Age, Sex, Education, EQ, IQ and Management Level: A Study from Great Britain

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Abstract

Do non-, first-line, middle and senior managers differ in their cognitive ability and emotional intelligence? In this study we interested in the demographic and ability differences of people at different management levels. Over 6000 adults completed a multidimensional intelligence test (IQ) with five subscales and a measure of Trait Emotional Intelligence (EQ) with 15 subscales. First, we examined sex, age, educational and management level correlates of both EQ and IQ. Whilst there were many significant results, effect sizes were small. The focus of the paper was the regression using management level as the criterion variable and demography, EQ and, IQ as the predictor variables at facet and domain levels. Age and sex, particularly the former, accounted for nearly 30% of the variance, but both EQ and IQ added incremental variance. Facet level variance showed that specifically IQ number speed, and EQ sociability and emotionality (negatively) related to managerial level. Implications for general management and limitations are acknowledged.

Key Words: Intelligence; EQ; management level

Introduction

To what extent does IQ and EQ affect work success and promotion? There is a growing interest in personality trait correlates and predictors of individual and organisational performance, satisfaction, and derailment (Boudreau & Boswell, 2001; Furnham, 2018; Judge & Bono 2000; Judge, Higgins, Thoresen & Barrick, 1999; Kajonius & Carlander, 2017; Seibert, Crant, & Kraimer, 1999). This is particularly relevant for both the selection and training of successful middle and senior managers and business leaders (Gøtzsche-Astrup, 2018; Ling et al., 2019; Sutin et al., 2009).

Researchers and reviewers have speculated about which traits (and disorders) are associated with leadership success and failure (Furnham & Treglown, 2018). These have include cognitive ability (IQ) (Richardson & Norgate, 2015; Sorjonen, et al, 2019), personality factors like Openness (Nieß, & Zacher, 2015) as well as emotional intelligence (Law et al, 2004). Ideally, this question is best asked by longitudinal research following individuals with known, psychometrically valid, trait scores upon entry to an organisation, and then track how factors like ratings by superiors and work performance leads to promotion to senior positions. Whilst this type of data is highly desirable it is very difficult to obtain, and inferences have to be made from cross-sectional studies such as this.

In this study we explore individual differences between people at different levels in organisations. This partly informs the leadership emergence-effectiveness debate (Badura et al., 2021). The idea is that "the cream rises to the top" and that people with the abilities, motives and traits associated with successful general management and leadership abilities get noticed and promoted. Hogan, Curphy, and Hogan (1994) differentiated between emergence and effectiveness in the leadership suggesting that leaders who emerge exert significant influence over other members of the group to which they belong, even when assigned no formal

authority. Various longitudinal studies have indeed showed that those who emerge and get promoted to leadership roles have distinct profiles (Luria et al., 2019). Our question is whether EQ and IQ are important factors in those promoted to more senior management roles.

 One way of validating a theory or measure of talent/potential is to evaluate people at different managerial levels controlling for factors such as sex, age and education, given that leaders still seem to be predominantly older males, with better educational qualifications. The assumption is that personality factors play an important role in "climbing the organizational ladder" sometimes called the "greasy pole" (Furnham et al., 2013; Ahmetmoglu et al., 2016). On the other hand it is possible that success changes people (Hirschi et al, 2021) or even that "old boy networds" or other groups attempt to get "their people" promoted to positions of power irrespective of their abilities.

All researchers who examine personality over time agree that there is evidence of *both* stability *and* change. From these studies Furnham and Sherman (2021) drew the following conclusions: Personality seems most stable between the ages of 30 and 60 years, particularly using established big five measures to assess it; there are modest increases in Emotional Stability and Agreeableness over this period with Extraversion and Neuroticism showing least change (both with a slight decline) and Conscientiousness showing most change (an increase); Males seem more stable than females. There is less work however about changes in intelligence and ability (Furnham, 2014).

Whilst it is possible that some personality and ability change does take place over time, many studies have shown that it is generally stable over the working life, implying that personality is not radically changed by being appointed to higher managerial ranks. Thus, while there may be some reciprocal influence it is assumed that stable personality traits in part account for

success and promotion at work and the latter have a relatively minor impact on personality structure or functioning (Furnham & Cheng, 2015). Thus, while organization believe in both the importance of selection *and* training of managers, they tend to identify traits that are associated with leadership *and* the learning of those skills (Gøtzsche-Astrup, 2018; Pendleton et al.,2021).

Around half a dozen studies in different countries and using very different measures have used *management level* (junior, middle, senior) as a criterion to try to understand what factors lead promotions and hopefully success (Ahmetoglu, Chamorro-Premuzic, & Furnham, 2010; Bucur, 2011; Ion, Iliescu, & Vercellino, 2019). This study is in this tradition. There have been a number of studies in this tradition.

Furnham, Crump, and Chamorro-Premuzic (2007) examined intelligence, personality traits, and personality disorders factors related to Management Level. Senior managers had higher Expressed and Wanted Control than middle managers on the FIRO-B (Schutz, 1958; 1992). They also expressed, but did not want, more Inclusion than middle managers. With respect to the personality disorders as measured by the Hogan Developmental Survey (Hogan & Hogan, 1997) senior managers tended to be less Diligent and Dutiful than junior managers.

Moutafi, Furnham, and Crump (2007) looked at sex, age, Big five, and Big Four (MBTI) correlates of Managerial Level in 900 managers. They found managerial level was significantly correlated with NEO-PI Neuroticism, Extraversion, Conscientiousness, MBTI Introversion, Sensing, Intuition, Thinking. The more senior the manager the more likely they were to be Achievement Striving, Dutiful, Competent, Orderly, Assertive, Active, and Gregarious, and the less likely they were to be Anxious, Depression prone, Self-conscious, and Vulnerable.

Furnham and Crump (2015) categorized over 5000 adults attending an assessment centre as Non-Managers or specialists, Middle Managers and Senior Managers (Manager of Managers or Leaders). Using three well known tests they found Senior Managers tended to be less Neurotic and Agreeable, but more Extraverted and Conscientious and had less Wanted Inclusion and more Expressed Control scores on the FIRO-B and tended to be higher on MBTI Intuition and on Thinking (vs Feeling). The results of the discriminant analysis showed two FIRO-B factors (Expressed Control and Wanted Inclusion and two Big Five (Neuroticism and Extraversion) were best discriminators of managerial seniority. Leaders tended to score high on Expressed Control and Extraversion and low on Wanted Inclusion and Neuroticism.

Only a few of the studies on job level and personality have included dark-side measures (sub-clinical Personality Disorders). Winsborough and Sambath (2013) tested a sample of 151 New Zealand CEOs and found CEOs to have significantly higher scores on the Colorful scale, but lower scores on the Dutiful, Diligent, Skeptical, Cautious, and Excitable scales, than the New Zealand comparison population norms. In a British sample, Palaiou and Furnham (2016), compared 128 CEOs to a large group of 4,826 senior and middle managers in terms of the HDS personality derailers. They found CEOs to have higher scores than the other group on Bold and Colorful, but lower scores on Excitable, Cautious, Leisurely, and Dutiful, all with small or medium effect sizes. Gøtzsche-Astrup, Jakobsen, and Furnham (2016) explored linear and quadratic relationships between personality and de facto job level in Danish managers. More senior managers scored high on Cluster B/Moving Against Others scales of Bold, Colorful and Imaginative, and low on Cautious and Dutiful.

In this study we examine to what extent IQ and EQ are related to management level (Petrides, 2011). There is an extensive literature on the relationship between these two variables and the

extent to which they separately and together predict other factors like educational and work success (Côté, & Miners, 2006; Şahin, Güler, & Basim, 2009; Singh, & Sharma, 2012; Sitaram, 2006 ; Van der Zee, Schakel, & Thijs, 2002). There remains some debate as to the relative importance of these two variables in explaining work success (Furnham, 2008).

There are still those who challenge the assumption that intelligence is an important predictor of work success, particularly in terms of leadership (Richardson & Norgate, 2015). There is less debate and probably more research on the role of emotional intelligence in general work and especially leadership success (George 2000; Pendleton et al., 2021)

In this study we examined the role of EQ and IQ at managerial level, using well validated multidimensional measures and accounting for demographic variables. It is obvious that there is a close relation between age and rank in most organisations, presumably because of greater experience and loyalty being rewarded by promotions. There is also a relationship between education and rank as people with more education tend to have more qualifications and skills relevant to more senior jobs.

 There is also a more controversial literature on sex and managerial level, which suggests, for various reasons, that females are under-represented at senior levels. We expect that these three variables will account for a significant amount of variance in explaining managerial level, but our interest is the incremental variance accounted for by EQ and IQ. That is, to what extent is intellectual ability and social skills a marker of seniority in leadership role above the classic demographic factors of sex, age and education?

Method

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Participants

Participants were assessed in the UK by a British psychometric test publisher, with participants taking cognitive ability and emotional intelligence assessments as a part of selection and development programmes. 6,439 (2396 female, 4043 male) participants who had taken both assessments were included in the overall sample. The mean age of the sample was 42.2 years (SD = 10.7 years). Most participants (n = 5519; 83.8%) were in employment (full-time employed, n = 4820; part-time employed, n = 319; self-employed, n = 380), with the rest being either full-time students (n = 105, 1.6%), unemployed (n = 728, 11.1%), or did not state their employment. Data on the highest level of education achieved was also collected, with the three most frequent educational levels being that 37% (n = 2437) of participants having a Bachelor's degree, 19.6% (n = 1291) completing A-levels, and 12.6% (n = 827) completed GCSE/O level or similar. Participants were primarily White-British (n = 5290, 80.4%), with White–Non-British (n = 406, 6.3%), Asian/Asian-British (n = 299, 4.5%), and Black/Black-British (n = 127, 1.9%) representing the next three highest ethnic groups in the sample.

There was a range of managerial levels in the sample, 29.6% (n = 1946) being non-managers, 14% (n = 921) being first line managers, 20.5% (n = 1348) being middle managers, and 23.3% (n = 1535) being executive or senior managers. The rest of the sample (9.2%) chose not to state their manager level.

Measures

Trait Emotional Intelligence Questionnaire (TEIQue): The TEIQue measured participant's emotional intelligence through the identification of the ability to understand, respond and interpret not only other people's emotions but as well their own and further how one can manage their own emotions. TEIQ reflects how one thinks of themselves through looking into 4 broad categories - factors (Well-being, Self-control, Emotionality, and Sociability), which

are further broken down into 15 different facets and additional 2 independent ones to get a more detailed description and understanding of the measurements. This measure has been pre-validated, and its internal validity has been assessed, with Cronbach's alpha = 0.94 for males and 0.95 for females showing TEIQ to have good internal validity (Mikolajczak et al. 2007).

General Intelligence Assessment (GIA): the GIA was used to investigate gender differences in fluid intelligence. The GIA assesses individuals' cognitive abilities, by measuring their speed and accuracy across five domains relevant to work contexts: Verbal Reasoning, Perceptual Speed, Number Speed, Word Meaning, and Spatial Visualisation; detailed in Table 1 (Dann, 2015; Furnham & Treglown, 2018). Its aim is to primarily measure mental speed of processing (i.e., fluid intelligence and procedural knowledge), rather than depth (i.e., crystallised intelligence and declarative knowledge). It reflects individuals' ability to quickly process novel information, and learn, develop, and apply new skills (Dann, 2015). The assessment consists of five tests (described in Table 1), which are developed in real-time, via computer-based item-generation. This method enables the automatic production of numerous different tests of equivalent form (Irvine, Dann, & Anderson, 1990). Each test measures a particular cognitive function and involves one type of task, and all questions within a test are of equal difficulty. The response format is multiple-choice, and no time limit is imposed (Dann, 2015).

Insert Table 1 here

Individual scores for the five subtests are calculated as adjusted scores; overall scores take guessing into account. These scores are calculated using the following equation:

$$N_{correct} - (\frac{N_{incorrect}}{K - 1})$$

Where *N* represents the number of correct or incorrect items (denoted by subscript), and *K* represents the number of potential alternative answers for the particular question (e.g. *Verbal*

Reasoning questions have two potential answers). Additionally, an overall adjusted score is provided as a measure of participants' general fluid intelligence across the five subtests. The GIA has been shown to have high internal validity, with average test-retest correlations ranging from .75 to .86 on individual test scores (Furnham & Treglown, 2018). It also has high construct validity, with total GIA score correlations of $r = .74$ with Raven's progressive matrices test (Dann, 2015).

Procedure

Participants completed both assessments online and were sent instructional text for each test via email. Participants were volunteers who gave permission for their anonymised data to be used. The tests, which the organisation was licenced to use, could be taken at a time that best suits the participant. The data was collected through a psychometrics company's online tech-portal over a period of around three years which administered the tests where login details provided by the company to each participant. If participants had taken the GIA assessment multiple times, there first data set was used for analysis in this study to eliminate practice effects (despite participants taking more than one test over a period of time).

Analysis

The dataset was organized and cleaned using SPSS 24.0. Structural equation modelling (SEM) was conducted in the Lavaan package (Rosseel, 2012; version 0.5–20) of R (version 3.3.0). Based upon Kline's (2005) recommendations, the following fit indices were applied: the χ^2/df ratio, RMSEA, Standardized Root Mean Residual (SRMR), and the Comparative fit index (CFI). An excellent fit is indicated when χ^2/df < 3.00 (van Dam, 2015), RMSEA<0.05 (MacCallum, Browne, & Sugawara, 1996), SRMR>0.08 (Hu & Bentler, 1998), and CFI > 0.95 (Hooper, Coughlan, & Mullen, 2008).

Results

Group Differences (Gender, Education, and Manager Level) in Emotional and Fluid Intelligence

Gender: A series of ANOVAs were run in order to examine group differences in emotional and fluid intelligence. Researchers in this field are emphasising the need for psychological studies to report effect sizes (e.g. Sullivan & Feinn, 2012). Researchers have argued that large sample sizes bring guarantee of statistical significance without insight into practical significance (Khalilzadeh & Tasci, 2017). As such, this study has placed emphasis on examining effect size of these differences to gauge the magnitude of differences.

For gender, nine of the fifteen traits had only small effect size differences, with males scoring slightly higher on Emotion Regulation (*MDiff* = 0.28), Stress Management (*MDiff* = 0.25), Emotion Management (*MDiff* = 0.20), and Assertiveness (*MDiff* = 0.28); whilst female participants scored higher on Optimism (*MDiff* = 0.19), Empathy (*MDiff* = 0.21), Emotion Perception (*MDiff* = 0.20), Emotion Expression (*MDiff* = 0.22), and Relationships (*MDiff* = 0.20). The other six traits, as well as overall TEIQue, had negligible differences in terms of effect size.

Additionally, with fluid intelligence, two of the five subtests show small effect size differences, with male participants scoring higher on Number Speed (*MDiff* = 2.5) and Spatial Visualisation (*MDiff* = 1.4). The other three subtests and overall fluid intelligence showed negligible differences in terms of effect size. The results demonstrate support for the gender-similarity hypothesis (Hyde, 2007), finding that differences in emotional and fluid intelligence between gender are small at best.

Insert Tables 2 and 3

Education: As with Gender, a series of ANOVAs were run to examine differences in fluid and emotional intelligence by education level. For emotional intelligence, none of the effect sizes reached the cut-off for a small effect, indicating differences in emotional intelligence by education is negligible. For fluid intelligence, three (*Number Speed, Word Meaning,* and *Overall GIA*) had small effect sizes, with post-hoc Tukey analyses indicating that higher educational achievement groups (e.g. MBA, MSc, or PHD) scored higher on these sub-tests than groups with lower levels of educational achievement (e.g. School Leavers, GCSEs, or A-Levels). The other sub-tests had negligible differences in terms of effect size. The small effect sizes indicated that there is little to no difference in fluid or emotional intelligence in terms of education level.

Manager Level: Finally, ANOVAs were run to examine differences in emotional and fluid intelligence by manger level. For emotional intelligence, six of the traits (as well as overall emotional intelligence) had small effect sizes. Post-hoc Tukey HSD analyses indicated that higher manager levels were associated with higher levels of *Emotion Regulation, Impulse Control*, *Stress Management*, *Emotion Management, Social Awareness, Adaptability,* and *Overall TEIQue. Assertiveness* had a medium effect size, with results indicating higher levels were associated with increased manager level.

For fluid intelligence, only *Word Meaning* had a small effect size, with results indicating that higher manager levels had higher levels of *Word Meaning*. The other sub-tests or overall fluid intelligence had negligible effect sizes. The small effect sizes indicated that there is little to no difference in fluid or emotional intelligence in terms of manager level, with higher *Assertiveness* being the only distinguishing factor.

Correlations

Insert Table 4

Table 4 shows the correlations between the three demographic variables, the IQ subscales and total scale and management level. The results show that for three of the subscales and the total scale, older people score less well than younger people. The except was word meaning which is consistent with the previous literature. Whilst females scored higher than males on verbal reasoning, they did significantly less well on two other subscales and the total score. All five subscales and the total IQ score were positively correlated with education. All scales were correlated with managerial level but two were negative suggesting those with superior verbal reasoning and perceptual skills were less likely to get to senior positions

Insert Table 5

Table 5 shows the correlations between age, sex, education, management level and EQ at the 15 facet levels as well as the total score. The pattern was clear: older people tended to have higher EQ. The results were very mixed for gender with no overall scale score. With few exceptions those with more education had higher EQ scores. Similarly, with only two facet exceptions, all the correlations between management level (particularly Emotion Management and Assertiveness) were positive.

Regressions

Insert Tables 6 and 7 here

Table 6 shows a stepwise regression with managerial level as criterion score, and the three demographic variables as predictors, followed by the five IQ and four "higher-order" EQ scores. The first step was highly significant accounting for 29% of the variance. By far the most powerful predictor was age, which came as no surprise. The second step showed an

incremental variance of 4%. It indicated that those who scored higher on number speed (fluid intelligence) and sociability, but lower on emotionality, held higher managerial roles.

Table 7 shows the regression with the same demographic variables but the totalled IQ and EQ scale. The results suggested that these two variables only accounted for an extra 1.5% of the variance, that both tests were significant but with EQ higher than IQ.

Discussion

This study focused on correlates of managerial level. It showed, unsurprisingly, that by far the most powerful marker is age: older people have more job experience, knowledge, and skills and therefore are more likely to be promoted. Promotion is also often a reward for good and loyal service, as much as measurable outcomes. However, this relationship may more true of some job sectors rather than others, where life-long learning and experience may be less useful. Indeed, it could be that in rapidly changing sectors age could be a disadvantage, as people have no experience of new technology or approaches or behavioural repertoires that inhibit new learning.

The same was true for education: more education leads to more knowledge, skills, and qualifications which are rewarded by promotion to senior positions. Equally it could be argued that most organisations hire better educated people for managerial roles. It is also clearly true that education is correlated with IQ. Certainly,some education is vocational and necessary to acquire a job such as in the law and medicine. On the other hand, for some leadership roles the skills acquired are obtained "on-the-job" rather than by formal education. Indeed, with many changes in further and higher education, and particularly in business it would be interesting to see whether formal education versus on-the-job learning is a better predictor of general managerial emergence and success.

One interesting feature of this study was sex differences in IQ, EQ and managerial level. It is noticeably apparent, and an issue of concern and debate why in so many organisations and job sectors that females are unrepresented at the top. This study looked at sex differences in both EQ and IQ. There were indeed many sex differences on both measures, but the effects were very small suggesting these factors could not explain the differences in managerial rank.

In this study we focused on age, education, sex and managerial level correlated of EQ and IQ as measured at both domain and facet level. The results confirmed many previous findings in the IQ literature: older people do less well on timed IQ tests; males do better on numeric and spatial IQ tests and females do better on verbal tests; better educated people are more intelligent than less educated people. Interestingly, the correlations between intelligence and managerial level were low and mixed. Presumable the direct effect on IQ on level is through education.

The results on EQ also confirmed much of the previous literature. Older people appear to have higher EQ, having learnt social skills over time. There are quite a few sex differences in both directions so that they cancel each other out in the total scale. Educated people have higher EQ, which they possibly acquired as part of their formal education. However, there were many high correlations between facets of EQ – Assertiveness, Emotion management, Stress management, Social awareness, Adaptability – and Management Level. Of course, the cross-sectional nature of this study made it impossible to say whether EQ skills led to being promoted or the experience of higher management lead to the development of EQ. Both are no doubt true, but the data on the trainability of EQ suggests the former is more likely than the latter.

The results of the regressions showed, as expected, that EQ and IQ did add incremental validity over and above the demographic variables. However, the amount of additional variance was comparatively small. Age always accounts for most the variance showing that work-experience as well as factors like company loyalty, lead to promotability.

It is not hard to explain why IQ and EQ are associated with higher general management roles. Often jobs get more complicated as people rise to general management and leadership roles and they have to learn new skills which are both associated with intelligence. Further, leadership is a "contact sport" which is done with, and through people, like boards and teams (Pendleton et al., 2021). Very few dispute the importance of EQ in general management.

There is an interesting question as to the relationship between IQ and EQ which is often very low and sometimes negative suggesting that people acquire EQ skills to potentially compensate for their lower IQ (Treglown & Furnham, 2021).

One interesting and relevant question is what followers would like in their leader/boss. Furnham et al. (2012) asked people to specify what they most wanted in a boss in terms of age, sex, EQ and IQ. They found no significant preference for gender or age of a boss but a strong preference for high EQ and IQ, with EQ more powerful that IQ. The participants favoured young, male bosses and old, female bosses over old, male bosses and young, female bosses. Also females particular favoured a high EQ in their boss.

What are the implications for this study and research area for general management? Every organisation knows that a major part of its survival and success depends on the skill and insight of its supervision, management and leadership. Hence the money spent on selection and development. In a rapidly changing economic and political world the way organisations "organically grow" managers from within may be necessarily changing because it is less efficient and appropriate. The same is true for the obvious sex and gender-bias in many organisations where a preponderance of males occupy senior positions. This paper has demonstrated that managerial rank is related to EQ and IQ across a wide variety of organisations.

Like all others this study had limitations most obviously in data we *did not have* with regarding the participants. Ideally, we would like to know more about the sector in which they worked as well as how successful they were over time. Their job history and other skills would also give important clues as to how the moved from one managerial level to the other. Most of all is always desirable to have longitudinal data to trace individuals over time, and see the possible effects on individual differences like EQ and IQ from taking on more senior management roles.

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Table 1. *GIA Tests' Descriptions*

Test	Description	Format	Length (Minutes)	Abilities Tested
VR	Evaluates problem-solving abilities (i.e., capacity to reason, make inferences, draw conclusions), by testing simple deductive verbal reasoning skills.	Problem-solving task: After reading a statement (e.g., Jack is taller than Jill), participants need to answer a related question (e.g., Who is shorter? Jack or Jill).	5	Fluid and crystallised intelligence
PS	Measures visual checking skills (i.e., ability to identify and report on similarities/differences, details, and errors), by testing semantic perception and encoding.	Letter-matching task: Participants need to identify matching letters between rows of capital and lower case letters (e.g., ADGK/afgm).	4.5	Broad cognitive speed
NS	Assesses overall numeracy (i.e., capacity to process numerical information, perform mental calculations, and reason with quantitative concepts).	Number task: Out of three numbers, participants need to identify which number is numerically further from the others (e.g., 2, 9, 5).	2	Fluid intelligence and memory
WM	Evaluates vocabulary and word-related knowledge (i.e., ability to comprehend large numbers of words and identify words with similar or opposite meanings).	Semantic word task: Participants are shown three words (e.g., Up, Down, Street) and need to specify which word is not related to the others (e.g., Street).	2.5	Fluid and crystallised intelligence
SV	Tests mental visualisation skills (i.e., ability to visualise concepts and objects, and mentally rotate and manipulate shapes and symbols).	Symbol task: Participants need to identify pairs of identical symbols (when symbols have been rotated and/or presented as a mirror image of each other).	2	Fluid intelligence and visual perception

Note. VR = Verbal Reasoning; PS = Perceptual Speed; NS = Number Speed; WM = Word Meaning; SV = Spatial Visualisation.

Table 2. *Means, SDs, and ANOVA results for TEIQue facets by gender.*

	Total Sample (*n = 6439*) Mean (SD)	Males (*n = 4043*) Mean (SD)	Females (*n = 2396*) Mean (SD)	F-score (η^2)
Happiness	6.20 (0.731)	6.15 (0.742)	6.27 (0.707)	40.3 (.006)
Optimism	5.83 (0.768)	5.76 (0.764)	5.95 (0.761)	93.6 (.014*)
Self-Esteem	5.57 (0.745)	5.63 (0.711)	5.48 (0.792)	57.9 (.009)
Emotion Regulation	5.28 (0.837)	5.38 (0.779)	5.10 (0.901)	173.9 (.026*)
Impulse Control	5.37 (0.898)	5.41 (0.887)	5.31 (0.913)	18.8 (.003)
Stress Management	5.42 (0.847)	5.51 (0.797)	5.26 (0.904)	139.8 (.022*)
Empathy	5.60 (0.729)	5.53 (0.739)	5.74 (0.692)	128.3 (.020*)
Emotion Perception	5.41 (0.744)	5.33 (0.743)	5.53 (0.727)	111.0 (.017*)
Emotion Expression	5.48 (1.06)	5.36 (1.07)	5.68 (1.01)	139.2 (.021*)
Relationships	6.04 (0.645)	5.97 (0.661)	6.17 (0.594)	162.1 (.025*)
Emotion Management	5.27 (0.703)	5.35 (0.688)	5.15 (0.710)	130.0 (.020*)
Assertiveness	5.43 (0.760)	5.53 (0.721)	5.25 (0.791)	210.1 (.032*)
Social Awareness	5.80 (0.742)	5.83 (0.742)	5.75 (0.741)	16.7 (.003)
Adaptability	5.38 (0.756)	5.39 (0.732)	5.35 (0.802)	3.47 (.000)
Self-Motivation	5.51 (0.670)	5.50 (0.670)	5.54 (0.670)	7.29 (.001)
Overall TEIQue	5.57 (0.520)	5.57 (0.520)	5.57 (0.519)	0.18 (.000)

Note: * = small effect size, $\eta^2 = \; < .01$; ** = medium effect size, $\eta^2 = \; < .06$.

Table 3. *Means, SDs, and ANOVA results for GIA sub-tests by gender.*

	Total Sample (*n = 6439*) Mean (SD)	Males (*n = 4043*) Mean (SD)	Females (*n = 2396*) Mean (SD)	F-score (η^2)
Verbal Reasoning	39.5 (8.55)	39.2 (8.55)	40.0 (8.53)	14.0 (.002)
Perceptual Speed	42.7 (6.13)	42.7 (6.12)	42.7 (6.15)	0.11 (.000)
Number Speed and Accuracy	14.8 (5.54)	15.7 (5.66)	13.2 (4.97)	312.3 (.046*)
Word Meaning	30.1 (5.27)	30.2 (5.13)	29.9 (5.50)	3.09 (.000)
Spatial Visualisation	10.1 (4.86)	10.6 (5.84)	9.2 (4.78)	140.8 (.021*)
Overall GIA	51.1 (10.6)	52.0 (10.6)	50.2 (10.3)	47.4 (.007)

Note: * = small effect size, $\eta^2 = \; < .01$; ** = medium effect size, $\eta^2 = \; < .06$.

Table 4 *Correlations between TEIQue, Gender, Education, and Manager Level.*

	Age	Gender	Education	Manager Level	Verbal Reasoning	Perceptual Speed	Number Speed	Word Meaning	Spatial Visualisation	GTI
Age	1									
Gender	-0.15***	1								
Education	0.07***	0.01	1							
Manager Level	0.49***	-0.19***	0.21***	1						
Verbal Reasoning	-0.17***	0.05***	0.06***	**-0.03***	1					
Perceptual Speed	-0.17***	0.00	0.05***	**-0.03***	0.47***	1				
Number Speed & Accuracy	-0.11***	-0.21***	0.12***	**0.06***	0.42***	0.43***	1			
Word Meaning	0.13***	-0.02	0.15***	**0.13***	0.49***	0.42***	0.36***	1		
Spatial Visualisation	0.01	-0.15***	0.08***	**0.07***	0.29***	0.32***	0.4***	0.3***	1	
Overall GIA	**-0.10***	**-0.08***	**0.13***	**0.05***	**0.77***	**0.75***	**0.72***	**0.72***	**0.61***	1

*p<.0.05 **p<.0.01 ***p<.001

Table 5. *Correlations between TEIQue, Gender, Education, and Manager Level.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
1. Age	1																			
2. Gender	-0.15***	1																		
3. Education	0.07***	0.01	1																	
4. Manager Level	0.49***	-0.19***	0.21***	1																
5. Happiness	0.03*	0.08***	0.05***	**0.07***	1															
6. Optimism	0.00	0.12**	0.04***	**0.05***	0.65***	1														
7. Self Esteem	0.08***	-0.09***	0.08***	**0.13***	0.57***	0.51***	1													
8. Emotion Regulation	0.15***	-0.16***	0.03**	**0.14***	0.41***	0.36***	0.44***	1												
9. Impulse Control	0.16***	-0.05***	0.06***	**0.10***	0.36***	0.24***	0.38***	0.6***	1											
10. Stress Management	0.14***	-0.14***	0.05***	**0.16***	0.49***	0.44***	0.49***	0.69***	0.55***	1										
11. Empathy	0.02	0.14***	0.08***	**0.03***	0.38***	0.33***	0.33***	0.33***	0.37***	0.36***	1									
12. Emotion Perception	0.04***	0.13***	0.07***	**0.06***	0.43***	0.37***	0.41***	0.33***	0.37***	0.36***	0.59***	1								
13. Emotion Expression	0.06***	0.15***	0.02	**0.04**	0.46***	0.38***	0.42***	0.27***	0.31***	0.3***	0.49***	0.65***	1							
14. Relationships	-0.01	0.16***	-0.01	**-0.04**	0.54***	0.41***	0.39***	0.38***	0.45***	0.42***	0.53***	0.49***	0.52***	1						
15. Emotion Management	0.10***	-0.14***	0.06***	**0.22***	0.23***	0.23***	0.37***	0.21***	0.08***	0.23***	0.3***	0.34***	0.28***	0.16***	1					
16. Assertiveness	0.17***	-0.17***	0.05***	**0.30***	0.32***	0.30***	0.48***	0.35***	0.28***	0.37***	0.19***	0.28***	0.29***	0.18***	0.49***	1				
17. Social Awareness	0.04**	0.05***	-0.01	**0.15***	0.51***	0.46***	0.62***	0.45***	0.37***	0.48***	0.48***	0.51***	0.53***	0.45***	0.51***	0.56***	1			
18. Adaptability	0.11***	-0.02	0.04**	**0.13***	0.45***	0.42***	0.46***	0.58***	0.44***	0.57***	0.43***	0.38***	0.4***	0.45***	0.25***	0.34***	0.51***	1		
19. Self Motivation	0.07***	0.04**	-0.03*	**0.07***	0.46***	0.4***	0.46***	0.45***	0.5***	0.46***	0.37***	0.36***	0.36***	0.45***	0.23***	0.36***	0.46***	0.5***	1	
20. Overall TEIQue	0.12***	0.00	0.06***	**0.16***	0.72***	0.64***	0.72***	0.69***	0.64***	0.72***	0.64***	0.69***	0.68***	0.67***	0.48***	0.57***	0.78***	0.71***	0.67***	1

*p<.0.05 **p<.0.01 ***p<.001

Table 6. Regressions with High Order Factors

		Manager Level	
		β	t
Step 1	Age	0.456	43.0***
	Gender	-0.134	-12.6***
	Education	0.177	16.9***
F-Value	$F(3, 6502) = 868.3$***		
R^2	.286		
Step 2	Verbal Reasoning	-.002	-0.172
	Perceptual Speed	.021	1.71
	Number Speed	.037	2.88**
	Word Meaning	.015	1.81
	Spatial Visualisation	.009	0.80
	Well-Being	*-.002*	*-0.62*
	Self-Control	*.007*	*0.56*
	Emotionality	*-0.10*	*-7.39****
	Sociability	*0.252*	*19.00****
F-Value	$F(12, 6493)$ 52.6***		
R^2 (ΔR^2)	.335 (*.044*)		

Table 7. Regression with Total Scores

		Manager Level	
		β	t
Step 1	Age	0.456	43.0***
	Gender	-0.134	-12.6***
	Education	0.177	16.9***
F-Value	$F(3, 6502) = 868.3$***		
R^2	.286		
Step 2	Overall GIA	.072	6.80***
	Overall TEIQue	.101	9.67***
F-Value	$F(5, 6500)$ 66.0***		
R^2 (ΔR^2)	.300 (*.014*)		