

# Correlates of Self-Rated Business Competencies

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## Abstract

Two studies that focussed on sex differences in self-rated management competencies are reported. In the first study 197 working adults (125 female, 72 male) rated themselves on the nine competencies listed by Boyatzis (1982). There were overall few significant sex differences. The ratings of the nine competencies factored in two coherent factors. There were various individual difference predictors of the total competency rating and the two factor scores. Older participants with higher Openness-to-Experience trait gave higher overall self-estimates. In the second study 173 adults (108 female, 65 male) rated themselves on the 12 independent “super-competencies” specified by Dulewicz (1999). Again there were few significant sex differences. Factor analysis revealed two recognisable factors. Extraverts tended to give higher self-estimates than introverts. The results are discussed in terms of the literature on self-assessed abilities and business competencies.

**Keywords:** Sex, Intelligence, Competency

## 1. Introduction

Whilst differential psychologists attempt to describe and measure traits and abilities for over twenty years, Human Resource professionals have preferred to use the term *competency*. Originally attributed to McClelland (1973) the concept was popularised by Boyatzis (1982). This paper looks at differences in self-rated competencies based on the literature on self-rated intelligence. The paper aims to examine sex, demographic and personality correlates of self-rated competencies as well as the perceived structure of competencies.

One obvious and important issue in the rating of self-perceived competencies or abilities is the extent to which they become self-fulfilling in the sense that people who inaccurately rate themselves low behave in such a way to fulfil those beliefs. This has implications for the workplace where self-fulfilling expectations and career aspirations have shown to be linked to performance more often than actual ability or competency (Furnham, 2008)

## 2. Self-Perceived Intelligence

Over the last fifteen years there have been a number of studies on the self-estimation of intelligence (Beloff, 1992; Bennett, 2000; Butler, 2000; Chamorro-Premuzic & Furnham, 2004; Furnham, 2000, 2001; Hogan, 1978; Paulus, Lysy & Yik, 1998; Reilly & Mulhern, 1995). Most studies have looked at sex differences and demonstrated consistent effects with females tending to give lower self-estimated scores than males (Bennett, 2000; Furnham & Gasson, 1998; Furnham, Clark & Bailey, 1999a; Furnham, Fong & Martin, 1999b; Rammstedt & Rammsayer, 2000, 2001). Whilst there appear to be small (2-5 points) sex differences on some level II, specific abilities (ie spatial rotation tasks) the evidence clearly points to no general, overall sex differences in general mental ability or IQ score (Furnham 2008)

The literature in this area covers a number of quite specific topics. Some studies have examined sex differences in ratings of overall IQ, nearly all of which have shown a sex difference of between 4 to 9 IQ points. Males rate their own IQ higher than do females and students higher than working adults. Other studies have looked at sex differences in the ratings of relatives, specifically grandparents, parents, siblings and children (Furnham, 2001). They show a consistent sex difference with female relatives being rated as less intelligent than male relatives. Further people seem to believe there are distinct generational differences, each generation both becoming more intelligent than the past generation and providing higher self-estimates by around 5 to 8 points (Flynn, 1987).

There have also been a number of studies that have examined the relationship between self-estimated and psychometrically measured IQ (Borkenau & Liebler, 1993; Chamorro-Premuzic, Furnham & Moutafi, 2004; Furnham & Fong, 2000; Furnham & Chamorro-Premuzic, 2004; Paulus, Lysy & Yik, 1998; Reilly & Mulhern,

1995). The results show that when outliers are removed the correlations are typically in the range  $r = 0.20$  to  $r = 0.50$  depending on the sample size and IQ test used. A few studies have examined the relationship between estimated intelligence and personality differences. Furnham, Kidwai and Thomas (2001) showed extraverts tended to give higher self-estimates than introverts particularly for social and artistic intelligence. Furnham and Thomas (2004) found three personality traits (Stability, Openness, Disagreeableness) accounted for 17% of the variance in self-estimated intelligence.

Recent studies have examined self-estimates of primary mental abilities as defined by IQ test constructors (Rammstedt & Rammsayer, 2000). These results suggest that the sex difference in estimated IQ is limited to areas measuring mathematical and spatial intelligence (Furnham, 2001). Data have been collected from nearly all the continents and over 20 countries: Africa (Namibia, South Africa, Uganda, Zambia, Zimbabwe), America (United States), Argentina, Asia (Hong Kong, Japan, Singapore), Europe (Belgium, Germany, Poland, Slovakia, United Kingdom), New Zealand and the Middle East (Iran). These studies have found both sex and culture differences but few interactions between the two. For example Furnham, Hosoe and Tang (2002) found that in comparable groups of American, British and Japanese students the Americans gave themselves highest rating, followed by British and then followed by the Japanese.

As well as rating overall intelligence a number of studies have looked at estimates of specific types of intelligence like *emotional intelligence* (Petrides & Furnham, 2000), *'successful' intelligence* (Sternberg, 1997) and *multiple intelligence* as defined by Gardner (1983, 1999) (Furnham, Fong & Martin, 1999b). Niesser (1976) was one of the first researchers to distinguish between academic and practical intelligence. Gardner's (1983, 1999) theory of multiple intelligence has attracted a great deal of attention and some criticism (Allix, 2000; Klein, 1997; Morgan, 1996). In fact many psychometricians are against the whole concept of multiple intelligence arguing for the 'g' (general) factor (Eysenck 1998; Jensen, 1998).

Riggio, Murphy and Pirozzolo (2002) believe that the multiple intelligence idea is intuitively appealing because it is self-evident that people require various areas of competence, other than only academic intelligence, to succeed at business leadership. Most organisations have competency frameworks used in selection, assessment and appraisal and all specify multiple (often between 6 and 8) competencies that are desirable/required to do the job. They nearly always involve cognitive ability and other skills (Dulewicz & Herbert, 1999; Woodruffe, 1998). However despite the fact that study after study have shown that intelligence (cognitive ability) is by far the most powerful and consistent individual difference predictor of success at work, particularly in complicated jobs (Gottfredson, 1997) IQ tests seem rarely used in senior management selection.

Furnham's (2005) study looked at multiple "business" intelligences, a term used by Harvey, Novicevic and Kiessling (2002) but based on the work of Sternberg (1985). Harvey, Novicevic and Kiessling (2002) listed eight "managerial intelligences" and took as their starting point Sternberg's (1985) triarchic theory of intelligence but split the three intelligences further. Thus *Analytic* intelligence is split into cognitive and emotional intelligence; *Practical* intelligence into political, socio-cultural, organisational and network intelligence; and *Creative* intelligence into innovative and intuitive intelligence. Furnham (2005) found that males rated their overall IQ as well as their cognitive, creative and political intelligence significantly higher than females. Females rated their boss's overall, emotional and organisational IQ significantly higher than did male participants. Participants believed they had higher emotional, but lower political, organisational and network intelligence than their boss. Regressions indicated that only one of the eight estimated business intelligences (cognitive intelligence) was related to overall (total, general) estimated intelligence in self, boss or boss's boss. Regressing the Big Five personality factors onto each of the self-estimates showed openness to experience was positively, and agreeableness negatively, related to most of the estimates. Those who had taken an intelligence test tended to give higher self-estimates on overall intelligence.

### 3. This study

For nearly two decades the English-speaking management world has been concerned with defining, delineating, and selecting for management competencies (Berman, 1997; Burn & Dearlove, 1995; Drakely & White, 1999; Dulewicz, 1989; 1992; Ewers, 1989). The popularity of the concept of competency is usually attributed to Richard Boyatzis' book "The Competent Manager" published in 1982. The concept of competency seemed to offer a fresh start by getting away from the muddle of traits vs motives. It also seemed to offer a neutral term that looked at work-related performance. Despite the popularity of the idea, there are various real problems in defining it, or indeed distinguishing it from other concepts (Adams, 1997; 1998; 1999). Some have argued that the term has, in fact, made the job for the manager more, rather than less, difficult because it has confused, not clarified, the various management characteristics that are necessary for efficient management (Furnham, 2008)

The general confusion was partly created by Boyatzis himself. His definition of a competency is "an underlying characteristic of a person". It could be a "motive, trait, skill, aspect of one's self-image or social role, or a body of knowledge which he or she uses" (Boyatzis, 1982, p.10). This definition covers almost anything, but it avoids getting to the heart of what is the common denominator of all these things and raises the question of whether the term is simply a piece of jargon.

However, all researchers have acknowledged that it was probably McClelland's (1973) paper that really popularised the concept of competency. Like many others before (Mischel, 1968) and after (Sternberg, 1997) he expressed dissatisfaction with the ability of personality and traditional intelligence tests (in the 1970's) to predict job success. He hoped to develop tests to measure competencies primarily through the *behavioural event interviews* and *critical incident method* which compared above average, average and below average people to understand how they do their job (particularly critical incidences) and then cluster these together into competencies.

McClelland argued that competency was a term used to replace skill which was too narrow. Thus, one may have the skill to drive a bus, but not the competency to deal with passengers as well. He argued that the only comprehensive way to really get at competencies is through behavioural event interviews, which are expensive but effective measures. Further, functional job analysis which focuses on minimum competencies leaves things out, particularly how outstanding individuals work. Thus strategic planning, as a competency, needs to be backed by a competence in influence so that plans could be "sold" to others. According to McClelland, the core competencies of an organization are embedded in the organisation's systems, motives, mechanisms and processes. They may reflect unique sources of competitive advantage.

McClelland has been attacked for various reasons. Competencies look backward, not forward. They differentiate success in the past, not the future. Also behavioural interview methods may be unfair to minorities or women. It remains very expensive to transcribe long interviews. Psychologists who have worked in the area for years usually distinguish between abilities and traits; between intelligence and personality. Abilities refer to knowledge, skill and processing ability, which can be fairly accurately measured by intelligence tests. Indeed cognitive ability tests have been shown to be the best predictors of work performance. (Gottfredson, 1997; Chamorro-Premuzic & Furnham 2010)

These two studies are similar in design and hypotheses. They differ primarily in the specific competencies considered. There are various lists of competencies that appear to be comprehensive. In one study, Dulewicz's (1989, 1992), twelve supra-competencies are considered. This is both a theoretically and empirically derived list of 12 competencies that have four higher-order factors labelled intellectual, interpersonal, adaptability and results orientation. These are shown in Table 1.

The second list of nine competencies was taken from Boyatzis (1982) who was credited for making this concept famous in the first place. The labels and descriptions for each are shown in Table 2.

#### Insert Table 1 and 2 Here

Various literature based hypotheses which were formulated and tested:

**H1.** Overall for the combined overall competencies in each study males will give higher self-ratings compared to females because of male hubris in ability self-ratings (Furnham, 2001).

**H2.** For competencies associated with intellect or leadership (Table 1: e.g. Diagnosis use of Concepts; Table 2: Analysis and judgement) males will have higher self-estimates than females (Furnham, 2000, 2001).

**H3.** For competencies associated with interpersonal skills (Table 1: e.g. Managing Group Process; Table 2: Interpersonal sensitivity) females will give higher judgement compared to males (Petrides, Furnham & Frederickson, 2004).

**H4.** Both lists of competencies will factor analyse into at least two factors with a clear intellectual vs. socio-emotional factor (Furnham, 2005).

**H5.** Extraversion (positive), Neuroticism (negative), Openness (positive), and Conscientiousness (negative) will be correlates of total competency scores (Chamorro-Premuzic & Furnham, 2004).

**H6.** Participants ages, income, political and religious beliefs will have incremental validity over personality in predicting self-rated total competency.

#### 4. Study 1

##### 4.1 Method

##### 4.1.1 Participants

There were 197 participants of which 72 were male and 125 female. Their mean age was 40.13 (SD = 11.76yrs). A quarter (26.1%) were single while the remainder were married (73.9%) or divorced, separated or widowed. A third worked in the private sector (32.8%), a third in the public sector (38.1%) while the others were in the academic/teaching sector or self-employed. Most were in middle management. Around a quarter (23.3%) had A levels (12<sup>th</sup> grade), while 20.2% had a bachelor's degree, 16.2% a post-graduate degree and 20.9% some other post-school qualifications. In terms of ethnicity 71% were white, 17.2% were Asian and 10.5% were Black African. In all 50.7% were Christian, 9.7% Muslim, 4.9% Hindu, 1.5% Jewish and 17.9% no faith. The median income of this group was £20,000 - £25,000. They were asked to rate themselves on a 7-point scale of "happy at work" (1 = Not at all; 7 Very) and the mean was 5.03 (SD = 1.41); and "good at your line of work" with a mean of 5.92 (SD = 1.04).

#### 4.1.2 Questionnaire

This was divided into 2 sections.

1. Competencies: A list of 12 was taken from Dulewicz & Herbert (1999) (see Table 1). They were given the following instructions:

Intelligence tests attempt to measure intelligence. The average or mean score on these tests is 100. Most of the population (about two thirds of people) score between 85 and 115. Very bright people score around 130 and scores have been known to go over 145. The following graph shows the typical distribution of scores.

We want you to rate your own work competency using the above scale. Below is a list of general work competencies taken from various organizations. Please read each one and then give yourself a score using the above scale. Thus if you give yourself a score of 103 you believe you are just above average while if you give yourself a score of 125 you believe you are way above average of this specific competency.

2. Personality: A 10-item short version of the Big Five (Gosling, Rentfrow & Swann, 2003). Despite being such a short measure the original paper shows impressive reliability and validity evidence. (Ehrhart, Ehrhart, Roesch, Chung-Herrera, Nadler & Bradshaw, 2009)

#### 4.2 Procedure

Participants were tested at their place of work. The questionnaire completion was entirely voluntary and of those who chose to take part 91% completed the task successfully. Where appropriate and possible, subjects were debriefed.

#### 4.3 Results

1. Confounding effects:

First a one-way ANOVA was computed across all demographic variables to attempt to establish any sex differences. There was only 1 of 11 significant differences which indicated that females were more likely to work in the health and public sector than males. ( $F(1,132) = 5.34, p < .02$ ).

2. Sex difference:

Twelve one-way ANOVAS indicated only three sex differences. Males rated their analysis and judgement as well as business sense higher but their achievement orientation lower than females. There was also no significant difference on the overall totalled competency score.

Insert Table 3 Here

3. Factor Analyses with VARIMAX rotation (to maximize independence) showed two factors. The first factor had seven items loading it associated with drive and direction; while the second was more about planning and strategy.

4. Regression

The competency ratings were then arithmetically combined into three scores: a total score and one for each of two factors. Two of the regressions were significant. Various regressions were performed by entering predictor criteria in blocks: first age and sex, then education and income, then political and religious beliefs; then personality variables. Only one proved significant when all four blocks were combined and that was for the second factor ( $F(10,147) = 4.96, p < .001$ )  $Adj R^2 = .22$ . It indicated that less Conscientious, more open younger people gave themselves higher ratings on this factor.

#### 4.4 Discussion

It was interesting to note that nearly all participants rated themselves above average on *all* competencies, particularly Interpersonal Sensitivity and Energy and Drive. The lowest scores were for Managing Staff, Assertiveness and Decisiveness and Business Sense

Few of the six hypotheses were confirmed. There was no sex difference on the rated overall competency nor on the two factor scores. However, the twelve competencies did factor relatively neatly into a social communication (socio-emotional) and intellectual planning variable (Hypothesis 4). There was partial support for the fifth hypothesis with Openness being a positive and conscientiousness a negative predictor of self-rated competency. There was also part support for the sixth hypothesis in that age, but no other variable, was a significant predictor of self-rated competency. It was, therefore, decided to do a second study similar to the first but using a different competency list to see if the results would replicate.

### 5. Study 2

Study 2 was essentially a replication of the basic thesis of Study 1 using a different list of competencies. There is some overlap between the two sets (compare Tables 1 and 2) but different descriptors are used. The second list specifies fewer more general job competencies. The same hypotheses and methodology as used in the first study are tested and used.

## 5.1 Method

### 5.1.1 Participants

There were 173 working adults, 65 male and 108 female. They ranged in age from 22 to 63yrs with a mean age of 38.7 yrs. Just over a quarter (28%) were single with the same percentage married. Just under 40% (i.e. 39.6%) worked in the private sector and a similar number (39.8%) in the public sector. A third had school leaving qualifications, 30% a bachelor's degree and 23% a post-graduate degree. Two thirds were white, 18% from the Indian sub-continent and 9.7% an African heritage. Nearly two thirds were Christians, 6.8% Muslim and 12.2% Hindu. Their median income was between £20 and £25,000 with 9.2% earning over £50,000 per annum. On a 7 point religion scale nearly a quarter (23.7%) expressed no religious beliefs and less than 10% strong religious beliefs. On a 7 point political scale (left-right wing) 62.4% gave the midpoint option. They rated themselves on a job satisfaction scale (1 none to 7 very happy): 57% gave scores higher than 4 with 16% giving the maximum score.

### 5.1.2 Questionnaire

This was divided into two sections as before. It was identical in layout except this contained the 9 competencies as described by Boyatzis (1982) – see Study 1 where the same personality test was used.

### 5.2 Procedure

Participants came from three groups attending different business seminars. As the topic was relevant they were asked to complete the questionnaire beforehand. Response rates were 89, 91 and 72% respectively. All groups were debriefed at the end of the meeting.

### 5.3 Results

Insert Table 4 Here

Males and females did not differ on any of the biographical questions.

#### 1) Sex difference

A total score for the nine competencies arithmetically added was computed and a one-way ANOVA computed on the difference (Males:  $X = 111.35$ , Females  $X = 109.68$ ). This was not significant ( $F(1,171) = 1.01$ , ns). One-way ANOVAs did indicate two significant sex differences. Males rated themselves significantly higher on Conceptualisation and Diagnostic use.

#### 2) Factor analysis

A VARIMAX rotated factor analysis yielded 2 factors that accounted for nearly two thirds of the variance. There was some overlap between the factors with three items. The first factor seemed more concerned with inter-personal competencies and the second more concerned with intellectual competencies.

Insert Table 5 here

#### 3) Regression

As in the first study a series of regressions were computed to determine the extent to which demographic and personality variables predicted self-ratings on the competencies. Table 5 shows the results of three regressions. When the self-rated competencies were totalled and the regression performed it was significant but there was only one significant predictor: more Extraverted participants gave themselves higher ratings. A very similar result occurred for the second regression on the first factor. However there were two significant predictors for the second factor: low Conscientious males awarded themselves higher competency scores.

### 5.4 Discussion

Amongst other things this study examined sex differences in self-estimated competencies. The work on self-estimated intelligence has yielded highly robust, cross-culturally replicated findings. They suggest that whether participants are school children, university students or working adults from all over the world there is a clear tendency for males to give higher estimates for general intelligence than females, though finer grained analysis of multiple intelligences shows that this is confined primarily to spatial and mathematical intelligence. That is there seems to be a cross-generational and cross-cultural acceptable norm for males to express cognitive ability hubris (“blow their own trumpet”) and females to express cognitive ability humility (“modest under-estimations”).

However, studies in two other areas may help explain these non-significant and non-predicted findings. First studies in self-estimated emotional intelligence (EQ) have shown that females think their EQ is significantly higher than that of males (Petrides & Furnham, 2000). Second, studies on “business intelligences” suggest that the male hubris affect is confined mainly to cognitive and political intelligence. In other words the less “intellectual” the ability/competencies the fewer sex differences appear in self estimates.

This paper reported on two studies using similar but different competency framework questionnaires on two similar but different samples. However, the results were comparable. They showed that when adult working males and females from different jobs rated their different general work related supra-competencies there were a

few small significant differences. When competencies were totalled to obtain an overall competency score (similar to “g” in intelligence) there was no difference. There were some small significant sex differences always showing male hubris.

It is possible that the more inter-personal and practical the competencies are described the less we get the male hubris effect. Alternatively one might argue that for many of these senior to middle managers for women to succeed in this environment they either have to mimic male behaviour patterns (including self-presentation) or have to be better than males to succeed.

In the first study it was primarily the higher cognitive ability competency of “analysis and judgement” (and to a lesser extent business sense) while in the second study it was Conceptualizing and Diagnostic use of competencies that showed a sex difference. What this implies is that males see themselves as more analytic, logical and planful than females see themselves. It also may be that historically males have had more “applied experience” of exercising such competencies and are thus able to improve or even assess them. This fits with the current literature which shows that males rate their defined logical/mathematical intelligence higher than females (Gardner, 1983). This is usually defined as the ability to reason logically and solve number problems. There is, however, no empirical evidence for this cultural belief that males are more logical or numerate than females. Indeed there is a wealth of literature which clearly shows no sex difference in this area (Furnham, 2008)

What is perhaps more interesting is that there was no sex difference, favouring females, on some of the more interpersonal competencies like “interpersonal activity” from the first study. Previous studies have shown that females tend to *believe* they have higher emotional intelligence than males (Petrides & Furnham, 2000). Thus the stereotype of male managers being the logical planners and females the socio-emotional caretakers received no empirical support here.

The factor analysis of the self-rated competencies did tend to support the well established task vs socio-emotional distinction. That is, one factor tended to be more concerned with understanding and carrying out business tasks and the other with softer influence and people issues. Though this distinction was clear in the second study it does seem that it is on the task-type factor that sex differences arise.

The results of the regression were not very clear and did not replicate between studies. The aim was to try to understand which and how personality and demographic factors related to self-perceived business competencies. Age and education played very little part. There was some evidence for extraverts showing more self-confidence than introverts in the second study and that, perhaps paradoxically low conscientious people, particularly on the more cognitive/analytic competencies. One theory advanced to explain this phenomena is that people tend to become more conscientious in competitive environments to “compensate” for their “comparative” lack of intelligence. That is brighter people can “afford” to be less intelligent (Moutafi, Furnham & Paltiel, 2004).

It is possible that sampling issues lead to variable confounds which affected sex difference findings. Thus it is possible that females tended to be at a lower grade than males in their organisation and that this fact, rather than their gender per se, affected the results. That is, it is organisational level, itself related to other variables like age, education, experience, which is primarily responsible for a hubris or humility effect in self-assessed competencies. Whilst it is not possible to check this idea because individuals came from such a wide range of organisation it is indeed unlikely given the results from the regressions.

This study addressed only self-rated competency. We had no objective behavioural measures of each competency or observer (360 degree) reports on how others rated these individual’s competency. Thus results are susceptible to all the problems associated with self-report like dissimulation, impression management and self-deception. It would also be desirable to consider participants level of organisational status and responsibility and examine different self-assessments at different levels as well as how well-informed colleagues on an equal level (in terms of experience, salary, status, accountabilities) would rate the same participants in terms of competencies. Finally, it would have been desirable to also look at self-rated intelligence to see if either studies would replicate this well-established effect in either sample

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Table 1. Description of Dulewicz's (1999) 12 supra competencies

<i>Strategic perspective</i>	Rises above the detail to see the broader issues and implications; takes account of wide-ranging influences and situations both inside and outside the organisation before planning or acting.
<i>Analysis and judgement</i>	Seeks all relevant information; identifies problems, relates relevant data, and identifies causes; assimilates numerical data accurately and makes sensible interpretations; work is precise and methodical, and relevant detail is not overlooked. Makes decisions based on logical assumptions that reflect factual information.
<i>Planning and organisation</i>	Plans priorities, assignments and the allocation of resources; organises resources efficiently and effectively, delegating work to the appropriate staff.
<i>Managing staff</i>	Adopts appropriate styles for achieving group objectives; monitors and evaluates their work; shows vision and inspiration; develops the skills and competencies of staff.
<i>Persuasiveness</i>	Influences and persuades others to give their agreement and commitment; in face of conflict, uses personal influence to communicate proposals, to reach bases for compromise and to reach an agreement.
<i>Assertiveness and Decisiveness</i>	Ascendant, forceful dealing with others; can take charge; is willing to take risks and seek new experiences; is decisive; ready to take decisions, even on limited information.
<i>Interpersonal sensitivity</i>	Shows consideration for the needs and feelings of others; listens dispassionately, is not selective, recalls key points and takes account of them; is flexible when dealing with others, will change own position when others' proposals warrant it.
<i>Oral communication</i>	Fluent, speaks clearly and audibly, with good diction; in formal presentations, is enthusiastic and lively, tailors content to audience's level of understanding.
<i>Adaptability and resilience</i>	Adapts behaviour to new situations; resilient, maintains effectiveness in face of adversity or unfairness. Performance remains stable when under pressure or opposition; does not become irritable and anxious, retains composure.
<i>Energy and initiative</i>	Makes a strong, positive impression, has authority and credibility; is a self-starter and originator, actively influences events to achieve goals; has energy and vitality, maintains high level of activity and produces a high level of output.
<i>Achievement-motivation</i>	Sets demanding goals for self and for others, and is dissatisfied with average performance; makes full use of own time and resources; sees a task through to completion, irrespective of obstacles and setbacks.
<i>Business sense</i>	Identifies opportunities that will increase sales or profits; selects and exploits those activities that will result in the largest return.

Table 2. Description of Boyatzis (1982) supra-competencies

<i>Efficiency orientation</i>	Demonstrating concern for task objectives, high inner work standards, and high achievement motivation, with behaviour such as setting challenging but realistic goals and deadlines, developing specific actions plans, determining ways to overcome obstacles, organising the work efficiently, and emphasising performance when talking to others.
<i>Concern with impact</i>	Demonstrating high need for power and concern for power symbols, with behaviour such as acting assertively, attempting to influence others, seeking high status positions, and expressing concern about the reputation of the organisation's products and services.
<i>Proactivity</i>	Demonstrating a strong belief in self-efficacy and internal locus of control, with behaviour such as initiating action rather than waiting for things to happen, taking steps to circumvent obstacles, seeking information from a variety of sources, and accepting responsibility for success or failure.
<i>Self-confidence</i>	Demonstrating belief in one's own ideas and ability by behaviour such as taking decisive action rather hesitating or vacillating, and making proposals in a firm, unhesitating manner, with appropriate pose, bearing and gestures.
<i>Oral presentation, skill</i>	Ability to use symbolic, verbal and non-verbal behaviour and visual aids to make clear and convincing presentations to others.
<i>Conceptualising</i>	Ability to identify patterns or relationships in information and events (inductive reasoning), and to convey the meaning of developing a concept, model, or theme, or by using appropriate metaphor and analogy; also the ability to develop creative solutions and new insights into problems.
<i>Diagnostic use of concepts</i>	Deductive reasoning, using a concept or model to interpret events, analyse situations, distinguish between relevant and irrelevant information, and detect deviations from plans.
<i>Use of socialised power</i>	Ability to develop networks and coalitions, gain co-operation from others, resolve conflicts in a constructive manner, and use role modelling to influence others.
<i>Managing group process</i>	Ability to manage group processes to build member identification and team spirit by behaving as creating symbols of group identity, emphasising common interests and need for collaboration, familiarising successful teamwork, and providing public recognition of member contributions.

Table 3. Results of the sex difference ANOVA and factor analysis

		ANOVA			FACTOR ANALYSIS	
		Male	Female	F	1	2
		N = 72	N = 125			
1.	Strategic perspective	106.8	104.5	1.41		.78
2.	Analysis and judgement	111.2	106.5	6.13**		.74
3.	Planning and organisation	109.2	110.3	0.28		.66
4.	Managing staff	104.6	105.2	0.78		.67
5.	Persuasiveness	107.8	104.8	2.02	.61	
6.	Assertiveness and Decisiveness	105.6	104.9	0.10	.76	
7.	Interpersonal sensitivity	110.8	112.5	0.72	.62	
8.	Oral communication	107.4	109.9	1.30	.74	
9.	Adaptability and resilience	106.7	107.9	0.41	.72	
10.	Energy and initiative	112.6	110.9	0.89	.58	
11.	Achievement-motivation	108.3	111.9	3.71*	.68	
12.	Business sense	105.7	101.1	4.45*		.66
**p <.01 *p<.05				Eigenvalue	5.43	1.10
				Variance	44.52%	9.18%

Table 4. Results from the ANOVA and factor analysis

		ANOVA			FACTOR ANALYSIS	
		Male	Female	F		
1.	Efficiency Orientation	109.5	113.4	2.27	.75	
2.	Concern with Impact	101.5	100.3	0.04	.79	
3.	Proactivity	114.2	112.3	0.65	.56	.48
4.	Self-confidence	109.7	104.7	2.68	.50	.57
5.	Oral Presentation	107.3	102.3	2.67	.50	.54
6.	Conceptualisation	111.9	105.9	4.45*		.92
7.	Diagnostic Use	111.2	104.6	5.51*		.82
8.	Use of Power	109.2	106.8	0.82	.66	
9.	Managing Group	107.1	104.4	0.77	.66	
* p < .05				Eigenvalue	4.43	1.09
				Variance	49.30%	12.21%

Table 5. Results of regression of personality and demography onto competency factors

	Tot		F1		F2	
	Beta	t	Beta	t	Beta	t
Sex	-.15	1.27	.06	.58	-.29	2.54***
Age	-.06	0.57	-.14	1.24	.06	0.59
Education	.04	0.33	-.06	0.48	.13	1.10
Extraversion	.43	3.78***	.40	3.40***	.20	1.77
Agreeableness	-.05	0.39	-.10	0.81	.05	0.40
Conscientiousness	-.12	1.07	.12	1.01	-.32	2.71**
Neuroticism	.10	0.79	.06	0.47	.08	0.59
Openness	-.15	1.14	-.17	1.42	.00	0.45
F (8,166) =	2.95**		2.56**		2.92**	
Adj R sq	.17		.14		.16	