior managers did best at the WG, but scored lowest on the GMA.

It is worthwhile noting from the post hoc analyses in Table I that in both analyses it was the Non-managers who were different from the other two groups who did not statistically differ from one another.

Table II shows that, for the FIRO-B, four of the six main effects were significant. Senior managers scored highest on Expressed Inclusion (EI) and Expressed Control (EC), as well as Wanted Control (WC), but lowest on Wanted Inclusion (WI).

<table>
<thead>
<tr>
<th>Managerial level, personality and intelligence</th>
<th>811</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table I.</strong> ANOVA results for the two intelligence tests</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>GMA</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>X</td>
<td>SD</td>
<td>X</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>--------</td>
<td>----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Non-managers</td>
<td>408</td>
<td>8.30</td>
<td>3.02&lt;sup&gt;b&lt;/sup&gt;</td>
<td>62.62&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Managers</td>
<td>1,368</td>
<td>8.15</td>
<td>3.21&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>63.01&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Managers of managers</td>
<td>2,058</td>
<td>7.92</td>
<td>3.06&lt;sup&gt;a&lt;/sup&gt;</td>
<td>63.94&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>F(2,3879)</td>
<td></td>
<td>3.74*</td>
<td></td>
<td>7.31**</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05, **p < 0.01; numbers with identical superscripts are not significantly different but those with different superscripts are
A difference score was also computed for each of the three dimensions which was the Expressed Score – the Wanted score. These difference scores were then also treated to a one-way ANOVA with post hoc comparisons. The Inclusion difference analysis was significant: (F(2, 3526) = 14.52, p < 0.001). The Manager of managers had the highest score (X = 1.77, SD = 2.34) followed by the Managers (X = 1.40, SD = 2.48) followed by the Non-managers (X = 1.21, SD = 2.59). The Control Difference score was also significant (F(2, 3525) = 95.84, p < 0.001). Again the Manager of managers had the highest score (X = 2.59, SD = 2.71) followed by the Managers (X = 2.26, SD = 3.00) and then the Non-managers (X = 0.81, SD = 2.78). The Affection difference score failed to yield significant differences (F(2, 3534) = 2.38, p < 0.10).

Table III shows that, for the HDS, significant differences were found for only three of the 11 personality disorders. Compared to senior managers, junior managers were least colourful and most diligent and dutiful.

Gender × level interactions

Intelligence – GMA. There were main effects for gender (F(1, 2538) = 9.93) (females scored higher), but not for managerial level, and no significant interaction between gender × managerial level was found. WG: there were main effects for gender (F(1, 2538) = 14.48, p < 0.001) (males scored higher), as well as managerial level

Table II.
ANOVA results for the FIRO-B

<table>
<thead>
<tr>
<th></th>
<th>EI (0.74)</th>
<th>WI (0.78)</th>
<th>EC (0.69)</th>
<th>WC (0.77)</th>
<th>EA (0.71)</th>
<th>WA (0.73)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-managers</td>
<td>734</td>
<td>4.88a</td>
<td>3.68a</td>
<td>3.70a</td>
<td>2.89a</td>
<td>3.56</td>
</tr>
<tr>
<td>Managers</td>
<td>1,444</td>
<td>5.05b</td>
<td>3.65a</td>
<td>5.25b</td>
<td>2.97a</td>
<td>3.72</td>
</tr>
<tr>
<td>Managers of managers</td>
<td>3,491</td>
<td>5.16c</td>
<td>3.38b</td>
<td>6.07c</td>
<td>3.48b</td>
<td>3.60</td>
</tr>
<tr>
<td>F(2, 3487)</td>
<td></td>
<td>7.13***</td>
<td>2.69*</td>
<td>234.15***</td>
<td>37.77***</td>
<td>1.64</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05; **p < 0.01; ***p < 0.001; numbers with identical superscripts are not significantly different but those with different superscripts are

Table III.
ANOVA results for the HDS

<table>
<thead>
<tr>
<th></th>
<th>Non M (n = 73)</th>
<th>Man (n = 269)</th>
<th>M of M (n = 704)</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excitable</td>
<td>3.00</td>
<td>3.13</td>
<td>2.93</td>
<td>0.76</td>
</tr>
<tr>
<td>Sceptical</td>
<td>4.63</td>
<td>4.78</td>
<td>4.61</td>
<td>0.51</td>
</tr>
<tr>
<td>Cautious</td>
<td>3.30</td>
<td>3.51</td>
<td>3.10</td>
<td>2.82</td>
</tr>
<tr>
<td>Reserved</td>
<td>4.47</td>
<td>4.68</td>
<td>4.75</td>
<td>0.64</td>
</tr>
<tr>
<td>Leisurely</td>
<td>5.11</td>
<td>5.19</td>
<td>4.85</td>
<td>2.57</td>
</tr>
<tr>
<td>Bold</td>
<td>7.21</td>
<td>7.72</td>
<td>7.57</td>
<td>1.18</td>
</tr>
<tr>
<td>Mischievous</td>
<td>7.30</td>
<td>7.25</td>
<td>7.47</td>
<td>0.75</td>
</tr>
<tr>
<td>Colourful</td>
<td>8.73a</td>
<td>7.99b</td>
<td>8.43c</td>
<td>3.29*</td>
</tr>
<tr>
<td>Imaginative</td>
<td>6.04</td>
<td>5.69</td>
<td>5.87</td>
<td>0.95</td>
</tr>
<tr>
<td>Diligent</td>
<td>9.25a</td>
<td>9.08b</td>
<td>8.68c</td>
<td>3.60*</td>
</tr>
<tr>
<td>Dutiful</td>
<td>7.29a</td>
<td>6.70b</td>
<td>6.75b</td>
<td>2.70*</td>
</tr>
<tr>
<td>SD</td>
<td>5.16</td>
<td>5.01</td>
<td>5.11</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Notes: numbers with identical superscripts are not significantly different but those with different superscripts are; *p < 0.05
(F(2, 3538) = 4.89, \( p < 0.001 \)) (The non-managers scored higher than managers), and a significant interaction (F(2, 2538) = 3.11, \( p < 0.01 \)). Female non-managers scored highest and male most senior managers lowest.

**FIRO-B – Six 2 (gender) \( \times 3 \) (level) analysis revealed four gender differences. Females scored significantly higher on EI (F(1, 3485) = 20.19), WI (F(1, 3485) = 15.17, WC (F(1, 3485) = 20.94) and EA (F(1, 3485) = 9.31). There were three significant main effects for level. Non-managers scored highest and Manager of managers lowest on WI (F(2, 3485) = 3.17) while the reverse was true of both EC (F(2, 3485) = 75.36 and WC (F(2, 3485) = 13.86). There were two significant interactions: Female Non-managers scored lowest and male Manager of managers highest on EC (F(2, 3485) = 27.77) and WC (F(2, 3485) = 12.44).

**HDS – there were three (out of 12) significant sex differences in HDS factors. Males scored higher than females on reserved (F(1, 998) = 19.25, \( p < 0.001 \)), but females scored higher than males on imagination (F(1, 998) = 5.68, \( p < 0.001 \)) and diligent (F(1, 998) = 5.80, \( p < 0.01 \)). There were three significant managerial level effects. Non-managers scored highest on colourful (F(2, 998) = 3.20), diligent (F(2, 998) = 3.60, \( p < 0.001 \)); and dutiful (F(2, 998) = 3.51, \( p < 0.01 \)). There were no significant interactions.

**Discussion**

The first research questions probed the idea that Managers of managers would have highest scores on both (indeed all) intelligence tests. The results showed both tests yielded significant differences but in opposite directions. However, all the differences lay in the Non-managers as the two manager groups did not differ from each other. Thus the most senior managers scored least well on one test (Graduate Management Assessment) but highest on the other (Watson Glaser). Whilst test scores were significantly correlated (\( r = 0.39, p < 0.001 \)) the tests were slightly different. The GMA was more a measure of fluid intelligence (i.e. abstract thinking) while the WG was more a crystallised intelligence test. Further a particular appeal of the WG is its face validity in the sense that the issues and problems are conceived very much in business terms. Further the GMA is a shorter test than the WG. It has been shown many times that fluid intelligence declines more with age than crystallised intelligence (Deary et al., 2000). Further speed of processing declines. Thus on brief fluid intelligence tests involved with abstract reasoning older people are less likely to do as well as younger people (even if at their age they would get equivalent scores) while on more contextualised, crystallised tests age differences (in adulthood) would be less noticeable.

This fact may help explain the results from the different tests. Ideally one should redo the study partialling out the effects of exact age. However, whilst the testers confirmed that the manager or managers tended to be eight to 12 years older on average than the managers who were five to ten years older than the non-managers, no systematic formal data was collected on age.

One other factor could account for these anomalous findings. This was the fact that non-manager group contained a number of specialists often from IT, engineering, or R&D type jobs who, though senior, were not strictly speaking managers of people. These individuals are often recognised for their exceptional cognitive ability and technical knowledge but are also often thought to be rather poor at management and...
leadership roles. Hence many are senior in organisations but strictly non-managers. It is possible that some of these usually very intelligent individuals help account for the high fluid ability scores of the non-manager. However it is true that the standard deviations were higher for non-managers only on the WG test.

An inspection of the means (and standard deviations) in Table I however suggests that there are in fact relatively little differences in scores between the three groups, often less than one point on the scale. This however does not imply that intelligence is not important in management as those scores do indicate that nearly all the participants were in the top quartile of scores.

The results for the analysis of the personality scale (FIRO-B) showed interesting differences, particularly for the dimensions of Inclusion and Control which were clear. The more senior a manager the more he or she is required to be Inclusive. They may be required to socially express gratitude for being invited by all sorts of groups to be included. They need to attend a wide variety of social functions from committees and conferences to social gathering and “appear” to enjoy the experience. However, this could lead to considerable demands on their time hence it may be their Wanted Inclusion declines. Interestingly the senior managers had a fairly large disparity score. This probably does not reflect a fear of rejection but rather a desire to sufficiently keep in touch with their staff while having sufficient time to work on their own.

The results for the Control dimension were clear and statistically significant. As predicted senior managers had highest Wanted Control scores and the highest disparity. That is, they have a much greater need to control others than be controlled by them. This reflects their role. The clinical interpretation of the FIRO-B instrument offers a typological description of various combined scores (Ryan, 1977). The senior manager’s profile is described as “Self Confident” because they “tend to be comfortable and confident in making decisions and assuming responsibility… A need for recognition exists, along with a high level of aspiration but they are not prone to over excited themselves in a frantic effort to obtain these ends. They respect the limits of reality and work within the realm of their abilities” (Ryan, 1977, p. 16). On the other hand the other two groups have a “Matcher” profile. Interestingly the profile offers different interpretation for males and females. Indeed there was a sex × level interaction indicating that neither females nor managers had the lowest scores.

Ryan’s (1977) analysis is:

A male “Matcher” is capable of making decisions and taking on responsibility, but he wants reassurance and support from others while he is doing so. He prefers to share an area of responsibility, rather than do it along. He is democratic. He does not put excessive demands on others for support but merely asks others to match the level of responsibility he assumed. The “Matcher” is not dependent but does have some doubts about his ability. He is fearful of criticism and failure. He finds reassurance and safety in sharing responsibility with others. He not only shares the responsibility, but also expects others to share the guilt whenever criticism or failure occurs (Ryan, 1977, p. 20).

Certainly the profile analysis confirms what one expects of managers and non-managers. There was no difference regarding Expressed and Wanted Affection. All three groups received similar scores.

The results for the Hogan Development Survey did yield three interesting differences. The non-manager group scored significant highest on Diligent (Obsessive-Compulsive) and Dutiful (Dependent). Diligent people are described as
perfectionistic, inflexible and critical of others’ performance. On the other hand the 
Dutiful are described as eager to please and reliant on others for support and guidance. 
They are reluctant to take independent action or to go against popular opinion. This 
certainly makes sense from a management perspective. Senior managers cannot afford 
to be either dependent or obsessive as it would affect their ability to do the job. Yet 
specialists often have this sort of profile and interest in detail.

There was also a significant difference on histrionic (colourful) with a curvilinear 
pattern. The manual describes those with high scores in being concerned with 
dramatic, engaging and attention-seeking acts being preoccupied with being noticed 
and hence may lack sustained focus. The non-managers had the highest scores and the 
middle managers the lowest. It is not difficult to explain how high scores may certainly 
benefit some senior managers who are often in the lime-light of business.

Studies such as this show personality and ability differences between people at 
different levels of seniority within and between different organisations. The fact they 
came from different organisations clearly attests to the generalisability of these 
findings. Whilst many, but not all, of the hypotheses were confirmed they cannot speak 
to the process that explains why they occur. Cross-sectional data cannot show causal 
relations. Thus it is not clear whether the difference between levels is a function 
of selection or socialisation or both. That is, it may be that people with a particular 
personality and ability profile get selected for promotion while others do not. Equally it 
is possible that these factors change as a function of taking on more management 
responsibility. However, the data on the stability of intelligence and personality over 
time leads to the inference that it is more likely to be selection processes that determine 
these differences. Indeed longitudinal studies looking at individual difference 
predictors of success at work suggest that individual differences measured at 
selection can significantly predict success in the organisation as much as 20 years later 
(Howard and Bray, 1988).

Equally the very fact of identifying people as high flyers or high potential through 
ratings or test scores early in their career may itself give them much greater chances of 
promotion. Nevertheless the role of individual difference factors in a person’s career 
trajectory remains an important and neglected topic, no doubt mainly because of the 
necessity for but difficulty of doing, extensive longitudinal research for many people in 
many different organisations.

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Further reading


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About the authors
Adrian Furnham is Professor of Psychology at University College London where he has taught for 25 years. He is the corresponding author and can be contacted at: a.furnham@ucl.ac.uk

John Crump is founder director of KAISEN, a British-based management consultancy which specialises in management assessment, development and selection.

Tomas Chamorro-Premuzic is a Lecturer at Goldsmith’s College of London University and has extensive interests in applied and differential psychology.

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