

## Too smart for their own good? A study of perceived cognitive overqualification in the workforce

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This study examined the concept of cognitive overqualification, the possession of a higher level of cognitive ability than is required for a given job. Among 156 US based customer service representatives, cognitive overqualification was found to be associated with job dissatisfaction, but was only weakly related to measures of job and training performance. The results of this study provide support for the common practice among personnel managers to reject overqualified job applicants, as these individuals may be more likely to develop negative job attitudes, although not necessarily in anticipation of their poorer job performance.

**Keywords:** cognitive ability; overqualification; performance; satisfaction

### Introduction

Overqualification is reported to exist in most industrialized countries, with conservative estimates that approximately one-quarter of the working population is overqualified for their jobs (Feldman and Turnley 1995; Groot and van den Brink 2000). Despite its prevalence, however, the topic of overqualification has received little attention in personnel psychology.

As a general concept, overqualification may be considered part of the broader definition of the term *underemployment*, a situation of lesser quality employment compared to some job standard (Feldman 1996, p. 387). More specifically, however, overqualification is regarded to be a multidimensional term, typically referring to one of several unique situations of inadequate employment. Some of the more common of these situations include: *over-education*, *over-experience*, and *skill under-utilization*, defined as the possession of a greater level (or mismatch) of education, experience, or skill (respectively) than is required for a given job (O'Brien 1986; Johnson and Johnson 2000). While these terms each describe independent situations of overqualification, they themselves are often used interchangeably both within and between studies, with little distinction between them (Smith 1986; Johnson, Morrow and Johnson 2002).

Despite various challenges for measuring overqualification objectively, it can be well measured as a perceived construct (Khan and Morrow 1991; Johnson and Johnson 1996; Johnson et al. 2002). *Perceived overqualification* refers to the degree to which individuals perceive themselves (or others) to possess more than the required job qualifications. When studied as a perceived measure, the traditional sub-dimensions of overqualification (i.e. over-education, over-experience and skill under-utilization) can be thought of collectively

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as measuring occupation-related *relative deprivation*, which is a self-perceived situation of unfairly disadvantaged employment conditions or unmet job expectations (Johnson and Johnson 1995).

In general, overqualified individuals are considered to be 'not well suited' for the job, and are often not hired as a result (Edwards 1991). Furthermore, studies have found personnel managers to prefer hiring *adequately* qualified job applicants to those who are under- or over-qualified (Bills 1992; Maynard and Hakel 1999). In this respect, the theoretical rationale behind the selection of overqualified individuals can be likened to the concept of *person–job fit*, whereby job suitability is measured by appropriately matching individual abilities to job demands, such that the closer an individual's qualification levels are to those required for the job (either higher or lower) the better the match (Edwards 1991).

One of the most well investigated consequences of overqualification is that of job dissatisfaction, which has been suggested to be a manifestation of overqualified individuals' general feelings of relative deprivation (Johnson and Johnson 1995). Specifically, overqualified employees are considered to be dissatisfied with their jobs' wages, responsibilities, challenges, career advancements and other aspects of their employment (Burris 1983; Khan and Morrow 1991; Bills 1992; Maynard and Hakel 1999; Bolino and Feldman 2000; Johnson and Johnson 2000; Johnson et al. 2002) and have shown a greater intention to quit than adequately qualified employees (Hersch 1991; Feldman and Doeringhaus 1992; Feldman and Turnley 1995).

Unlike the numerous studies on overqualification and job satisfaction, the relationship between overqualification and job performance has not been well established. In two of the only empirical studies located King and Hautaluoma (1987) found the overall job performance of over-educated workers to be non-significantly different from that of adequately educated workers, and Bolino and Feldman (2000) found a weak negative correlation between perceived overqualification and self-rated job performance ( $r = -.14$ ). In addition, a qualitative study of personnel managers' perceptions found that the majority of their sample believed overqualified employees to perform better than adequately qualified employees (Maynard and Hakel 1999). Thus, the few studies available have had mixed results.

Despite the inconclusive association between overqualification and job performance, lower job performance has nevertheless been cited in the literature as a *presumed* consequence of overqualification, based on a secondary relationship between job attitude and job performance (O'Brien 1986; Tsang, Rumberger and Levin 1991; Feldman 1996). This remains to be proven empirically, particularly given the evidence that job satisfaction and job performance are themselves considered to be weakly correlated constructs (Iaffaldano and Muchinsky 1985).

### ***Cognitive overqualification***

In the absence of specific procedures to identify and predict the performance of overqualified individuals (Feldman 1996), this study set out to investigate overqualification in terms of an otherwise ubiquitous predictor of job performance upon which traditional selection systems are commonly based – general cognitive ability. General cognitive ability is considered to be one of the single most effective predictors of training and job performance, across occupational categories, job complexities and job levels (Gottfredson 1997; Schmidt and Hunter 1998), but has not been well studied in relation to overqualification.

Theoretically, perceived cognitive overqualification should be similar to traditional measures of overqualification, having a common basis in the concept of relative

deprivation. However, cognitive overqualification would also be expected to take on its own characteristics, being arguably a more direct measure of a perceived lack of mental challenge than traditional measures of overqualification. In general, mentally unchallenged individuals are theorized to be unmotivated and bored with their work and dissatisfied as a result (Herzberg 1966). Indeed, a lack of challenge on the job has been associated with boredom and job dissatisfaction in empirical studies (Quinn and Mandilovitch 1975; Burke 1998), and mental ability has been found to be negatively related to job satisfaction when job complexity is low (Ganzach 1998). It is therefore hypothesized that cognitive overqualification will be inversely related to measures of job satisfaction. A similar relationship is expected for traditionally measured overqualification as well, in support of the general literature on this topic. However, we would hypothesize that the former's relationship to be stronger, due to its closer theoretical measurement of low mental challenge. In addition, based on the shared over-arching construct of relative deprivation between dimensions of perceived overqualification, cognitive overqualification is expected to be correlated with traditionally measured overqualification.

Regarding job performance, the effect of overqualification may be thought of theoretically as an adaptation of the classic *Yerkes–Dodson law* (1908), which describes an inverted U-shaped relationship between arousal and performance, whereby performance is low when arousal is either too low or too high (Yerkes and Dodson 1908). Since it could be argued that cognitively overqualified individuals' work lacks mental stimulation and challenge, their work may therefore not be arousing or intrinsically rewarding enough to motivate work effort, work quality or good overall job performance. In support of this, studies have shown that unchallenging tasks are negatively related to job performance (Berlew and Hall 1966; Kaufman 1974). It is therefore hypothesized that cognitive over-qualification will be negatively related to job performance. It is also believed that this relationship should be consistent across various measures of job performance, such as self-reported measures, training scenarios and supervisor ratings.

Finally, there is some basis to hypothesize differences between sub-group populations. The literature has shown there to be a higher incidence of overqualification among minority groups in the workforce (e.g. females and non-whites) (Feldman 1996; Groot and van den Brink 2000) and the origin of these differences has usually been attributed to discrimination and the related difficulty for minorities to attain jobs that are commensurate with their abilities. In the case of cognitive overqualification, on the other hand, based on the notion that one's perceived cognitive overqualification is related to his or her perceived cognitive ability, we posit that sub-groups with typically higher levels of cognitive ability should also have a greater incidence of perceived cognitive over-qualification (when job level is held constant). While a great deal of controversial literature exists surrounding the issue of sub-group differences in mental ability (e.g. Herrnstein and Murray 1994), it is, however, well established that males and females have overall similar levels of general mental ability, that non-whites have lower levels than whites, and that ability is more or less stable in middle adulthood (Sternberg 2000). It is therefore hypothesized that no gender or age differences will be found for perceived cognitive over-qualification, but that whites will have a larger incidence than non-whites.

## **Method**

### ***Participants***

This study included a sample of 156 customer service representatives (CSRs) from two branches of a large US call centre. All of the participants were job incumbents working in

non-pay contingent call centre job roles, in which they were required to 'interact with customers to provide information in response to inquiries about products and services and to handle and resolve complaints' (Standard Occupational Classification 43-4051: BLS 2000).

All subjects were experienced CSRs, 83% ( $N = 129$ ) had been working at the company in their present positions for at least nine months (four individuals had missing data for tenure). Four individuals had missing data for race and of the remaining sample 56% ( $N = 88$ ) were white and 41% non-white ( $N = 64$ ). Five individuals had missing data for gender and of the remaining 66% were female ( $N = 103$ ), and 31% male ( $N = 48$ ). The sample included individuals aged 19 to 63, with a mean age of 32.78 ( $SD = 10.84$ ) however, six individuals had missing data for age.

## **Measures**

### *Perceived cognitive overqualification*

Perceived cognitive overqualification was measured by a self-report questionnaire designed for this study, called the *Perceived Cognitive Overqualification Questionnaire* (PCOQ). The PCOQ's items were developed based on Khan and Morrow's (1991) 8-item index, and Johnson and Johnson's (1996) 10-item index of perceived overqualification, both of which consist of two main factors: *Perceived mismatch* – a poor match between individual qualifications and job requirements, and *perceived no-grow* – a perceived non-changing job environment, with poor learning or growth opportunities. These factors were replicated in the PCOQ from the perspective of perceived cognitive ability (i.e. *cognitive mismatch* and *cognitive no-grow*). The overall measure of cognitive overqualification was then computed as the mean item score, yielding a Cronbach alpha coefficient of .86.

All items were self-rated by employees on a 5-point Likert type scale ranging from (1) 'strongly disagree' to (5) 'strongly agree'. The cognitive mismatch factor's items included the following statements: 'I am smarter than most people doing my job'; 'I am more intelligent than is required to do my job'; 'My level of intelligence overqualifies me for my job'; and 'Someone not as smart as me could still do my job well.' The *cognitive no-grow* factor's items included the following statements: 'I need to solve difficult problems on my job' (inversed scale); 'I feel that I could easily handle more difficult work'; 'My work is not mentally challenging'; 'My work is rarely boring or routine' (inversed scale); and 'I am able to do my job without too much thinking.'

### *Traditionally perceived overqualification*

Single-item measurements of the traditionally measured dimensions of perceived overqualification were added to the questionnaire, primarily for comparative analyses. These items were rated on the same 5-point scale as the cognitive items, and included measures of over-education, skill under-utilization and over-experience. Over-education was represented by the statement: 'My level of education is more than necessary to do my job'. Over-experience was measured by the statement: 'I have more experience than necessary to do my job'. Skill under-utilization was represented by the statement: 'I possess more skills than necessary to do my job.' An overall measure of traditionally perceived overqualification was then computed as the mean item score, yielding a Cronbach alpha coefficient of .76.

### *Job satisfaction*

The following measurements of job attitude dimensions were added to the questionnaire in order to evaluate overall satisfaction. Boredom at work was represented by the statement: 'I get bored on my job'; Job satisfaction was measured by the statement: 'I am generally satisfied with my job'; and intention to quit was measured by the statement: 'I think about quitting my job'. Subjects self-rated their job attitudes on a 5-point Likert scale for each item, ranging from (1) 'much less than the average employee' to (5) 'much more than the average employee'. The overall measure of job satisfaction was then computed as the mean item score (after reversing the item responses for 'boredom' and 'intention to quit'), yielding a Cronbach alpha coefficient of .73.

### *Job performance*

Job performance was measured in three ways: self-reported performance, job training scores and supervisor ratings.

1. Self-rated job performance – For perceived measures of job performance, employees self-rated their job performance along three dimensions: Quality of work, effort exerted and overall job performance. Quality of work was measured by the statement: 'The overall quality of my work is'; Effort on the job was measured by the statement: 'The amount of effort I put into my work is'; and overall job performance was measured by the statement: 'My overall job performance is'. Based on Meyer's (1980) method of self-appraised job performance, subjects rated themselves on each item relative to similar other employees on 5-point Likert type scales ranging from (1) 'much worse than the average employee' to (5) 'much better than the average employee.' Although evidence suggests that self-appraised job performance may result in inflated ratings (Klimoski and London 1974; Parker, Taylor, Barrett, and Martens 1959), these measures were considered appropriate for the purpose of understanding individuals' perceived performance to complement their perceived overqualification. The overall measure of self-rated job performance was then computed as the mean item score, yielding a Cronbach alpha coefficient of .78.
2. Training scores – During their first few weeks of employment, participants received a 3-week training course to prepare them for work in their respective project assignments. While training course syllabi differed slightly per project assignment, all training courses included classroom lectures followed by supervised on-the-job experience. A single score, ranging from 0 to 100, was given for overall training performance upon completion of the course. Training scores were only available at one of the two branches sampled ( $N = 94$ ). To avoid inter-course scoring differences, training scores were standardized within courses (a total of three courses were sampled) and then combined.
3. Supervisor ratings – The call centres' annual performance appraisal scores, rated by the employees' direct supervisors, were attained. Supervisor appraisals consisted of ordinal scale ratings from 1 to 3, whereby (1) 'needs development', (2) 'meets expectations', and (3) 'role model'. Supervisors rated subjects on a combination of performance criteria including, quality assurance, attendance, and call handling times – the averages of these ratings were recorded. Only employees with a minimum tenure of 8 months (81%;  $N = 127$ ) had complete supervisor ratings on record and sub-scores were not available. In order to avoid inter-branch appraisal differences, supervisor ratings scores were standardized by call centre branch and then combined.

**Procedure**

Between November 2003 and February 2004, human resource managers from two branches of a large call centre in the US administered paper and pencil versions of the PCOQ to a representative sample of 156 current CSRs. All subjects voluntarily completed the questionnaire under the auspices of a company sponsored academic research project. They were assured that their responses would be used for research purposes only, and would not go into their personnel files in any format.

Participants' demographic data, supervisor ratings and training scores were subsequently extracted from the call centre's human resource database, and merged with the questionnaire response data. Data were first analysed for descriptive statistics in order to examine the distribution of each variable. Next, PCOQ scores were correlated with traditionally measured overqualification, job satisfaction, and measures of job performance, in order to examine the relationships between these variables.

**Results**

**Descriptive statistics**

The descriptive statistics of all measures can be found in Table 1.

As derived from Table 1, perceived cognitive overqualification was negatively skewed, with no participants scoring below an average score of 2.13, on the 1 to 5 scale. In other words, all participants perceived themselves to have at least some degree of overqualification. However, based on the results, a conservative estimate would label 28% of the subjects as being cognitively overqualified (based on the percentage of mean scores greater than 3.5). This statistic was supported by a very similar one of 30%, for subjects' median response when separately surveyed to estimate the percentage of employees they believed to be cognitively overqualified in their company ( $M = 36.25\%$ ,  $SD = 23.73$ ). The measure of traditionally perceived overqualification was also negatively skewed, and had a higher rate of incidence (55%) than the cognitive measure,  $t(155) = 9.32$ ,  $p < .001$ .

In comparing the degree of overqualification between groups (not shown in the table), mean overqualification scores significantly differed for race and gender, but not for age. Whites ( $M = 3.34$ ,  $SD = 0.66$ ) perceived themselves as more overqualified than non-whites ( $M = 3.04$ ,  $SD = 0.59$ ),  $t(149) = 2.83$ ,  $p < .005$ , and males to be more so than females ( $M = 3.44$ ,  $SD = 0.09$  vs.  $M = 3.11$ ,  $SD = 0.06$ , respectively),  $t(149) = 2.97$ ,  $p < .005$ . No significant differences were found between groups of age (above and below 40),  $t(148) = -1.05$ ,  $p > .29$ .

Self-rated performance was slightly negatively skewed, with 69% of the participants reporting 'above average' performance in terms of their levels of work quality, effort exerted and overall job performance. Only 1% reported 'below average' levels. The distribution of job satisfaction was approximately normal.

Table 1. Descriptive statistics of perceived overqualification, job satisfaction and job performance.

	Measurements	N	Min.	Max.	Mean	SD
Perceived overqualification	Cognitive	156	2.13	5.00	3.22	0.65
	Traditional	156	2.00	5.00	3.63	0.73
Job satisfaction	Job satisfaction	154	1.33	5.00	3.41	0.73
Job performance	Self-rated performance	154	2.50	5.00	3.81	0.56
	Training scores	94	84.00	100.00	95.17	4.47
	Supervisor ratings	127	1.30	3.00	2.32	0.41

### PCOQ factorial design

Items of the PCOQ were positively inter-correlated (mean  $r = .43$ ;  $SD = .18$ ). The specific dimensionality of the PCOQ was determined by exploratory factor analysis. Principal component factor analysis (PCA) was applied without rotation, yielding two principal factors with eigenvalues of 1.0 or greater. These two principal factors explained 66.37% of the variance. Varimax rotation with Kaiser normalization was then applied, and the two factors were retained (see Table 2), and were principally loaded ( $\geq .62$ ) appropriately for the intended *mismatch* and *no-grow* items. The inter-factor correlation was  $r = .54$ ,  $p < .001$ .

### Correlations

The correlation matrix of all measures can be found in Table 3.

Perceived cognitive overqualification was found to be well correlated with traditionally measured perceived overqualification ( $r = .69$ ). Cognitive overqualification was inversely correlated with job satisfaction ( $r = -.44$ ), to a significantly greater degree than traditionally measured overqualification ( $t = 3.67$ ,  $p < .001$ ).

Cognitive overqualification was weakly associated overall with all dimensions of performance, ranging from  $r = .14$  to  $r = .20$ . Traditionally measured overqualification was slightly better correlated with performance overall, ranging from  $r = .04$  to  $r = .38$ , although not substantially. In none of the indices was overqualification related to poorer performance. This positive relationship between overqualification and performance was further demonstrated by the participants' independently surveyed estimates of the typical job performance levels among cognitively overqualified individuals in their organization, in which 97% of the sample believed cognitively overqualified individuals to have either average (48%) or above average (49%) performance levels, with only 3% estimating performance to be below average.

### Discussion

As a relatively new and unstudied concept, at the outset of this study, it remained to be proven whether overqualification could be defined in terms of cognitive ability, and, if so, what its relationship would be with traditionally measured overqualification, job attitudes and job performance.

As hypothesized, the results showed perceived cognitive overqualification to be similar in dimensionality, correlation and distribution to traditionally measured overqualification.

Table 2. The 'PCOQ' principal component analysis with Varimax rotation.

Items ( <i>M</i> = <i>Mismatch</i> , <i>NG</i> = <i>No-grow</i> )	' <i>Mismatch</i> ' loadings	' <i>No-grow</i> ' loadings
(M1) I am smarter than most people doing my job.	<b>.796</b>	-.005
(M2) I am more intelligent than is required to do my job.	<b>.750</b>	.364
(M3) My level of intelligence overqualifies me for my job.	<b>.820</b>	.110
(M4) Someone <i>not</i> as smart as me could still do my job well.	<b>.618</b>	.443
(NG1) I need to solve difficult problems on my job. <sup>(N)</sup>	-.058	<b>.798</b>
(NG2) I feel that I could easily handle more difficult work.	.285	<b>.945</b>
(NG3) My work is not mentally challenging.	.167	<b>.794</b>
(NG4) My work is <i>rarely</i> boring or routine. <sup>(N)</sup>	.181	<b>.624</b>
(NG5) I am able to do my job without too much thinking.	.368	<b>.743</b>

<sup>(N)</sup> Inversed scale.

Table 3. Correlates of perceived overqualification, job satisfaction and job performance.

<i>r</i> ( <i>N</i> )	1	2	3	4	5	6
1. Cognitive overqualification	–					
2. Traditional overqualification	.69** (156)	–				
3. Job satisfaction	–.44** (154)	–.23** (154)	–			
4. Self-rated performance	.14 (154)	.38** (154)	.21* (154)	–		
5. Training scores	.20* (94)	.04 (94)	–.04 (93)	.08 (93)	–	
6. Supervisor ratings	.17 (127)	.20* (127)	–.04 (125)	.13 (125)	.23* (70)	–

Notes: \* $p < .05$ ; \*\* $p < .01$ .

While these similarities support researchers' loose and interchangeable definitions and operationalizations of perceived overqualification (Burris 1983; Johnson and Johnson 1995) and their aggregations of these dimensions into single overall constructs (Khan and Morrow 1991; Johnson and Johnson 1996), the magnitudes of their correlations were moderate enough to indicate the partial uniqueness of their dimensions. Thus, while it appears legitimate to independently study cognitive overqualification, true perceptions of overqualification are probably more typically generalized.

Notwithstanding these similarities, cognitive overqualification was almost half as prevalent as the traditional measure of overqualification, the latter of which was congruent with previously reported rates of traditionally measured overqualification (Burris 1983). Clearly, these findings were dependent upon the job complexity and individual ability levels of the present sample, recognizing that dissimilar job samples might yield different results. Nevertheless, relative to the present sample, it is reasonable to conclude that cognitive overqualification, while showing significant incidence overall (28%), is not as common as traditionally perceived dimensions of overqualification.

Differences in the incidence of overqualification between demographic sub-groups were interesting to note. Contrary to expectations, these differences did not always follow those typically found for cognitive ability. As an example, despite overall similarities in general intelligence between genders (Sternberg 2000), males showed greater levels of perceived cognitive overqualification than females. As a possible explanation, it is suggested that perceived cognitive overqualification might be associated with the stereotypically perceived higher levels of intelligence for males than females (Beloff 1992; Furnham and Fong 2000), rather than actual differences in cognitive ability as originally hypothesized. Regarding race, whites had more perceived overqualification than non-whites, a result that fits both stereotypical and empirical data (Sternberg 2000).

As hypothesized, overqualification correlated well with job dissatisfaction. This finding supports the large amount of research relating overqualification to job dissatisfaction and turnover, adding that the cognitive construct of overqualification associates similarly and perhaps to a greater degree than the traditional constructs of education, skill or experience. These results also provide supporting evidence for the well publicized court ruling of *Jordan v. City of New London* (1999). In that case, Robert Jordan was not hired by the New London Police Department on grounds that his extraordinarily high test scores would eventually cause low job satisfaction and voluntary turnover, a causal relationship that had not been well supported empirically (Sullivan 1999). Still, it is recognized that



causality cannot be drawn from the present findings, and that the negative attitudes may actually lead to perceptions of overqualification, rather than the reverse.

Like job satisfaction, job performance measures were anticipated to be inversely related to cognitive overqualification. This, however, was not the case. Instead, overqualification was positively related to the performance criteria overall. This finding, and also the participants' unanimous opinion that cognitively overqualified employees have at least average level performance, provides convincing evidence against the common belief that overqualification leads to poor performance. While this was not the hypothesized outcome, in retrospect, the results can be understood intuitively. After all, the operational definition of cognitive overqualification is ostensibly a measure of cognitive ability itself, which is an inherently positive and monotonic predictor. Parenthetically, we note that objectively measured ability test scores might have been able to substantiate these claims, although such scores were unfortunately not available. Nonetheless, to have yielded lower performance, the psychological effects of overqualification would have needed to be strong enough to completely reverse the otherwise positive ability-performance relationship. Since a negative relationship was not found, these psychological effects may more moderately influence performance than previously hypothesized. Further evidence of this can be seen in the non-significant bivariate correlations between the job performance criteria and job satisfaction (with the exception of self-rated performance). Therefore, these findings would contend the presumption that lower job performance is a consequence of overqualification, based on the secondary relationship between job performance and job attitudes (e.g. O'Brien 1986; Tsang et al. 1991; Feldman 1996).

Overall, the results of this study provide support for the common practice among personnel managers to reject overqualified job applicants, as these individuals may be more likely to develop negative job attitudes. However, if hired, poorer performance is not anticipated. With that, the implementation of these findings into real selection scenarios would benefit from further research. In particular, as this study examined only perceived overqualification, there is still a need to incorporate an objective measure of cognitive overqualification to study the actual level of cognitive ability associated with these perceptions. Such a measure would have valuable utility, allowing personnel managers to identify potentially overqualified job applicants based on their test scores, and perhaps more accurately predict their job performance and job attitudes if hired. In addition, there is reason to believe that the incidence and consequences of overqualification may be influenced by cultural and/or job level differences (O'Brien 1986, Büchel 2002), an issue that was not addressed in this study. Therefore, future research incorporating multivariate research paradigms of perceived and objective overqualification, cross-cultural comparisons, and/or comparisons across job levels, would greatly advance our current understanding of cognitive overqualification in the workforce.

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