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CONTENTS

- Creativity, psychoticism and emotional intelligence: A conundrum for selection?** 3
Giles St. John Burch
- A review of the 15FQ+ Personality Questionnaire** 7
Graham Tyler
- Online application forms: Psychological impact on applicants and implications for recruiters** 12
Ruth E. Price & Fiona Patterson
- Personality and Performance: Continuing the debate** 20
Hugh McCredie
- Structured interviews: A response** 21
K.W. Young
- Question format in the structured employment interview – statistics appearing in the meta-analyses** 22
Paul Taylor & Bruce Small
- Protective measures in occupational settings – the need for a verification procedure** 23
Christopher C. Ridgeway

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SDR is a review of current issues in selection, assessment and development. It is not intended to be an academic journal and while papers are subject to editorial review not all are referred to independent referees. Any material intended for publication should be sent by e-mail if possible. The guideline maximum length is 2000 words.

The views expressed in articles do not necessarily represent those of the Editorial team or The British Psychological Society.

Editorial

WELCOME TO THE April Edition of *SDR*. We hope this edition finds you all well and enjoying the longer days of Spring.

Our first contribution to the review this month comes from Giles Burch. Giles explores some of the key competencies that organisations currently look for when selecting candidates. In particular, he looks at the areas of Creativity, Psychoticism and Emotional Intelligence and the links between them. Secondly, Graham Tyler presents us with a review of Psytech International's 15FQ+ questionnaire. Graham's paper is very comprehensive and covers a number of aspects of the 15FQ+ including its development and issues of reliability and validity, and comparisons to the original 15FQ and Cattells 16PF.

With the increase in computer and internet access, the issues surrounding selection and development online become more and more pressing. As such, our final article written by Ruth Price and Fiona Patterson from the Work Psychology Group at City University is very timely. They have undertaken a study to explore the psychological effects of receiving, completing and submitting on-line application forms. In particular, five psychological issues were examined; privacy, support, feedback, dehumanisation and self-selection. Four usability issues are discussed along with the implications for organisations and some practical recommendations for the future design of such forms.

We are also pleased to include two responses to past articles. Firstly, Hugh McCredie responds to a point made by Michael Gray (February, 2003) on the on-going issue of performance and personality. Secondly, K.W. Young takes up the debate surrounding structured interviews in relation to the article by Paul Taylor and Bruce Small (February, 2003). Finally, Christopher Ridgeway raises the question of whether there is a need for a verification procedure when using projective methods in occupational settings.

As John mentioned in the last edition, we still struggle each month to get enough articles. We are very committed to making every effort possible to produce each edition for you but we *really* do need your help in doing this - no articles or papers would ultimately mean the demise of *SDR* which would be a sad situation. Many thanks go, as always, to those who have contributed to this edition. We welcome your comments on any of the papers featured here and look forward to hearing from you soon.

Philippa Hain
On behalf of the Editorial team

Creativity, psychoticism and emotional intelligence: A conundrum for selection

CONSCIENTIOUSNESS, ONE OF the 'Big Five' factors of personality, characterised by ambition, discipline, a sense of competence, energy and perseverance, is widely regarded as a predictor of 'effectiveness' for a majority of occupational roles (see Hough & Ones, 2001); whilst Agreeableness, characterised by a concern to help others, altruism, trust and co-operation, is recognised as a predictor when the role involves interaction with other people (e.g. Mount, Barrick & Stewart, 1998). More recently, Witt, Barrick, Burke and Mount (2002) have demonstrated an interaction effect between Conscientiousness and Agreeableness. This is in theoretical keeping with the notion of Emotional Intelligence (EI) being a major determinant of managerial and leadership effectiveness. For example, Higgs and Dulewicz (1999) show how Agreeableness and Conscientiousness maps onto their model of EI, and state how their research has demonstrated that 'EI people (i.e. those with high emotional intelligence) tend to be agreeable' (p.30). Thus, in any selection process, this combined construct of Conscientiousness and Agreeableness appears to be of key importance when making predictions regarding potential or effectiveness.

Whether or not the notion of 'Emotional Intelligence' appeals, the evidence does support the predictive validity of these particular personality constructs of Agreeableness and Conscientiousness, which appear to be closely aligned with key elements of Emotional Intelligence - this is not the issue for discussion here. The point is that organisations are increasingly seeking to ensure that employees, particularly managers, are selected and developed with 'emotional intelligence' in mind.

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However, this is not all that the selection team are concerned with, there are of course other key managerial competencies against which selection predictions are made, one of which is often 'creativity and innovation'. Organisations may also want their managers to be creative and innovative, and seek to make appropriate predictions relating to individual creativity. This is evidenced by the increasing number of tools available for selecting for individual creativity, for example: the Innovation Potential Indicator (IPI; Patterson, 1999) and the Team Selection Inventory (TSI; Anderson & Burch, in press; Burch *et al.*, 2002), a measure of an individual's preferred team working climate for innovation. Not only do organisations select against the more creative and emotionally intelligent competencies, they are also investing much time and money *developing* creativity and emotional intelligence competence. Thus, it appears that creativity and emotional intelligence are *both* high on the organisational agenda, within the context of the predictivist selection paradigm - but alas, at this point a potential paradox becomes apparent!

I have identified how Conscientiousness and Agreeableness are important constructs in the prediction of job success, and I have highlighted the importance of individual creativity to the organisation. At face value we may wish to question whether an emotionally intelligent employee can also be a creative one, after all, there is much anecdotal evidence for the 'eccentric' individual

locked up in R & D, with an apparent lack of EI competence. However, creativity does appear to be a key element in the manager's tool kit, suggesting that these two factors may go together – and indeed, this is what the organisation wants and requires in many cases.

So far so good: creative managers who are conscientious and agreeable!

However, the personality literature may suggest otherwise. It has long been advocated that creativity and Psychoticism are closely related (e.g. Eysenck, 1995), with Psychoticism, a factor of Eysenck's model of personality (see Eysenck, 1992), reflecting a proneness to psychosis in the 'normal' population. Such perspective runs concordant with the widely held (*folk psychological*) belief that creativity is related to 'madness' where '...schizophrenia bears a remarkable resemblance to much of the most sophisticated art, literature, and thought of the twentieth century, the epoch of modernism' (Sass, 1992, p.16). This correlation between Psychoticism and creativity has been noted in the research on several occasions (e.g. Woody & Claridge, 1977), although not consistently (e.g. Kline & Cooper, 1985; McCrae, 1987). Another key finding from the personality literature, germane to the current discussion, is that Psychoticism is negatively related to both Conscientiousness and Agreeableness. This has been consistently demonstrated in the literature, where it has been shown that Psychoticism negatively correlates with Conscientiousness and Agreeableness (e.g. McCrae, 1987) and (negatively) cross-loads onto these two 'Big Five' factors (e.g. Zuckerman *et al.*, 1993).

From these findings, whilst it would be incorrect to form any definitive conclusions, it does however raise an interesting question of whether, when we are selecting for Conscientious and Agreeableness, we are discriminating against those who are high in Psychoticism, with an associated consequence of failing to recruit those with the most potential for creativity – or indeed vice versa, when selecting the most creative individuals, we exclude the most EI competent. Thus, this paradox – where the organisation desires *a* and also desires *b*, yet in opting for

a they are, by (possible) definition, rejecting *b*, or of course, vice versa, in choosing *b* they are rejecting *a* – is the genesis of our conundrum.

This may be a real or an imagined paradox, and it is unlikely that it presents too much angst to those who use models of personality for the purposes of selection and development. However, it may be comforting to find a solution to this paradox, having raised it! In order to find such a solution, it is necessary to return to the personality literature.

The term Psychoticism is often used synonymously with the term schizotypy, which is used to describe 'normal' personality on a continuum between 'normality' and schizophrenia. However, recent research has shown that schizotypy is comprised of at least *four* separate factors: (1) positive-schizotypy (reflecting the positive symptomatology of schizophrenia); (2) negative-schizotypy (reflecting the negative symptom of schizotypy); (3) disorganised schizotypy/social anxiety (reflecting 'distractibility, difficulties with speech and attentional difficulties'; Mason, Claridge & Williams, 1997, p.33); and (4) and asocial schizotypy (reflecting anti-social, tough-minded behaviour). It is with asocial-schizotypy that Psychoticism is most closely aligned, given that Psychoticism is particularly characterised by hostility, lack of empathy, lack of sensitivity and lack of feelings of guilt (Eysenck & Eysenck, 1991). Thus, Psychoticism is only one syndrome of an all-encompassing concept of schizotypy.

Recently, my own research at King's College London, demonstrated that creativity (as measured by Wallach and Kogan's (1965) tests of divergent thinking) failed to correlate with either asocial-schizotypy or positive-schizotypy (Burch *et al.*, submitted). However, subsequent factor analysis on this data, revealed that Openness to Experience (another of the 'Big Five', characterised by an openness to new and novel ideas, originality, imagination and intellectual curiosity) cross-loaded onto two factors, one reflecting what we labelled *Anxious Positive-Schizotypy*¹ and one reflecting *Creativity*², whilst failing to load onto another factor that we labelled *Anti-Sociality*

¹ *Anxious Positive-Schizotypy* primarily comprised of the following loadings: positive-schizotypy, trait anxiety, neuroticism and openness.

² *Creativity* was comprised of the following loadings: creative personality, divergent thinking, IQ and openness.

(comprising positive loadings of Psychoticism, Impulsive Non-conformity (another scale of asocial-schizotypy), and negative loadings of Conscientiousness and Agreeableness). Thus, these findings suggest that it is not 'creativity' *per se* that is related to schizotypy, but rather the essential elements of Openness to Experience that correlate with both creativity and schizotypy, and, most importantly, that this relationship is with positive-schizotypy rather than asocial-schizotypy (or Psychoticism).

The key point here then, is that creativity appears to be linked more closely with positive-schizotypy than asocial-schizotypy, which is probably more consistent with Sass's earlier quote regarding schizophrenia and creativity. In addition, *even* this link between positive-schizotypy and creativity appears to be mediated by Openness to Experience, which in turn, *may* be moderated by intelligence. If this is the case, and clearly much more research is required, then we may, as human resource practitioners and occupational psychologists, feel a little more comfortable that when we select for creativity, we are not selecting for asocial-schizotypy, thus not contradicting our desire to also recruit more emotionally intelligent managers – thus the conundrum is simplistically resolved ... *for now!*

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A review of the 15FQ+ Personality Questionnaire

Introduction

THE FOLLOWING PRESENTS a review of the 15FQ+ questionnaire. The article presents a comparison of the 15FQ+ with its predecessor, the 15FQ, introduces some of the new features of this assessment and discusses practical issues, before reporting on the development of the questionnaire and citing international data in relation to norm groups, reliability and validity.

Introduction to the 15FQ+

The 15FQ+ is a normative, trichotomous response, personality test that has been developed by Psytech International as an update to the original 15FQ. Both versions of the 15FQ were designed for use in industrial and organisational settings. The original version of this assessment was first published in 1991 as an alternative to the 16PF series of tests. The original 15FQ was designed to assess 15 of the 16 personality dimensions that were first identified by Cattell and his colleagues in 1946. The 15FQ has been used widely throughout the world and now boasts an impressive array of norm groups, including applicants, non-applicants, management applicants, undergraduates, higher education workers and a number of local and international norms. The UK general population norm group consists of well over 20,000 individuals. The 15FQ's technical manual (which is available as a free download at Psytech's website) provides extensive validity data on a wide range of samples.

The updated 15FQ+

The 15FQ+ is a full revision of the original 15FQ, with the authors developing and trialling a completely new item set for the 15FQ+. The authors' stated aim was to produce a relatively short yet robust measure of Cattell's primary

Graham Tyler

personality factors. It had been known for some time that reasoning ability (or intelligence) can not be reliably measured by reasoning items included in untimed personality tests, as is the case with Cattell's Factor B. For this reason, Factor B was excluded from the 15FQ. However, for the 15FQ+, the authors have decided to deal with this problem by redefining Factor B as a 'metacognitive personality variable' termed intellectance. This does not assess intelligence *per se*, but rather a person's confidence in their intellectual ability; defined in the 15FQ+ manual as:

'...a self-reported superior level of intellectual capacity, a preference for, and enjoyment of, complex arguments and ideas. A self-reported superior level of: verbal ability, abstract reasoning ability and numerical ability.'

New features of the 15FQ+

In addition to the Intellectance scale, the 15FQ+ now includes criterion-referenced scales for both Emotional Intelligence (Goleman, 1996) and Work Attitude (Ones & Schmidt, 1992). These scores are calculated from a sub-set of 15FQ+ items that have been found to best predict well-validated measures of the relevant constructs. Furthermore, the 15FQ+ now incorporates an extensive range of response style indicators that include a dedicated Social Desirability scale, non-dedicated Faking Good and Faking Bad scales, and measures of Central Tendency and Infrequency. As well as producing a standard length test, which contains 12 items per scale (200 items in total) the authors have also produced a short form, containing six items per scale (100 items in total).

Development of the 15FQ+

The 15FQ+ was developed following what the authors term extensive item trialling. However, this is not reported in great detail in the manual. According to the authors, the 15FQ+ has been written in simple, clear and concise modern European Business English (Psychometrics Limited, 2002). While they report that the test items have been written to avoid culture, age and sex bias, only minimal data is reported in this regard in the technical manual. The authors' stated intention when developing the 15FQ+ was to reflect the full breadth of Cattell's original source traits, yet avoid producing narrow, highly homogenous 'cohesive' scales that measure no more than surface characteristics. To this end they state that the item's selection process was guided by the twin aims of maximising reliability, whilst maintaining the breadth of the original personality factors.

Practical issues

The 15FQ+ short-form takes approximately 15 minutes to complete and the standard-form around 30 minutes. It is possible to administer both forms in traditional paper-and-pencil formats, through the use of self-scoring answer sheets and integral profile charts, or through the use of the publisher's GeneSys™ Integrated Assessment Software. Either way, administration is straightforward via the use of detailed, standardised instructions, and scoring is either automated (when using the software) or a matter of collating scores from easy to use shaded boxes and transposing the item scores onto respective sten score boxes and a graphical profile chart. Global scores are calculated through the use of a calculator and the simple instructions provided on every answer sheet. It should be noted that for those who choose paper-and-pencil administration and then manual scoring of the questionnaire, some of the report options are not available, namely, the Fake Good, Fake Bad, Emotional Intelligence and Work Attitude scores. However, these options can be made available through the publisher's bureau service or subsequent input into the GeneSys™ software.

The 15FQ+ Global Factors and Primary Scales are reported in Tables 1 and 2 respectively.

Table 1: 15FQ+ Global Factors

E	Extraversion	Introversion
N	Low Anxiety	High Anxiety
O	Pragmatism	Openness
A	Independence	Agreeableness
C	Low Self-Control	High Self-Control

Table 2: 15FQ+ Primary Factors

fA	Distant Aloof	Empathic
fB	Low Intellectance	High Intellectance
fC	Affected by Feelings	Emotionally Stable
fE	Accommodating	Dominant
fF	Sober Serious	Enthusiastic
fG	Expedient	Conscientious
fH	Retiring	Socially-bold
fI	Hard-headed	Tender-minded
fL	Trusting	Suspicious
fM	Concrete	Abstract
fH	Direct	Restrained
fO	Confident	Self-doubting
fQ ₁	Conventional	Radical
fQ ₂	Group-orientated	Self-sufficient
fQ ₃	Informal	Self-disciplined
fQ ₄	Composed	Tense-driven

15FQ+ Norms

While the 15FQ+ continues to accumulate norm groups from around the world, in the current technical manual, only one norm group is reported. However, this is a large sample of 1186 individuals with a good gender breakdown of 561 males and 621 females (four unknown) and an acceptable 10 per cent ($n=111$) representation of ethnic minorities. The age range of the reported sample is 16–64, with a mean of 31.49 and a standard deviation of 11.15.

Reliability of the 15FQ+

The 15FQ+ has been used on a variety of samples, although the technical manual currently only reports alpha coefficients for a professional sample and two student samples. Table 3 (along-side) presents the alpha coefficients for each of the 16 personality factors for both the standard- (Form A) and short- forms (Form C) of the 15FQ+. All scales demonstrate good levels of internal consistency, when the length of the scales is taken into account. Most importantly, the alpha

Factor	Form A	Form A	Form C	Form C
	Student Sample (n=183)	Professional Sample (n=325)	Student Sample (n=183)	Professional Sample (n=325)
fA	0.83	0.78	0.64	0.64
fB	0.77	0.80	0.62	0.71
fC	0.80	0.77	0.60	0.63
fE	0.80	0.79	0.60	0.66
fF	0.75	0.78	0.63	0.63
fG	0.85	0.81	0.60	0.64
fH	0.85	0.81	0.68	0.68
fI	0.74	0.77	0.64	0.63
fL	0.78	0.77	0.66	0.62
fM	0.80	0.79	0.64	0.64
fN	0.79	0.78	0.67	0.67
fO	0.82	0.83	0.67	0.69
fQ ₁	0.81	0.79	0.60	0.72
fQ ₂	0.82	0.78	0.67	0.62
fQ ₃	0.78	0.76	0.66	0.63
fQ ₄	0.84	0.81	0.60	0.62
SD	0.72	0.70	Not quoted	Not quoted
n=	183	325	183	325

coefficients are not so high as to suggest these factors are measuring narrow surface traits. The lower levels of reliability found in the short-form scales are to be expected, and reflect the relative brevity (six versus 12 items) of the Form-C scales.

Table 4 continues to provide evidence of the acceptable levels of reliability for the 15FQ+ scales. On this sample, both Factor fB (Intellectance) and Factor fM (Concrete-Abstract) fall slightly below UK acceptable levels of reliability. However, this may potentially reflect educational and cultural factors. The drop in alpha below the usually acceptable 0.70 level is minimal and the mean alpha for this sample remains high for personality assessment at 0.75.

Psytech South Africa provide further evidence of internal consistency reliability on their website. Overall, the 15FQ+ can be assumed to be a reliable measure of personality in South Africa, although alpha levels are generally lower than in UK samples. Despite this, the alphas do compare favourably to those obtained within South Africa from other measures of personality. Psytech South Africa does acknowledge that literacy and educational levels do, however, place constraints upon

fA	0.71
fB	0.67
fC	0.76
fE	0.75
fF	0.71
fG	0.81
fH	0.82
fI	0.71
fL	0.75
fM	0.68
fN	0.73
fO	0.81
fQ ₁	0.80
fQ ₂	0.72
fQ ₃	0.77
fQ ₄	0.78
Mean Alpha (n=226)	0.75

the test's use and interpretation, and do not recommend using the 15FQ+ for broad entry-level screening outside the UK; a point supported by the current author during experience of using the 15FQ+ in the United Arab Emirates and Saudi Arabia.

Validity of the 15FQ+

Table 5 provides data from 70 Psytech International course delegates who completed both the 15FQ and 15FQ+ as part of their practical experience. The table shows that ten of the corrected correlations between the 15FQ and corresponding 15FQ+ scale reach or approach unity, providing strong support for the construct validity of these factors. Of the remaining six factors, all but two correlate substantially with their respective 15FQ dimensions. The 15FQ+ dimensions fA (Empathic) and fQ₄ (Tense-driven) however, show only moderate correlations with their 15FQ counterparts. These modest correlations may reflect a subtle change in scale interpretation between the 15FQ and the 15FQ+ tests. Factor fA in the 15FQ+ measures a 'warm-hearted, empathic concern for, and interest in, other people', rather than sociability and interpersonal warmth as measured by the 15FQ dimension (Outgoing). A similar explanation is provided in the 15FQ+ manual for the moderate correlation between 15FQ+ fQ₄ its corresponding 15FQ dimension.

The 15FQ+, as well as the original 15FQ, has been developed to measure the original source traits identified by Cattell and his colleagues. Therefore, one would expect to find evidence of construct validity when comparing the 15FQ+ with versions of the 16PF. Table 6 (alongside) provides data from a student sample of 183 individuals, which further supports the construct validity of the 15FQ+.

All of the correlations in the above table are substantial and many of the corrected correlations approach unity. This demonstrates that the 15FQ+ is measuring factors that are broadly equivalent to those originally identified by Cattell and colleagues.

In addition to the data referred to in Table 6, the technical manual quotes yet further construct

Table 5: Correlations between 15FQ+ factors and the original 15FQ

15FQ+ Factor	15FQ Uncorrected	15FQ Corrected
fA	0.32	0.43
fB	-	-
fC	0.54	0.75
fE	0.65	0.93
fF	0.76	1.00
fG	0.74	0.97
fH	0.88	1.00
fI	0.71	0.98
fL	0.78	1.00
fM	0.63	0.84
fN	0.55	0.77
fO	0.74	0.95
fQ ₁	0.86	1.00
fQ ₂	0.78	1.00
fQ ₃	0.80	1.00
fQ ₄	0.29	0.40

validity data. For example, relationships exist between 15FQ+ factors and BAR-ON EQI scores, the Jung Type Indicator and the NEO PI-R.

Little criterion-related validity is available for the 15FQ+. Whilst disappointing, this is to be expected because of the recent publication of this test. Two studies are reported by Psytech South Africa (see www.psytech.co.za), one highlights the ability of the 15FQ+ to predict performance appraisal outcomes for managers, supervisors and equity managers from a manufacturing company, and the other shows how various scales of the 15FQ were able to predict insurance policy sales.

Summary and Conclusions

The 15FQ+ is a relatively new, normative, factor-based measure of occupational personality, developed as an update to the much used 15FQ, which was first published in 1991. The 15FQ+ has demonstrated, at an international level, more than acceptable levels of reliability, as well as good construct validity and appears to be measuring the same source traits as those discovered by Cattell. Users familiar with the 16PF series can easily transfer their test interpretation skills to this new instrument. The 15FQ+ is distributed by Psytech International and is available to Level B (Intermediate) qualified users (or international

Table 6: Correlations of the 15FQ+ factors with 16PF (Form A) and 16PF5

15FQ+ Factor	16PF (Form A)		16PF5	
	Uncorrected	Corrected	Uncorrected	Corrected
fA	0.31	0.37	0.55	0.70
fB	0.10	-	0.34	-
fC	0.59	1.00	0.81	1.00
fE	0.68	0.99	0.82	1.00
fF	0.72	0.98	0.81	1.00
fG	0.55	0.89	0.79 ¹	0.75
fH	0.78	0.99	0.88	1.00
fI	0.50	0.75	0.47	0.56
fL	0.29	0.52	0.60	0.79
fM	0.26	0.65	0.79	1.00
fN	0.30	0.70	0.25	0.31
fO	0.68	0.99	0.83	1.00
fQ1	0.29	0.43	0.60	0.84
fQ2	0.51	0.85	0.81	1.00
fQ3	0.30	0.50	0.57 ²	1.00
fQ4	0.69	0.94	0.69	0.89
FG	0.49	0.72	-	-
FB	0.48	0.73	-	-

¹ Correlation with 15FQ+ Factor fQ3.

² Correlation with 15FQ+ Factor fG.

Reflects fact that the meaning of these two factors has been reversed in 16PF5 and provides further evidence that 15FQ+ is measuring original source traits identified by Cattell and colleagues.

equivalent) without the need for conversion. The assessment is currently being used throughout the world, including: Australia, New Zealand, Malaysia, Singapore, South Africa, The United Arab Emirates and the UK and Europe, as an alternative to the 16PF series of tests. When administered to candidates for whom English is not their first language, particular care should be taken to ensure understanding of the items and accurate interpretation of results. Despite this, the 15FQ+ has frequently demonstrated exceptional construct validity internationally, as well as good criterion-related validity in South Africa. The 15FQ+ is at an advantage when compared with the 16PF5 due to its ease of scoring, the acceptability of the language and improved reliability on a number of the factors. Psytech report that they are continuously adding to international norms and progressing with further validation studies, foreign language versions of the assessment and the provision of controlled Internet administration.

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Further information:

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| www.psytech.co.uk | www.psytech.co.za |
| www.15fq.com | www.genesys3.com |
| www.psytech.ws | www.jungtype.com |

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Online application forms: Psychological impact on applicants and implications for recruiters

APPLICATION FORMS REMAIN one of the most prevalent methods of selection, especially in graduate and management recruitment, and are implemented at the first stage of the assessment procedure where the majority of the applicant pool is rejected (Robertson & Smith, 2001). A recent survey revealed that 78 per cent of UK graduate recruiters now prefer their applicants to apply online rather than on a paper-based form (Reed, 2002), compared with 1998 when only 44 per cent of UK graduate recruiters had the facility to accept applications electronically (Park, 1999). Despite the importance placed on application forms in the selection procedure, the increasing prevalence of administering the forms online, and the qualitative difference between paper-based and online forms, little research has been conducted on this development.

The initial research provided descriptive and demographic accounts of the development and the use of the Internet in selection (Bartram, 2002; Kuhn & Skuterud, 2000) and appeared to focus on the benefits of online applications for the organisation. These included: saving staff time and money (Bingham, Ilg & Davidson, 2002), easily sending candidate information to both local and international offices, appearing technologically advanced, incorporating psychometric tests at the start (KPMG, 2001), and ensuring that all of the candidates that apply are computer literate (Reed, 2002).

Those few articles that have examined candidate perspectives of online application forms have tended to take a broader perspective of online recruitment in general (Feldman & Klass, 2002;

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Foulis & Bozionelos, 2002). In addition, these articles have concluded that online recruitment is advantageous, as the web provides a good source of information about employers, and applying online is a convenient and accessible method.

Whilst it is acknowledged by the researchers that online application forms do have the potential to be an advantageous selection device, there are three omissions in the existing literature: (1) there has been no exclusive focus on **the use of online application forms** from the candidate perspective; (2) considering the difference in the medium of administration, the experience may have a **psychological impact** on the candidate; and (3) no study has considered the **consequences and implications** the psychological impact of online application use may have on both the applicants and organisations. The present research aims to address this by: (1) identifying and investigating the factors which may have a psychological impact on the candidate at each stage of undertaking an online application form (inputs, processes and outcomes); (2) considering the implications this has for the organisation; and (3) providing practical recommendations for the design of future forms.

Method

Twenty university students (eight male and 12 female) between the ages of 21 and 26 years (mean age 23.4 years) attended an individual 45-minute semi-structured interview, in which they discussed their experiences of online application forms as compared with paper-based forms. Each participant had completed between one and six Internet application forms in the previous 12 months (mean = three forms) and all had experience of paper-based application forms, having completed, on average, two forms within the same time period. The data was analysed using template analysis, in which key themes were identified and quantified.

1. Candidate reactions to the online application procedure

(A) Inputs

(i) Access to computers

Seventy-five per cent of participants were using university computers and Internet service to avoid the cost of Internet charges, and they felt the provision of computers at university was sufficient. However, five per cent of participants who had to commute into university to use the computers identified their lack of easy access to computers as a factor which inhibited applying online.

(ii) Cost

The participants who used home computers to undertake the forms (25 per cent) felt the cost incurred from completing the application online was a negative factor.

(iii) Attitude

Ninety-five per cent of participants had a positive attitude towards using computers and the Internet in general.

However, the negative attitude of the remaining five per cent inhibited them from applying online. Box 1 displays the input factors and corresponding quotes that are perceived to inhibit online application form use.

(B) Processes

(i) Five *psychological* issues emerged from the process of applying online: privacy, support, feedback, dehumanisation and self-selection.

Privacy

Eighty-five per cent of participants were concerned about lack of privacy when completing an online form. This was due to the necessity of completing it in a shared computer room, as compared with completing a paper-based form in private. They felt this lack of privacy led to distractions, feelings of awkwardness, and the potential for people to copy their responses.

Support

Also in contrast to paper-based forms, 85 per cent of participants thought that the support provided for the online form was negative, because it was difficult to locate contact details, and those provided were too general and offered no IT support.

Box 1. Input factors perceived to inhibit online application form use

Factor	Quotation from participant
Lack of access to computers	'It's difficult if I can't get into Uni, and it's unfair as it assumes everyone has Internet access.'
Costs of Internet use	'As a result of applying online my phone bill blew up... so I had to get a flat-rate Internet charge.'
Attitude	'I find it stressful sitting in front of the [computer] screen.'

Feedback

All of the candidates felt that it was essential to get acknowledgement that the online application had been received, and indeed 85 per cent of the candidates for the majority of their applications had received this feedback. The 15 per cent who had not received acknowledgement felt this was an important omission, given what they perceived to be a greater uncertainty of safe delivery via e-mail rather than paper mail.

Dehumanisation

When compared with a paper-based form, 95 per cent of candidates felt dehumanised by the process of applying online. The candidates felt that the process made them feel like they were not being treated as a personal applicant. In addition, candidates saw the process as 'unreal', as though their application forms would not be seen by an actual recruiter. In a number of cases this led to potential inaccuracy in responses: either via socially desirable responding and the exaggeration of answers, or overly casual and carefree responses.

Self-selection

Twenty per cent of participants felt an online application form increased self-selection, and that this was fair, as the online process was reflective of a skill required in the job. However, 15 per cent felt that the relative ease of accessing a large volume of application forms resulted in a decrease of self-selection, and they applied to jobs because of the convenience, rather than genuine interest or suitability. These candidates felt that this lowered the quality of their application.

(ii) Four *usability* issues concerning online applications emerged: practicality, technical unreliability, clarity and restricted space/choice.

Practicality

Seventy-five per cent of candidates felt online applications were far more convenient than the paper-based forms; however, 40 per cent also noted less convenient aspects, namely the difficulty in 'flicking through' the form to check it,

reading from the screen, the inability to preview the form before sending it, and having to provide very precise or repetitive information.

Technical Unreliability

All candidates experienced some type of technical unreliability whilst undertaking an online application form. Issues included connecting to the Internet initially, being disconnected from it and being unable to access the organisation's website, or application form itself. Some candidates were also logged off the form due to the page expiring without warning, and there were problems both with trying to save information and submitting the form. Some candidates felt the technical issues led to spending a longer amount of time in front of the computer screen, which resulted in negative health effects such as eye strain and headaches.

Clarity

Fifty per cent of candidates felt there was a lack of clarity in at least one aspect of the application form: it was either difficult to locate, or they felt they were not given clear information about what to expect, navigational instructions were unclear or they experienced problems with misleading links.

Restricted Space/Choice

Fifty per cent of candidates felt the drop-down menus were too restrictive, as the answer they needed was not always provided in the list, and there was often no option to provide an alternative. Additionally, 50 per cent of candidates commented on the lack of space provided for factual answers and, unlike a paper-form where you could attach an extra sheet, there was no space to add additional relevant information.

Boxes 2 and 3 highlight the positive and negative psychological and usability factors identified during the process of completing an online application form.

(C) Outcomes

The experience of using an online application was perceived to affect the candidates in five different ways:

Box 2. Psychological factors present with online application form use

Factor	Quotation from participant
Dehumanisation	'[A paper-based form allows you to] put more of yourself into it...online is a bit more cold.'
Support	'Once online, [the company] expected the form to look after itself completely.'
Feedback	'The automatic response is good, because you know it's got there and isn't lost in cyberspace.' 'Everyone else had e-mail acknowledgement, but I didn't. So I rang up but they never got back to me.'
Privacy	'[I felt] awkward using a form where people could easily look over my shoulder.'
Self-selection	'Self-selection bias is not such a bad thing -if you can't fill one in, then you really shouldn't be applying.' 'I end up applying to jobs because of the ease of applying online, rather than because of my suitability for the job.'

Box 3. Usability factors present with online application form use

Factor	Quotation from participant
Practicality	'It's easier to edit your responses online than on paper - you don't have to re-write it out 10 times.' 'I hate having to scroll down the page all the time - you can't see the answer you've typed in its entirety.'
Technical Issues	'I spent hours typing information, and the page expired - my heart stopped. It hadn't saved properly and I lost it all. I ended up in tears absolutely frustrated and didn't apply in the end.'
Clarity	'They should advise you if the page is going to expire, as otherwise you end up losing all the information.'
Restricted Space/Choice	'It only gave you 50 letters for what topics you'd covered in the course.' 'Mine was a combined degree and I had to choose one [subject].'

(i) Attitude

Forty per cent of candidates commented that organisations using online application forms successfully would be seen as innovative, forward-thinking and more appealing to work for. However, 70 per cent of candidates' actual experiences with online application forms were negative and this adversely affected their attitude towards both the organisation and the administering of forms online. It is important to note that

15 per cent of candidates would still apply even if their image of the organisation were affected, because of their desire to find employment.

(ii) Motivation

The technical difficulties encountered (see (B) ii) increased the length of time working at the computer. Half of the candidates believed this led to a number of detrimental health effects, both physical and feeling emotionally drained. They felt

this lowered their motivation to complete some of the forms, especially if the job was not one to which they were particularly committed.

(iii) Performance

Sixty-five per cent of candidates felt their performance was affected by the factors that did not allow them to express their achievements and skills accurately, including restricted space and choice, privacy and support. 70 per cent of candidates also felt dehumanisation affected their performance as they gave socially desirable responses or were less careful with their answers. This further distorted the accurate portrayal of the candidate.

(iv) Fairness

Twenty per cent of candidates felt that the online form was fairer as it is standardised, in that it restricts word count for answers and candidates cannot add additional information, unlike with a paper-based form. However, the process of applying online was considered unfair by participants who did not have a home computer and by those who would incur costs from personal Internet charges. It was also felt that those factors which affected performance (as detailed above) were particularly unfair, as candidates thought that this decreased their prospects of being selected.

(v) Satisfaction

Overall, although 35 per cent candidates expressed satisfaction with an online form due to aspects of practicality, 90 per cent felt dissatisfied with at least one element of the process, the main factors identified being technical problems, dehumanisation, and a lack of space and support. Box 4 outlines the psychological outcomes of online application form use.

2. Implications for organisations

These psychological outcomes have a number of implications for organisations:

(i) Attracting quality candidates

In the short-term, if online application forms generate negative attitudes towards an organisation, and lower candidates' motivation for completing the form, the quality of candidates

applying for vacancies may be affected. In the longer-term, the success of the company may be affected, as in a competitive market organisations have to attract the best candidates to remain successful (Robertson & Smith, 2001). Moreover, for those candidates eventually recruited, a negative experience with the process may influence psychological contract formation prior to employment.

(ii) Recruiting the best candidates

In addition to attracting quality candidates, the online selection procedure must also discriminate between them and recruit the best candidates. If the process of online application forms is reducing the accuracy of candidate responses and resulting in a false representation of the candidate's capabilities, then the reliability and the validity of the selection method may be affected. If validity is reduced, the company is much more likely to recruit the 'wrong' person for the job. This will have serious consequences for both the candidate and the organisation, especially as the average cost of recruiting a graduate is estimated to be £5000 (Phillips, 2001).

(iii) Reputation

A candidate's reaction can contribute to the organisation's reputation (Gilliland & Steiner, 1999) and an adverse reaction is likely to be publicised to colleagues and peers, perhaps affecting custom. In this way, organisations may experience short-term financial gain by using online application forms in terms of reduced recruitment costs, but in the long-term the potential effect of a negative image or profile may have hidden associated costs.

(iv) Fairness and Legal Challenges

Discrimination between candidates must be based on relevant and accurate information, or the company may face legal challenges. This is especially the case if there has been either no opportunity for the candidate to demonstrate their relevant skills (e.g. due to the lack of space or forced-choice restrictions) or the candidate has received no sympathetic interpersonal treatment (such as support) during the selection procedure (Gilliland, 1993).

In addition, the use of the Internet for recruitment may have an adverse impact on attracting a

Box 4. Perceived psychological outcomes of online application form use

Factor	Quotation from participant
Attitude	'Using an online application form means they have got more scope to make themselves look bad. It puts me off the company if I have technical problems.'
Motivation	'I got that sick of the technical problems that I just wanted to finish it and send it off.'
Performance	'It's easier to bang things out on computers, so I'm more casual with answers.'
Fairness	'There was limited word space, but I prefer that. It means everyone is in the same position.' 'It feels like I haven't done justice to myself in the space provided.'
Satisfaction	'Online application forms have the potential to be better and quicker, but they are more frustrating, and I think they've got a long way to go on the design issues.'

representative candidate pool and the diversity of the workforce. Due to the 'digital divide' and differential access to ICT, the use of the Internet is restricted in its demographic range in regard to gender, age, race and income. For example, it is estimated that 75 per cent of job-search website hits are from male users (Flynn, 2000).

(v) Ethical responsibility

It is increasingly recognised that organisations have an ethical responsibility for the selection process (Hough & Oswald, 2000). Any responsible organisation should want to design a form that is both easy to use and does not have a negative psychological effect on the candidates, not least since they are dedicating time and effort to the organisation in addition to being potential employees. It is clear that in their current state of development, there are a number of issues surrounding online application form use, which need to be eliminated to ensure the procedure is ethical.

(vi) Long-term costs

To summarise the above implications, although online application forms may save money in the short term, the longer term impact may be far more costly, via failure to attract, recruit and retain the best candidates, a loss of reputation and defence of legal challenges.

3. Preliminary practical guidelines for design

These initial findings suggest a number of practical recommendations, which may be useful when utilising online application forms in the future (see Box 5 overleaf).

Conclusions and future research

This exploratory study investigated the psychological impact that online application form use has on candidates. Although limited to a sample size of 20, the research highlighted that the method of applying online can lead to a variety of psychological effects which have several important implications for organisations. Factors that generated a negative psychological impact included a lack of privacy when filling in the form, restricted space to demonstrate their competencies, and a feeling of dehumanisation. This negative psychological effect included feelings of unfairness and dissatisfaction, as well as attitudinal change to the organisation. Organisations using online application forms may, therefore, save money in the short term due to the reduced cost of the hiring method, but in the long term may lose their reputation, quality employees and money.

In the short term, given the increased usage of online application forms, future research urgently needs to address: (1) whether the process does

Box 5. Preliminary practical recommendations for the design and use of online application forms

FACTOR:	RECOMMENDATION:	HELPS TO ENHANCE:
Inputs	<ul style="list-style-type: none"> ● Advertise in publications, not just online ● Offer paper based application form ● Offer 'print off and post' form ● Advise and allow ways of minimising cost, e.g. type off-line, copy and paste 	Fairness & Attitude
Process Psychological	<p><i>Privacy</i></p> <ul style="list-style-type: none"> ● Offer paper-based application form ● Offer 'print off and post form' ● Offer 'copy and paste' function 	Attitude, Performance & Fairness
	<p><i>Support</i></p> <ul style="list-style-type: none"> ● Provide details of support on the application form ● Provide specific IT support 	Attitude & Performance
	<p><i>Feedback</i></p> <ul style="list-style-type: none"> ● Always give acknowledgement of receipt (via e-mail) 	Attitude
	<p><i>Dehumanisation</i></p> <ul style="list-style-type: none"> ● Provide a specific name and telephone number/e-mail address for support ● Send correspondence from to an individual person from an individual person ● Send correspondence by letter ● Advise candidates' to prepare, and inform them of the consequences to applying 	Attitude & Performance
	<p><i>Self-selection</i></p> <ul style="list-style-type: none"> ● Provide a realistic job preview and emphasise the competencies required to do the job ● Provide details of who the form will be sent to and who will assess it 	Performance & Motivation
Process Usability	<p><i>Practicality</i></p> <ul style="list-style-type: none"> ● Design a centralised navigation system ● Offer the ability to preview and print the form ● Offer spell-check and copy and paste function ● Avoid rigid rules, e.g. having to enter the exact dates 	Attitude
	<p><i>Technical</i></p> <ul style="list-style-type: none"> ● Offer non-technical ways of applying ● Advise and allow copy and paste function ● Provide IT support 	Attitude, Motivation & Performance
	<p><i>Clarity</i></p> <ul style="list-style-type: none"> ● Ensure it is easy to locate the form from the main webpage ● Ensure the form is easy to navigate ● Ensure wording of links is clear and accurate ● Give instructions as to what to expect, e.g. attach a CV, pages expiring 	Attitude & Performance
	<p><i>Space</i></p> <ul style="list-style-type: none"> ● Provide a flexible amount of space for factual answers ● Always provide the option of 'other' in drop-down menus or similar ● Allow a final text box for other relevant additional information 	Attitude, Performance & Fairness

affect the reliability and the validity of the application form as a selection device; (2) the extent to which online applications have an adverse impact on diversity and fairness; and (3) if these findings can be generalised to all levels of employment.

It would be beneficial to conduct a series of studies, following the practical recommendations given here, to discover if refining online application forms reduces the negative psychological impact on candidates. This should help to ensure an online application form method that is reliable, valid, fair, convenient and cost-effective.

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Personality and Performance: Continuing the debate

MICHAEL J. GRAY (February, 2003) seems to have detected a note of 'lament' in my recent review of performance and personality research (October/December, 2002) that was never intended. In fact, I thought that my concluding remarks were quite upbeat, i.e. 'Perhaps the current 'bottom line' for the contribution of personality measures is to be found in Schmidt and Hunter's (1998) attempt to combine both GMA and conscientiousness in predicting performance. This combination was found to predict 36 per cent ($R = 0.60$) of variations in performance. This still leaves 64 per cent of performance variation unexplained but it is a good (and economical) start to which can be added assessments of skill and previous performance'.

I take a lot of Gray's comments on board and as an ideal it would be good to validate personality instruments for each role in every specific context. This would, undoubtedly produce higher validity co-efficients. However, in the real world even the most conscientious in-house practitioner is likely to be up against the problem of sample size and external consultants rarely have access to performance or other criterion data. Research by Brown (February, 1999) revealed that only two per cent of test users sampled had done any in-house criterion referenced validation. (I believe I was one of four out of the 200 users that she approached who claimed to have done this.)

To try and put the generalisation versus specificity argument into perspective, I offer Mike Smith's (1994) 'Theory of the validity of predictors'. Smith classified selection predictors into *Universals, Occupationals and Relationals*. Universals are likely to be predictive of success in any occupation and include General Mental

Hugh McCredie

Ability, vitality and the centrality or importance of work in the life of the respondent. Occupationals are job, or at least occupationally, specific attributes and may include particular cognitive abilities (e.g. numerical, verbal, spatial), specialised knowledge and distinctive personality profiles. Relationals are context-dependent attributes that can occasionally subsume or militate against the broader occupational requirements.

I undertook some preliminary comparison of personality test means for sub-sets of the senior management population in a substantial organisation in which I was employed some years ago. I found almost no significant differences between the means for managers in each of the four diverse divisions of the Group but a large number differentiating, sales/marketing, operations and finance directors. This preliminary work was published in *SDR* between 1991 and 1993.

The table included in my most recent article for *SDR* showed some significant transcending validity co-efficients emerging from the meta-analysis of Barrick, Mount and Judge (2001). Some of these co-efficients related to Occupationals, e.g. management and sales, whilst others were more like Relationals e.g. training outcomes. These co-efficients were significant but they were both understandably modest (rarely more than 0.3) since they transcended such a wide variety of occupations and contexts. However, for the same reason they were also very robust and can guide practitioners who are unable to carry out statistical validations in-house. This leaves it for practi-

tioner-researchers such as myself to try and move the game further along the general-to-specific spectrum by investigating and publishing broad occupational personality differences.

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Structured interviews: A response

I ENJOYED READING the article by Paul Taylor and Bruce Small (February 2003) on Structured interviews.

The argument on the relative merits of using 'past experience' questions versus hypothetical situational questions with or without a behaviourally-anchored scale, whilst not containing anything one could not decide from common sense, did contain some interesting measures and was a useful piece of teaching.

One thing I looked for and did not find in the article was any mention of the impact of skill in conducting 'past experience' behavioural interviewing. Though much more experienced in the use of the 'behavioural' interviews in research into factors leading to superior performance, when I have trained otherwise experienced interviewers in the skill of behavioural interviewing, I have noted the initial low level of skill they possess and

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hence their relative inability to gather information from such an interview. This low level of skill in behavioural interviewing probably applies to most interviewers since I believe that few interviewers are properly trained in the technique.

Whilst I cannot back up the assertion with the figures I would think that the skill level of the interviewers would rank at least equal to the question of the existence or otherwise of an anchored scale in determining the predictive validity. Given the option I would give priority to developing the skill before developing the anchored scales.

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Question format in the structured employment interview – statistics appearing in the meta-analyses

In last month's issue (Vol 19, No.1) we published the article 'Question format in the structured employment interview' by Paul Taylor and Bruce Small. This should have included a 'box' with explanations of the statistical terms used to help readers who were unfamiliar with the statistics used in the meta-analytic study reported. Due to an oversight this 'box' did not appear with the article. We apologise for this omission and the missing explanation is printed below

Below is a brief explanation of some of the statistical terms referred to in the meta-analysis.

Sample-weighted mean validity. When computing mean validities and effect sizes, meta-analysts typically weight each study by its sample size, or by a related statistic, in order to give greater weight to studies with larger sample sizes. This practice is based on the principle that larger samples have less sampling error (i.e. their sample means are likely to be closer to the mean of the population) than studies with smaller samples.

Correction for criterion unreliability and range restriction. Unreliability in criterion measures systematically reduces ('attenuates') observed relationships between other variables and the criterion. Meta-analysts often estimate the degree of unreliability in the criterion, based on reliability data from the studies included, or a larger, similar set of studies, allowing them to correct for that unreliability. Such a correction raises the validity coefficient or effect size to an estimate of what it would be had the criterion been measured with perfect reliability.

Similarly, validation studies are conducted on employees who have been on the job long enough

so that job performance can be measured (typically at least six to 12 months, and often longer). Because not all applicants have become employees, and not all employees have lasted in the job long enough for job performance to be measured, the range of scores obtained from a sample of employees is typically restricted (i.e. smaller variance) in comparison to the range of the group to which the study is to be generalized - applicants. The average difference in variances between the restricted (employees) and unrestricted (applicants) samples is used by meta-analysts to correct validity coefficients for this restriction. Like corrections for attenuation (unreliability), corrections for range restriction raise the validity coefficient to estimate what the validities would have been had the studies been performed on actual applicants.

Most meta-analyses concerning the criterion-related validity of selection methods report both uncorrected and corrected validity estimates, as we have done here.

Paul Taylor & Bruce Small

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Projective measures in occupational settings: The need for a verification procedure

THE USE OF projective methods; TAT, sentence completion, etc., in the occupational setting has, it would appear, fluctuated over time. From the 1960s onwards the growth of psychometric testing, its associated distrust of subjective, impressionistic, whole person approach, and, its faith in the statistical, seems to have significantly reduced the use, in the occupational sphere, of the projective test. However, to my knowledge, there are still occupational psychologists who use projective methods in selection assessment and/or for development purposes.

Those who use projective methods, it is hoped, received appropriate training. Additionally, it would be expected that they will train others to use these methodologies. However, though there is now considerable rigor in the validation of psychometric test trainers, it would appear that a similar approach, at least in the occupational area, is not taken to projective training.

Christopher C. Ridgeway

Reading the guidance on the certificates in competency would not appear to preclude the instrument(s) being projective, although the general thrust would seem to suggest that it will be easier to be successful if psychometric measures are selected.

It would be useful to know if anyone is training others to use projective methods for occupation use, and if they have been verified.

If there is demand for verification in projective methods, then it would be interesting to evaluate its strength, and thereby the usefulness of such a provision. Any comments would be very valuable.

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