

# Comedians' Trait Level and Stage Personalities: Evidence for Goal-Directed Personality Adaptation

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## Abstract

Recent findings have shown that both mean levels of personality and situational variability in its expression are of importance. So here, the Big Five personality traits of 77 professional and 125 amateur stand-up comedians were compared to two large matched samples (N>100,000). The comedians were also observed whilst performing, which enabled a comparison of their stage personalities with situational requirements on 10 selected NEO-PIR facets. Both amateurs and professionals showed higher openness-to-experience, extraversion, and lower conscientiousness than their norm samples, while professionals also evidenced greater neuroticism. Irrespective of trait standing, with regard to most NEO-PIR facets, professionals expressed the appropriate on-stage persona, and were better able to regulate their personality to conform to situational requirements than amateurs. This is consistent with research showing that individuals regulate their personality to conform to situational and goal requirements, and adds the finding that successful comedians demonstrate enhanced adaptability compared to amateurs.


*Keywords: Organizational Behavior, Personality, Whole Trait Theory, Comedians, Invariance*

## Comedians' Mean Level and Stage Personalities

Personality has two major components: Trait levels and moment-to-moment personality expression. In essence, these components mean that people have a typical level, of say Extraversion, but sometimes (perhaps often) deviate from this typical level. Both trait levels and personality expression are important for understanding human personality, especially within work or performance domains. Trait levels have received the most attention, but recent evidence suggests that around 65% of the variance in behavior is explained by moment-to-moment personality expression (or intra-individual variability), which is about twice that of variance attributable to trait levels (or inter-individual variation; Fleeson & Gallagher, 2009; Sherman, Rauthmann, Brown, Serfass, Jones & John, 2015). Further, growing evidence shows that intra-personal variability in personality expression is systematic and is related to situational characteristics (e.g., Fleeson & Law, 2015; Sherman et al., 2015) and current goals (e.g., Bleidorn, 2009; Heller, Komar & Lee, 2007; McCabe & Fleeson, 2013; Perunovic, Heller, Ross & Komar, 2011).

Building upon these observations, the current study seeks to examine both aspects of personality within a real-world, high-stakes occupational setting using comedians. Specifically, the study has two major goals. First to examine the trait profiles of comedians, and to examine if and how they differ from the general population. Second, we seek to examine whether both professionals and amateurs adapt/change their personality expression when on stage and whether such adaptations are associated with performance levels. Comedians were chosen because evidence suggests that they are likely to have a unique profile of personality trait levels, and also because the demands of their role vary between writing and performing. In addition, although comedic performances are somewhat contrived (like any employee giving a presentation), they do constitute a part of the job role which is relatively short, easily observable, and thus highly amenable to study.

**Personality trait profiles**

First we explore the personality trait profiles of amateur and professional comedians as compared with two very large matched samples. Why should comedians' mean level personalities differ from those of the general population? Perhaps one of the most useful frameworks to explain this is Roberts' (2006) ASTMA (Attrition-Selection-Transformation-Manipulation-Attrition) model[1]. Roberts reviews evidence that personality shows both stability and change over the lifespan, and argues that person-job transactions might influence both through 5 mechanisms. Persons are: (1) attracted into, and (2) selected for occupations which fit their personality; (3) in the course of performing their job role people's personalities are transformed in a direction which conforms with its demands; (4) they manipulate their environment to better fit their personality, sometimes known as job crafting (Sutin & Costa, 2010; Wrzesniewski & Dutton, 2001); and (5) they leave jobs which do not fit their personality, a phenomenon denoted as attrition (Denissen, Ulferts, Ludtke, Muck & Gerstorf, 2014).

The ASTMA transactions suggest that employment typically acts to entrench employees' existing trait profiles, because they are attracted and selected into roles that 'fit' their personality, and are subsequently exposed to situations which reinforce these trait levels. However, work experiences can also 'transform' personality. A number of theories elaborate on the reasons for transformation of personality. However, TESSERA arguably offers the most comprehensive framework (Wrzus & Roberts, 2017). "The … TESSERA framework posits that long-term personality development occurs due to repeated short-term, situational processes. These short-term processes can be generalized as a recursive sequence of Triggering situations, Expectancy, States/State expressions, and Reactions (TESSERA)." (Wrzus & Roberts, 2017, p. 253). In other words, carrying out any job role will repeatedly expose one to a range of job-specific situations with their associated expectancies, states and

reactions. If such situations require repeated expression of personality states at odds with one's trait levels of personality, personality will likely change in a direction consistent with occupational requirements. In sum, the above processes of personality development should shape job incumbents' personalities in a direction which tends towards person-environment fit (Woods, Wille, Wu, Lievens, & de Fruyt, 2019).

What evidence is there then that different occupations are associated with distinctive and homogenous personality profiles? There are relatively few investigations directly relevant to this question (Bradley-Geist & Landis, 2012; Denissen et al. 2014; Jordan, Herriot & Chalmers, 1991; King, Ott-Holland, Ryan, Huang, Wadlington & Elizondo, 2017; Ployhart, Weekley & Baughman, 2006; Satterwhite, Fleenor, Braddy, Feldman & Hooper, 2009; Schaubroek, Ganster & Jones, 1998), and although they all support the basic contention, they do so to different degrees. For example, King et al. (2017), in one of the larger and more comprehensive studies, found that variance due to occupational grouping was small and accounted for 4%, 6%, and 3% of the total variance in Neuroticism, Extraversion and Conscientiousness, respectively. In contrast, Denissen et al. (2014), in a similarly large study, reported correlations between ratings of required personality and averaged occupational personality profiles of .57, .54, and .69 for Extraversion, Agreeableness and Openness, which suggests strong support for homogeneity of personality within occupations. It is not clear why findings are so discrepant, even with regard to extraversion, the only personality dimension common to these two studies, and it is possible as argued by Schmidt and Oh (2010), on the basis of extensive research (e.g., Schmidt & Hunter, 1998; Schmidt, Shaffer & Oh, 2008), that for many jobs there is little discrimination in personality requirements.

**Personality trait profiles of comedians**

Let us suppose for the moment that comedy is one profession which requires a distinctive personality profile to achieve success. What does that profile look like? To address this question, we adopt the Five-Factor Model (FFM), which, although criticized on both theoretical and methodological grounds (e.g., Block, 1995; Paunonen & Jackson, 2001), remains the consensus model of personality and possesses numerous advantages, especially the large reference databases pertaining to it (see John, Naumann & Soto, 2008; McCrae & Costa, 2008; Miller & Lynam, 2015).

For the majority in the UK, the job of stand-up comedians is comprised of two major tasks: Writing material and performing. Feist (1998) provides a meta-analysis relevant to the likely personality profiles of 'creative artists' who write as part of their occupation. Feist compared the personality profiles of creative artists/writers and non-artists. Following Cohen's (1988) suggestion that d-scores of around .20 represent small effects, .50 moderate effects and .80 large effects, Feist (1998) found that artists were strongly less conscientious, moderately more open and showed small tendencies to be more neurotic, extraverted and disagreeable than non-artists. However, Silvia, Kaufman, Reiter-Palmon, and Wigert (2011) recently showed that agreeableness has a near zero correlation with creativity, and that previous studies have probably used measures which confound disagreeableness with immodesty, and should not, therefore, be relied on. Further, Feist found, using the Creative Personality Inventory, that creative artists were more impulsive, nonconformist, rule-doubting, skeptical, and independent (all effects medium-large). Creativity is defined as generating novel ideas (Hughes, Lee, Tian, Newman, & Legood, 2018) for which openness to ideas would appear to be a prerequisite, and indeed openness- to-experience has been the most consistent correlate of creativity (Kaufman et al., 2014; Silvia et al., 2011). In addition, to be novel often requires a rule-breaking mentality, and those with a propensity to create

humor tend to be somewhat low in deference (Thorson & Powell, 1993). So, the comparative openness and low conscientiousness of creative artists is understandable in these terms, as well as consistent with the evidence.

Of relevance to the presenting aspects of stand-up comedy is a small study by Nettle (2006) of the personality characteristics of actors. Although comedy and acting differ, they share the requirement for presenting. Nettle compared 191 actors with a norm sample, and found d-score differences of .02 for conscientiousness, .62 for openness-to-experience, .20 for neuroticism, .60 for extraversion, and .41 for Agreeableness. As compared with creative artists, presenters share high openness, are similar in terms of a weak tendency to neuroticism, but are substantially more agreeable, extraverted, and conscientious. On this basis, comedians should be high on openness-to-experience as this characteristic is common to both their roles. Otherwise their characteristics will depend on how the conflicting demands of writing and presenting balance out. Likely low conscientiousness predominates because of the necessity of a rule breaking mentality to generate sufficiently interesting material. In terms of the remaining characteristics, if we assume that the effects of stage performance are relatively weak, given its short duration, then comedians should be mildly neurotic, somewhat more extraverted, and about the same in agreeableness compared with the normal population.

Most studies that have investigated comedians' personality traits directly suggest that comedians exhibit high levels of neuroticism (Fisher & Fisher, 1981; Janus, 1975; Janus, Bess, & Janus, 1978). These studies use psychometrically weak projective measures, and rely on small samples, which renders their findings questionable. However, the conclusion that comedians are neurotic is reinforced by a large scale study (N=523) by Ando, Claridge and Clark (2014). In a comparison of comedians with actors (N=350) they found a d-score

difference of .51 for Bi-polar traits and .35 for Schizotypy. Overall, these studies suggest that neuroticism is a core characteristic of comedians.

Greengross and Miller (2009) is the only study which has used the FFM to investigate comedians' personality traits. They compared professional (N=31) and amateur (N=9) comedians to humor writers (N=10) and college students (N =400) using self-report NEO-FFI-R scores. In line with our theorizing, comedians of both groups showed significantly higher openness and lower conscientiousness compared to the students. Yet, they also showed lower extraversion and agreeableness, while no significant difference was found on neuroticism. No significant difference was found between amateur and professional comedians on any trait. However, the size of Greengross and Miller's comedian samples was very small and students represent a questionable norm group. Thus, investigation of the five factors in a larger comedian sample, in comparison to a representative general population group, is needed before firm conclusions can be drawn.

The first aim of this study is to build on Greengross and Miller's (2009) findings whilst addressing some of its limitations. Specifically, we explore the FFM personality characteristics of amateur and professional comedians, in comparison to two matched UK samples, utilizing self-report measures. The norm samples were substantially larger than those of all previous studies, as were the comedian samples, with the exception of the study of Ando et al., (2014). Based on our consideration of Feist's (1998) meta-analysis, Nettle's (2006) study of performers, together with direct studies of comedians' personality, we expected comedians will score lower on conscientiousness and higher on openness, while the preponderance of evidence points to elevated levels of neuroticism, and extraversion and similar levels of agreeableness compared to the general population, given that previous investigations likely used a confounded measure of agreeableness (Silvia et al., 2011).

In a further refinement on previous work, we take advantage of methodological advances which offer more comprehensive and reliable analyses for investigating group differences. Collectively, Multi-Group Covariance and Mean Structures Analysis (MG-CMSA) adopts structural equation modelling to test for equivalence of the covariance structure within a given measure, and uses this robust structure to compare latent mean differences in the target constructs (Dolan & Molenaar, 1994). Measurement invariance tests the assumption that the construct is measured equivalently across groups. Most commonly, the pattern of factor loadings (configural), degree of factor loadings (metric) and the intercepts of indicators (scalar) are assessed for invariance (Widaman & Reise, 1997). Only if invariance holds can precise estimates of group mean differences be calculated (French & Finch, 2006; Meredith, 1993). Finch and West (1997) suggest that tests of invariance are an important step forward in personality research and assessment of group differences. This is the first study to apply this methodology to comedians' personality.

In addition, we were able to control for three known confounds which would certainly have affected our estimates, namely, age, gender, and country of residence. It is well established that personality varies across gender (e.g., Del Giudice, Booth & Irwing, 2012), age (Roberts, Walton & Viechtbauer, 2006) and country of residence (Allik, et al. 2017) and the population of comedians differs from the general population with respect to all three (Chortle, 2019). Because we had a very large comparison group, we were able to select a large number of exact matches (on age, gender, and country of residence) to each member of the comedian groups. Under these circumstances, exact matching is a preferable strategy to propensity score matching (Rosenbaum & Rubin, 1983)

**Adaptiveness of Comedians' Stage Personalities**

Because standup comedians have to perform the material they write, they often find themselves adopting a persona that, in many cases, differs significantly from their everyday

personality. For example, comedians often express rage or confusion to entertain and elicit emotional reactions from their audience. From one perspective, expressing a set of personality states at odds with trait levels might be considered a unique feature of the comedians' role. However, recent research suggests that most people actually shift their personality expression across situations, usually to match situational requirements, and to aid goal attainment. Accordingly, we assess whether comedians shift their personality when on stage and, if so, whether this aids performance.

As we noted in the introduction, recent empirical evidence and theoretical developments (Fleeson & Jayawickreme, 2015) emphasize the importance of assessing personality trait levels and personality expression on the same dimensions (Fleeson, 2001). A series of studies using experience sampling methods have shown that intra-individual variability in personality expression accounts for about 65% of variance in behavior, with 35% of variance attributable to inter-individual variation (Fleeson & Gallagher, 2009; Sherman et al., 2015). Some of the most interesting findings in this domain revolve around density distributions of moment-to-moment personality expression (i.e., the distribution of expressed levels of say, conscientiousness). Notably, density distributions have been found to be stable. Correcting Fleeson's (2001) stability estimates, using the Spearman-Brown formula, shows average reliabilities formean personality expression (i.e., level of a trait expressed) of .97 and for the standard deviation (i.e., the amount of variation in trait expression) of .85 across the Big 5 factors[2]. Thus, variability in personality expression is a consistent feature of an individuals' personality.

The stability of variation in personality expression can also be explained by examining the role of situations and goals. Specifically, a considerable body of evidence shows that that intra-personal variability in state personality is situation dependent (e.g., Fleeson & Law, 2015; Sherman et al., 2015) and that personality states covary with current

goals (e.g., Bleidorn, 2009; Heller et al., 2007; McCabe & Fleeson, 2013; Perunovic et al., 2011). Such evidence is in line with social cognitive theory (e.g. Bandura, 1997; Mischel & Shoda, 1995) in that variation in personality expression appears to result, at least in part, from person-situation transactions mediated by interpretive processes, and motivational processes (goals and expectancies).

A perhaps more puzzling issue is that some investigations seem to show that variability in personality states can be dysfunctional (Clifton & Kuper, 2011; Cote et al., 2012; Fournier et al., 2009; Russell, Moskowitz, Zuroff, Sookman, & Paris, 2007; Zeigler-Hill, Masri, Smith, Vonk, Madson & Zhang, 2013), whilst others show that it can be functional (Lievens, Lang, De Fruyt, Corstjens, de Vijver, & Bledlow, 2018; Minbashian, Wood, & Beckman, 2010). Here we suggest a possible approach to resolving this paradox. Earlier in this paper we considered evidence that particular personality profiles provide a fit to different jobs such that persons with such profiles achieve greater success within the job. We infer that this is based on the proposition that their personality is adaptive for the range of situations they are likely to encounter within their job-role. Implicit in this framework is that success in any given situation is dependent on expressing a personality profile which fits the situation. It would follow that those who consistently express the personality profile needed to achieve success in each situation, will be more successful than those who are unable to match situational requirements. It is possible then, that those who are able to regulate their expression of personality to match situational requirements are adaptive, whilst those who show inappropriate variation of personality expression are not.

Following this logic, we examine whether comedians do indeed shift their personality when on stage, whether any shifts appear to be goal-directed, and examine whether professionals are better able to shift than amateurs. In assessing this, we propose that the match between expert ratings of the personality requirements for success in a situation and

expressed personality will provide a suitable measure of adaptive personality expression. By definition, our sample of professional comedians has achieved greater success than the amateur or would be comedians. We therefore predict that their expression of personality on stage will correspond more closely to expert ratings of situational requirements than is true for amateurs, and that this will be true across the range of personality states in which they differ. We investigate this issue using behavioral ratings of video recordings of stage performances in a high-stakes setting, i.e. one of the premier UK venues for stand-up comedy. In doing so, we meet the call of Baumeister, Vohs, and Funder (2007) for studying "actual" behavior.

## Method

### Participants

Comedians were recruited through a live comedy venue, which is widely regarded as one of the two preeminent UK comedy establishments. Professional comedians were employed to perform at professional shows, were testing new material at a 'new material' show, or were the master of ceremonies at an amateur night. Amateur comedians either performed in a 'gong show' or worked, unpaid, at a professional show. Both groups were operating in a high stakes situation, the professionals to further their career and the amateurs to establish one. The sample comprised 77 professional comedians (67 males, 10 females, Mean age = 35.8, *SD* = 7.8) and 125 amateur comedians (107 males, 18 females, Mean age = 28.7, *SD* = 8.1). The proportion of female comediennes in our sample at 13.9% is smaller than the 27.4% of female circuit comediennes (Chortle, 2019). Amongst the amateur comedians, 21.6% had a postgraduate university education, 35.2% had undergraduate university education, 17.6% had non-university higher education, 11.2% had secondary school education to age 18, and 14.4% had secondary school education to age 16, as their highest level of education. Amongst the professional comedians, 29.9% had a postgraduate

university education, 33.8% had undergraduate university education, 13.0% had non-university higher education, 9.1% had secondary school education to age 18, and 14.3% had secondary school education to age 16, as their highest level of education. The sample size was limited by practical considerations, although the multi-group confirmatory factor analysis has adequate power due to the equality constraints imposed (see below). The two separate comparison groups for amateur and professional comedians were drawn from a general population sample of 333,442 UK residents, collected through multiple studies and provided by Samuel Gosling.

**Procedure.**

Comedians were approached via email by the club's general manager and/or in person on the night of their performance. Participants completed the Big Five Inventory. All, except gong show participants, completed the questionnaire on the night of their performance in the comedy club dressing room. Gong show participants were emailed the questionnaire, which they completed within two weeks of their performance[3]. Participants consented to have their performance recorded by the comedy club. Due to technical failures 24 of these recordings were not available for analysis.

With the comedians' agreement, two experts viewed and rated a five minute sample of their videoed performance. However, for gong show comedians, the sample period only lasted until they were 'gonged'. The experts were an internationally successful comedian and the comedy club's Technical Director.

**Measures**

**Self-reported personality.** The Big Five Inventory (BFI: John & Srivastava, 1999) comprises 44 items assessing extraversion, neuroticism, openness, conscientiousness and agreeability. Participants respond using a 5-point Likert scale (1=strongly disagree, 5=strongly agree). The BFI demonstrates strong internal consistency ($\alpha \approx .83$), a clear factor

structure, and convergence with other Big Five measures (John & Srivastava, 1999). In the current study Cronbach alpha reliabilities ranged from .74 to .84 with an average of .80.

**Behavioral observation**. Ten comedy-relevant facets of personality formed the basis of the observation. They included four facets of neuroticism, one each of extraversion and openness, two of agreeableness, and two of conscientiousness (see Table 2). To identify these, interviews were run with two comedians. The 30 NEO-PIR facets (Costa & McCrae, 1992) were described to interviewees. In response to each, interviewees were asked to indicate if the facet (1) is observable when comedians perform; (2) impacts comedians' effectiveness; and in line with the possibility that personality variability is a necessity for performing successful stand-up comedy, (3) requires variation across performances. Twelve facets met all criteria according to both interviewees. These were Angry Hostility, Straightforwardness, Self-consciousness, Assertiveness, Ideas, Compliance, Self-discipline, Anxiety, Deliberation, Impulsiveness, Activity, and Gregariousness.

Next, descriptions of the twelve facets were paired with a five-point response scale (1=to a great extent, 5=not at all). They were then presented to twelve further industry experts, via an online survey, who were asked to indicate the extent to which each requires variation across performances. Experts had multiple roles in the comedy industry including comedy club manager/director, reviewer, headline comedian, agent, television comedy producer, promoter, and a festival director. Out of the twelve presented facets, the ten which required the most variation across performances were selected for inclusion in the study. On this basis Activity and Gregariousness were excluded.

For the observational study, the poles of each facet were defined and combined with a ten-point scale where 1 denoted the low end of the facet and 10 denoted the high end. Each facet along with its response scale was presented twice. In response to the first, the two experts were asked to indicate the level that was needed for comedians, to as achieve as high

a level of success as possible, due to their performance. In response to the second, they rated the comedians' expressed behavior in relation to the facet. The reliability of the mean ratings of situational requirements with respect to the ten facets was 0.86 across the two sets of expert ratings. To control for the possibility that requiring the two experts to rate both required and observed behavior may have created a method artefact, we obtained a further sample of 11 professional comedians who provided independent ratings of required behavior. The means of the two sets of ratings correlated at .99. Since the original ratings were recorded immediately after watching the videos of stage performances (about 180 times), and were, therefore, not subject to biases due to reliance on memory, we used these ratings in subsequent analysis.



## Results

Amateur and professional comedians were exactly matched on gender and age to cases from the reference sample of UK citizens. This was done via the 'Matchit' algorithm (Ho, Imai, King, & Stuart, 2011) in R 3.4.1 (R Development core group, 2008). It led to the matching of 126,905 reference participants to 77 professional comedians and to 191,631 reference participants to 125 amateur comedians.

We then tested for mean differences in BFI scores for professional and amateur comedians, separately, in comparison to their respective norm groups using Multi-Group Covariance and Mean Structures Analysis (MG-CMS) in Mplus. Because it is well established that the BFI does not provide a good fit using conventional confirmatory factor analysis (Booth & Hughes, 2014), and the fit of a CFA to the total sample of comedians was poor ($\chi^2(194)=511{,}417.9$, $p<.001$; CFI=.789; TLI=.775; RMSEA=.076 [.076-.076]), we used multi-group exploratory structural equation modelling (MG-ESEM).

For group comparisons to be valid, scalar invariance must hold (Little, 2013). We considered good model fit to be indicated by values within the range of ≤ .06–.08 for the root

mean square error of approximation (RMSEA), and ≥ .90–.95 for the Tucker-Lewis index (TLI) and comparative fit index (CFI) (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Muller, 2003). We tested for measurement invariance in the order: (1) configural invariance; (2) metric invariance; and (3) scalar invariance using procedures recommended by Millsap and Kim (2018) adapted for the ESEM framework. Decline in model fit at a given stage of the invariance analysis indicates that the assumptions of invariance do not hold in the constrained parameters (French & Finch, 2006). To assess possible decline in model fit, we rely on the conclusions of a simulation study by Chen (2007). Her primary recommendation, when sample sizes are 500 or more, is that changes of equal to or less than -0.01 for CFI and increases less than or equal to .015 for the RMSEA indicate that invariance holds.

[insert Table1 about here]

In this instance, according to both criteria, and for both sets of analyses, increasingly restrictive models showed improved rather than reduced fit, and the scalar models showed excellent absolute fit which provides unambiguous support for scalar invariance (see Table 1). All salient item loadings were significant at p<.001, and barring three items, were in the range 0.50-0.87 (see supplementary materials, Tables 1 & 2). The average variance extracted (AVE) for each factor ranged from 28 to 49%. Given that scalar invariance is convincingly demonstrated and that each of the factors is reliable (McDonald's Omega ranges from .78-.89; see supplementary materials, Tables 1 & 2), it follows that the mean differences between groups are on the same measurement scale and are substantively interpretable.

[insert Table 2 about here]

The mean differences between groups are shown in Table 2 in the form of Cohen's d-scores, with 95% confidence intervals. Cohen (1988) suggested that d-scores should be considered small, medium, and large, at levels of 0.2, 0.5, and 0.8, respectively. However, he

also cautioned that uncritical use of such arbitrary guidelines is dangerous. Nevertheless, according to these guidelines: In terms of neuroticism amateurs were indistinguishable from the normal population, while professionals, as expected, showed a medium level of neuroticism. Amateur comedians are more extraverted, to a medium degree, than the normal population while professionals show only a small trend in this direction. Both amateurs and professionals showed moderately higher levels of openness than the normal population, and neither are distinguishable from the normal population with respect to agreeableness. Finally, both groups are less conscientious than the normal population to a medium degree. Although point estimates show that professionals are markedly more neurotic than amateurs, amateurs are somewhat more extraverted, and professionals are less conscientious, none of these differences achieve significance, probably because of a lack of power.

The heightened level of neuroticism and openness and low conscientiousness of professional comedians conforms to previous studies (e.g., Feist, 1998; Greengross & Miller, 2009). Equally, that professionals differ only weakly from the normal population in terms of extraversion, and are indistinguishable in terms of agreeableness is consistent with our expectations. In addition, the moderately high level of openness demonstrated by professional comedians fits with the requirements of the job according to our two experts (see Table 3).

If we compare the mean level personality of professional comedians with the requirements of the job as judged by our experts (see Table 3), they are too high in neuroticism, too low in extraversion, met with requirements with respect to openness, and agreeableness, and are somewhat deficient in conscientiousness.

[insert Table 3 about here]

Our second set of analyses concerned the extent to which behavioral ratings of the ten facets of expressed personality, described previously, matched the expert ratings of required stage personality depending on whether the participants were amateur or professional (see

Table 3). Specifically, we expected that the expressed stage personalities of professional comedians would conform more closely to the personality requirements of successful stage performance as rated by experts, than is true of amateurs. We tested this proposition by conducting a multivariate analysis of variance (MANOVA), in SPSS version 23.0, using professional versus amateur status as the categorical independent variable and the 10 personality facets chosen from the FFM as dependent variables. We used multiple imputation since 10.38% of cases would have been lost with casewise deletion (see supplemental materials section 2).Using Pillai's Trace as the multivariate criterion we found a significant main effect of professional vs. amateur status on the 10 FFM facets ($V = .245$, $F = 5.58$, $df_1 = 10$, $df_2 = 16\text{-}72$, $p < .001$). Thus, the discriminant variate explained 24.5% of the total variance. To explore further which personality variables explained the differences between amateur and professional comedians, we carried out a series of univariate analyses of variance using a Bonferroni correction. Six personality facets showed a significant mean difference between amateur and professional comedians: Self-consciousness and Anxiety (Neuroticism), Assertiveness (Extraversion), Intellectual Curiosity (Openness-to-experience), Compliance or rather its lack (Agreeableness), and Deliberation or rather its lack (Conscientiousness). In all cases where there was a significant difference, as expected, the professional comedians expressed personality conformed more closely to the requirements of effective stage performance than did that of amateurs (see Table 3).

We then repeated the previous multivariate analysis of variance but this time controlling for age as a covariate. Pillai's Trace dropped such that the discriminant variate explained only 18.7% of the total variance ($V = .2187$, $F = 3.94$, $df_1 = 10$, $df_2 = 171$, $p < .001$), and two of the differences (Compliance and Deliberation) became non-significant (see Table 3).

The results in Table 3 show that generally professional comedians conform well to the requirements of stage performance. With regard to neuroticism, even though professionals show higher levels of trait neuroticism than do amateurs, when on stage, professionals express appropriate levels of self-consciousness and anxiety, and score much lower than amateurs. Given that amateurs, in terms of mean level, are normal with respect to neuroticism but are much higher on the facets of self-consciousness and anxiety in terms of their stage presence, it is clear that professionals are much better able to adapt to the requirements of the stage and show much greater movement from their trait levels. With regard to the other two facets of neuroticism (angry hostility and impulsiveness), amateurs and professionals are similar and apparently both too high. The assertiveness facet of extraversion follows a similar pattern. Although professionals describe their trait levels of extraversion as lower than amateurs, on stage the professionals show a higher and appropriate level of assertiveness, whilst amateurs fail to exhibit a sufficiently high level of this trait. With regard to openness, while both amateurs and professionals describe their trait levels similarly, on stage professionals exhibit a much higher level of openness than amateurs, albeit short of what is apparently optimal for performance. In terms of the agreeableness facets of straightforwardness and compliance, while professionals and amateurs are similar with respect to straightforwardness, professionals exhibit a level of compliance much closer to requirements than do amateurs. Similarly, in terms of the two facets of conscientiousness: With regard to self-discipline, professionals and amateurs are both able to match task requirements, despite the professionals describing their trait levels of conscientiousness as relatively low, whilst professionals better meet requirements for lack of deliberation.

## Discussion

Both professional and amateur comedians showed unique trait-level personality profiles as compared with the normal population. Both were more open-to-experience, less

conscientious, and more extraverted than their corresponding norm samples, while professionals additionally showed greater neuroticism. For comedians at least then, the prediction derived from the ASTMA (Roberts, 2006) and the TESSERA frameworks (Wrzus & Roberts, 2017), that comedians have a distinctive personality profile which conforms to the requirements of their profession, appears to hold (see below).

It should also be noted, that while our findings show a unique personality profile for the job of comedians, the contention of Schmidt and Hunter (1998) that a common personality profile predicts success across the majority of jobs may still hold (see Schmidt & Oh, 2010). However, the personality profile of comedians differs markedly from that found to confer an advantage in most work situations. Barrick, Mount, and Judge (2001), in their summary of meta-analytic findings, found that conscientiousness, neuroticism, and openness-to-experience correlated with work performance at .24, -.15, and .07, respectively. According to the ASTMA model, this would imply that the personality profile for most jobs would comprise an elevated level of conscientiousness, low neuroticism, and lowish levels of openness. So our findings show that comedians are much less conscientious, and much more neurotic and open-to-experience than would normally characterize most jobs.

Arguably a much more significant finding was that professional comedians' expression of personality on stage was more adaptive than was true for amateurs, and by a considerable margin. This occurred despite professionals' mean-levels of neuroticism and extraversion diverging more from stage requirements than was so for amateurs. Moreover, this greater adaptability was evidenced across six personality facets spanning all of the FFM factors of personality. This suggests the existence of a general mechanism for regulation of personality expression to situational requirements. Although, an individual level analysis of our findings should shed more light on this.

However, when we controlled for age, the difference between amateur and professional comedians reduced overall and two of the differences became non-significant. We interpret this as indicating that regulation of personality expression increases with age, suggesting it can be learned through experience. Most likely this learning occurs both due to general and domain specific practice (in our case the greater experience of professional comedians with stage performance), however, our analysis is not informative with respect to this distinction.

The findings also support our contention that variability in personality may be either functional or dysfunctional depending on whether the change in personality is in a direction consistent or inconsistent with situational requirements. This suggests a possible resolution of the apparent paradox that personality variability may be dysfunctional (Clifton & Kuper, 2011; Cote et al., 2012; Fournier et al., 2009; Russell, et al., 2007; Zielger-Hill, et al., 2013), or functional (Lievens, et al., 2018; Minbashian et al., 2010). In short, measures of match will reflect functional variation whilst measures of mismatch will index dysfunctional variation in personality.

The strong suggestion in our findings that there is an individual difference in capacity to regulate personality expression in accordance with situational requirements may help explain another longstanding puzzle. Meta-analyses show that the effect of mean-level personality on job performance is useful but surprisingly small (Barrick, Judge & Mount, 2001), and this is also found, although to a lesser degree, at the facet level of analysis (Judge, Rodell, Klinger, Simon & Crawford, 2013). In the somewhat limited case of comedians, it seems clear that this job requires variation in personality expression depending on whether the comedian is writing material or presenting. Given that most jobs vary in situational requirements, it may be that the ability to express personality in an adaptive manner may be more predictive of job performance than is trait-level personality.

Our expectation that professional comedians are high on neuroticism, openness, and extraversion, low on conscientiousness, and show no difference with regard to agreeableness compared to the general population, was supported. However, this prediction was based on the assumption that the creative writing role of comedians would predominate over the performance role, so the trait personality profile of professional comedians indicates that they are similar to those involved in roles which require a high degree of creation (e.g., Feist, 1998), rather than roles which are performance orientated (e.g., Nettle, 2006). Nevertheless, in most regards professional comedians seem able to express the appropriate persona when they perform, irrespective of their mean personality levels. That is, they are adept at regulating their personality to conform with job requirements, at least while they are on stage. This fits with and extends the findings that individuals adapt their personality characteristics to fit situational requirements (Fleeson & Jayawickreme, 2015). Fittingly, the pattern of adaption is indicative of movement from the trait characteristics of an individual employed in a creative role towards that of one employed in a performance role. That is, in line with the situational requirements as rated by the experts, professional comedians showed increased levels of extraversion and agreeableness during their performance compared to their trait score, and much less neuroticism. This makes their situational (on-stage) personality expression more similar to performers than their trait scores (Nettle, 2006).

A partial exception from this pertains to neuroticism. While professional comedians seem able to regulate their self-consciousness and anxiety to an appropriate level on stage, according to our experts they are nevertheless somewhat too high on angry hostility and impulsiveness as compared with amateurs, albeit these differences are slight. While our experts are of considerable distinction and command substantial experience, are they actually correct that angry hostility and impulsiveness are prejudicial to a stage performance? It seems more likely that the elevated scores of comedians on neuroticism is due to neurotic

traits conferring an advantage. There are at least two possibilities consistent with this suggestion.

First, with regard to trait levels of neuroticism, it is well established that humor is a protective factor with respect to stress and depression (Southwick, Vythilingam, & Charney, 2005; Thorson, Powell, 1993). Thus, having a neurotic personality may be a strong motivator for comedians to deploy humor in everyday life. In addition, extensive practice is a pre-requisite for the development of expertise (Ericsson & Kintsch, 1995). Given that neuroticism likely motivates comedians to practice humor in everyday life, they probably develop a commensurate expertise with respect to humorousness, which would suit them for the profession. Of course, we did not ask our experts about mean levels of neuroticism, so there may actually be no discrepancy in this respect.

However, in more direct contradiction, it could be argued that neurotic traits directly contribute to the effectiveness of comedic performance. To take just one comedian (John Cleese), angry hostility and impulsivity seem quintessentially what make him funny and conforms to his general persona in Fawlty Towers. Although comedians differ, virtually all stand-up comics exhibit angry hostility, impulsiveness, and other neurotic traits as part of their performance. Indeed, it is the transgressive nature of comedy, which plays on our fears of embarrassment, which often makes it funny. John Cleese inadvertently referring to World War II, when serving a German customer, is amusing because he is aware of his social transgression yet cannot avoid it. It arouses our fear that we may perpetrate something equally gauche. With any great comedian from Hancock to Milligan, surely it is the lack of control of neurotic traits which makes them funny.

We are arguing then that trait neuroticism is a more or less essential characteristic of successful comedians, and we can agree with our experts that the novelty or unexpectedness of successful comedy stems from openness (Kaufman et al., 2014; Silvia et al., 2011). So,

these characteristics of professional comedians are required if comedians are to achieve in their profession.

While our sample of comedians is large compared with previous samples, especially when considering the intensity of the study, nevertheless we cannot claim that the sample is representative, either of professional or amateur comedians. The sample was ultimately a convenience sample and limited in size by time considerations. Necessarily, some of our findings are likely sample specific. Equally this was an exploratory study with all its concomitant weaknesses. Also, although use of MG-CMSA and exact matching represents a substantial advance on previous studies of comedians, there was one covariate we were unable to control for, viz. educational level, which likely would have biased our estimates to a small degree. We must also acknowledge that there may be other unmeasured variables which may potentially have acted as confounds.

Overall, this study has shown that, as would be predicted by the ASTMA model (Roberts, 2006), comedians, as an occupational group, have a distinctive personality profile. Interestingly, this profile, consisting of low conscientiousness, moderate neuroticism, and high openness, differs substantially from the personality profile most typically associated with job success (Barrick & Mount, 2001). Further, the results emanating from the assessment of on stage personality expression are consistent with the substantial body of work which shows that people regulate their personality expression in order to meet with situational and goal requirements (e.g., DeYoung, 2014; Fleeson & Jayawickreme, 2015). What the current findings add to the literature is that successful job incumbents, at least in the comedy field, show a much greater degree of adaptability than do amateurs, probably both due to greater experience and a stronger capacity for self-regulation.

Notes

[1]There are a number of theoretical frameworks other than those considered here, which are relevant to the issue of why the personality profile of people employed in different occupations should be distinct. These would include theory concerning person-environment transactions (Roberts, Wood, & Caspi, 2008), which is closely related to the ASTMA framework, social investment theory (Lodi-Smith & Roberts, 2007), PERSOC which concerns itself with the interplay between PERsonality and SOCial relationships (Back et al, 2011), and trait activation theory (Tett & Burnett, 2003). However, a detailed consideration of all these frameworks would not be feasible here.

[2]Jones, Brown, Serfass and Sherman argue that the reliabilities of the standard deviation, skew and kurtosis should be calculated from the residuals once the effects due to the mean and squared mean have been controlled for. Whether this is so or not must surely be dependent whether mean level and personality variability are measured independently.

[3]A test of whether completing the BFI on the night or at home biased responses found a non-significant Hotelling's T ($V = .051$, $F = 1.20$, $df_1 = 5$, $df_2 = 112$, $p = .31$), with follow up tests similarly non-significant. So no biasing effect was supported by these data.

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Table 1.

Tests of invariance between the respective norm groups, and the samples of professional and amateur comedians.

| Model | $X^2$ | df | CFI | ΔCFI | RMSEA | ΔRMSEA | TLI |
|---|---|---|---|---|---|---|---|
| | | | Professional | | | | |
| Configural | 146240.2 | 1515 | .934 | | .039 | | .918 |
| Metric | 62347.1 | 1710 | .972 | ..038 | .024 | -.015 | .969 |
| Scalar | 60422.8 | 1794 | .973 | ..001 | .023 | -.001 | .972 |
| | | | Amateur | | | | |
| Configural | 277994.4 | 1515 | .916 | | .044 | | .895 |
| Metric | 112181.8 | 1710 | .967 | .051 | .026 | -.018 | .963 |
| Scalar | 107401.3 | 1794 | .968 | .001 | .025 | -.001 | .966 |

Table 2.

Mean Cohen's d-scores on the Big Five Inventory for amateur and professional comedians in comparison to their respective norm samples.

| Personality factor | Norm group[1] | Amateurs | Professionals |
|---|---|---|---|
| Neuroticism | 0 | .09[-.10, .27] | .47[.23, .71] |
| Extraversion | 0 | .51[.32, .69] | .28[.07, .48] |
| Openness-to-experience | 0 | .54[.34, .75] | .59[.25, .93] |
| Agreeableness | 0 | .07[-.14, .26] | .12[-.13, .37] |
| Conscientiousness | 0 | -.26[-.46, -.06] | -.38[-.61, -.14] |

[1]When means are estimated from a scalar invariant SEM analyses the means of one group must be set at 0 for the model to be identified. Ninety-five per cent confidence intervals are shown in brackets, and mean differences significant at the .05 level are shown in bold.

Table 3.

Mean scores on the ten comedy relevant facets of personality: Optimum scores and the expert ratings of amateur and professional comedians in performance, with and without age as a covariate.

| | | No Covariate | | Age Covariate | |
|---|---|---|---|---|---|
| | Optimum | Amateur | Prof | Amateur | Prof |
| | | Neuroticism | | | |
| 1. Angry hostility | 3.63 | 4.00 [3.71, 4.30] | 4.12 [3.75, 4.49] | 4.08 [3.78, 4.38] | 4.01 [3.62, 4.39] |
| 2. Self-consciousness | 2.61 | **4.54 [4.20, 4.87]** | **3.25 [2.84, 3.68]** | **4.46 [4.11, 4.81]** | **3.38 [2.93, 3.82]** |
| 3. Anxiety | 3.04 | **5.33 [4.98, 5.68]** | **3.79 [3.35, 4.22]** | **5.30 [4.93, 5.66]** | **3.83 [3.37, 4.30]** |
| 4. Impulsiveness | 3.42 | 5.75 [5.37, 4.66] | 5.26 [4.79, 5.73] | 5.75 [5.36, 6.13] | 5.27 [4.78, 5.76] |
| | | Extraversion | | | |
| 5. Assertiveness | 7.58 | **5.57 [5.20, 5.95]** | **7.17 [6.70, 7.63]** | **5.76 [5.40, 6.12]** | **6.84 [6.37, 7.30]** |
| | | Openness | | | |
| 6. Intellectual Curiosity | 7.56 | **4.32 [3.99, 4.65]** | **5.68 [5.28, 6.09]** | **4.32 [4.00, 4.65]** | **5.74 [5.32, 6.16]** |
| | | Agreeableness | | | |
| 7. Straightforwardness | 4.50 | 5.83 [5.53, 6.13] | 5.38 [5.02, 5.75] | 5.73 [5.44, 6.03] | 5.49 [5.11, 5.87] |
| 8. Compliance | 4.66 | **5.84 [5.46, 6.23]** | **4.78 [4.30, 5.25]** | 5.62 [5.25, 5.99] | 5.18 [4.70, 5.65] |
| | | Conscientiousness | | | |
| 9. Self-discipline | 7.01 | 6.55 [6.19, 6.90] | 6.75 [6.32, 7.19] | 6.63 [6.28, 6.98] | 6.66 [6.21, 7.11] |
| 10. Deliberation | 4.59 | **6.15 [5.79, 6.51]** | **5.28 [4.84, 5.73]** | 6.06 [5.71, 6.42] | 5.43 [4.97, 5.89] |

*Note:* All scores are on a scale from 1-10. Amateur N = 112, Prof. N = 71. Ninety-five per cent confidence intervals are in brackets. Mean differences between professional and amateur comedians significant at the 95% level are shown in bold.

# Supplementary Materials

## Comedians' mean level and stage personalities by Irwing, Cook, Pollet, & Hughes, 2019, *Personality and Social Psychology Bulletin*

## Section 1

Table 1. Pattern matrix for the unstandardized scalar equivalent solution, McDonald's Omega and average variance extracted: Professional comedians and the comparison sample

| Item | Factor | | | | |
|---|---|---|---|---|---|
| | Extraversion | Neuroticism | Conscientiousness | Openness | Agreeableness |
| Is talkative | .81 | .21 | - .05 | .03 | .06 |
| Is reserved | .76 | .00 | -.08 | -.12 | -.01 |
| Is full of energy | .46 | -.14 | .23 | .19 | .08 |
| Generates a lot of enthusiasm | .57 | .00 | .15 | .29 | .14 |
| Tends to be quiet | .90 | .06 | -.05 | -.14 | -.04 |
| Has an assertive personality | .53 | -.09 | .22 | .19 | -.26 |
| Is sometimes shy, inhibited | .71 | -.17 | .04 | -.16 | -.09 |
| Is outgoing, sociable | .75 | .00 | -.02 | .07 | .18 |
| Is depressed, blue | -.26 | .53 | -.09 | .06 | -.11 |
| Is relaxed, handles stress well | .04 | .79 | .02 | -.20 | -.02 |
| Can be tense | -.04 | .72 | .14 | .05 | -.15 |
| Worries a lot | -.08 | .79 | .07 | .00 | .10 |
| Is emotionally stable, not easily upset | .02 | .70 | -.03 | -.12 | -.05 |
| Can be moody | -.08 | .50 | .01 | .11 | -.34 |
| Remains calm in tense situations | .06 | .63 | -.11 | -.28 | -.03 |
| Gets nervous easily | -.27 | .56 | -.06 | -.05 | .14 |
| Does a thorough job | -.01 | .09 | .77 | .07 | -.01 |
| Can be somewhat careless | -.09 | -.10 | .55 | -.16 | .07 |
| Is a reliable worker | .03 | .07 | .69 | -.02 | .16 |
| Tends to be disorganized | .00 | -.01 | .70 | -.22 | -.05 |
| Tends to be lazy | .16 | -.02 | .63 | -.13 | .06 |
| Perseveres until the task is finished | .00 | .02 | .70 | .12 | .01 |
| Does things efficiently | .01 | -.03 | .70 | .09 | .02 |
| Makes plans and follows through | .13 | -.02 | .62 | .05 | -.03 |
| Is easily distracted | -.08 | -.19 | .57 | -.14 | -.02 |
| Is original, comes up with new ideas | .11 | -.15 | .04 | .71 | -.12 |
| Is curious about many different things | .07 | -.05 | -.02 | .60 | .01 |
| Is ingenious, a deep thinker | -.14 | .04 | .09 | .63 | -.08 |
| Has an active imagination | -.08 | .10 | -.11 | .64 | .00 |
| Is inventive | .05 | -.19 | .04 | .75 | -.12 |
| Values artistic, aesthetic experiences | -.03 | .13 | -.08 | .66 | .16 |
| Prefers work that is routine | .14 | -.16 | -.15 | .30 | -.09 |
| Likes to reflect, play with ideas | -.09 | -.02 | .01 | .67 | .03 |
| Has few artistic interests | -.03 | .04 | -.09 | .42 | .07 |
| Is sophisticated in art, music, or literature | -.04 | .07 | -.10 | .60 | .07 |
| Tends to find fault with others | -.07 | -.26 | -.08 | -.03 | .50 |
| Is helpful and unselfish with others | .04 | .03 | .13 | .16 | .57 |
| Starts quarrels with others | -.26 | -.25 | .03 | -.01 | .57 |
| Has a forgiving nature | .03 | -.10 | -.14 | .16 | .60 |
| Is generally trusting | .09 | -.02 | .01 | .05 | .30 |
| Can be cold and aloof | .31 | -.04 | -.02 | -.17 | .53 |
| Is considerate and kind to almost everyone | .01 | .07 | .07 | .16 | .75 |
| Is sometimes rude to others | -.16 | -.14 | .08 | -.08 | .63 |
| Likes to cooperate with others | .21 | .03 | .11 | .06 | .51 |
| Professional comedians | | | | | |
| Average Variance Extracted | .42 | .42 | .36 | .36 | .28 |
| McDonald's Omega | .84 | .85 | .83 | .84 | .78 |
| Comparison sample | | | | | |
| Average Variance Extracted | .49 | .43 | .44 | .37 | .31 |
| McDonald's Omega | .88 | .86 | .88 | .85 | .78 |

Table 2.

Pattern matrix for the unstandardized scalar equivalent solution, McDonald's Omega and average variance extracted: Amateur comedians and the comparison sample

| Item | Factor | | | | |
|---|---|---|---|---|---|
| | Extraversion | Neuroticism | Conscientiousness | Openness | Agreeableness |
| Is talkative | .82 | .19 | -.05 | .02 | .06 |
| Is reserved | .73 | .00 | -.08 | -.13 | .00 |
| Is full of energy | .48 | -.14 | .19 | .17 | .10 |
| Generates a lot of enthusiasm | .58 | .00 | .13 | .28 | .16 |
| Tends to be quiet | .90 | .05 | -.05 | -.14 | -.05 |
| Has an assertive personality | .52 | -.09 | .22 | .19 | -.25 |
| Is sometimes shy, inhibited | .71 | -.18 | .05 | -.16 | -.09 |
| Is outgoing, sociable | .76 | -.01 | -.03 | .06 | .17 |
| Is depressed, blue | -.27 | .51 | -.08 | .08 | -.13 |
| Is relaxed, handles stress well | .04 | .80 | .04 | -.22 | -.03 |
| Can be tense | -.05 | .69 | .14 | .05 | -.18 |
| Worries a lot | -.09 | .79 | .07 | .00 | .09 |
| Is emotionally stable, not easily upset | .01 | .69 | -.02 | -.12 | -.04 |
| Can be moody | -.04 | .50 | .00 | .10 | -.35 |
| Remains calm in tense situations | .07 | .63 | -.10 | -.30 | -.03 |
| Gets nervous easily | -.27 | .57 | -.06 | -.05 | .13 |
| Does a thorough job | .00 | .08 | .77 | .08 | -.01 |
| Can be somewhat careless | -.08 | -.09 | .55 | -.15 | .09 |
| Is a reliable worker | .04 | .09 | .71 | .00 | .15 |
| Tends to be disorganized | -.00 | .00 | .72 | -.22 | -.04 |
| Tends to be lazy | .15 | -.01 | .64 | -.13 | .06 |
| Perseveres until the task is finished | .00 | .02 | .69 | .13 | .01 |
| Does things efficiently | .01 | -.04 | .69 | .11 | .02 |
| Makes plans and follows through | .14 | -.02 | .59 | .05 | -.03 |
| Is easily distracted | -.10 | -.18 | .59 | -.12 | -.02 |
| Is original, comes up with new ideas | .11 | -.16 | .03 | .71 | -.10 |
| Is curious about many different things | .06 | -.04 | -.02 | .60 | .01 |
| Is ingenious, a deep thinker | -.15 | .04 | .09 | .62 | -.08 |
| Has an active imagination | .08 | .10 | -.13 | .64 | .00 |
| Is inventive | .05 | -.21 | .04 | .74 | -.10 |
| Values artistic, aesthetic experiences | -.03 | .13 | -.06 | .64 | .14 |
| Prefers work that is routine | .12 | -.14 | -.14 | .28 | -.07 |
| Likes to reflect, play with ideas | -.09 | -.02 | .01 | .67 | .03 |
| Has few artistic interests | -.02 | .04 | -.07 | .38 | .05 |
| Is sophisticated in art, music, or literature | -.04 | .07 | -.09 | .60 | .06 |
| Tends to find fault with others A1r | -.06 | -.22 | -.08 | -.05 | .51 |
| Is helpful and unselfish with others | .34 | .05 | .12 | .16 | .59 |
| Starts quarrels with others | -.26 | -.21 | .04 | .00 | .57 |
| Has a forgiving nature | .02 | -.08 | -.15 | .17 | .61 |
| Is generally trusting | .10 | -.01 | .00 | .06 | .51 |
| Can be cold and aloof | .29 | -.04 | -.02 | -.17 | .55 |
| Is considerate and kind to almost everyone | .01 | .09 | .05 | .17 | .77 |
| Is sometimes rude to others | -.17 | -.11 | .11 | -.08 | .64 |
| Likes to cooperate with others | .23 | .04 | .09 | .07 | .51 |
| | Amateur comedians | | | | |
| Average Variance Extracted | .48 | .43 | .47 | .42 | .28 |
| McDonald's Omega | .87 | .85 | .89 | .87 | .78 |
| | Comparison sample | | | | |
| Average Variance Extracted | .49 | .43 | .44 | .36 | .35 |
| McDonald's Omega | .88 | .85 | .88 | .78 | .82 |

## Section 2

**Multivariate analysis of covariance using multiple imputation.**

The multivariate analysis of variance/covariance with multiple imputation, reported on page 19 of the results, used 20 imputed data sets as recommended by Schafer and Graham (2002). However, the analysis was complicated by the fact that SPSS version 23.0 does not provide pooled results for the 20 data sets. In consequence, we report those results for the data set which resulted in the median score for Pillai's trace. We compared this set of results for those data sets with the highest and lowest Pillai's trace. There was no material difference.

## Reference

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of state of the art. Psychological Methods, 7, 147-177.

## Section 3

**Stimulus materials**

**1) Online questionnaire instructions – presented for collection of biographical data and trait (FFM) personality data***

This questionnaire has a number of sections, which are designed to allow you to indicate how you see yourself and your behaviour and the experiences you have.

Please answer as openly and honestly as you can. It is important that you do not try to give what you think may be a correct answer. Instead, please indicate what is correct for you.

Your individual responses will not be shared with anyone. You are being asked to give your name but this is only to allow questionnaires to be matched up. Your name will be removed before any analysis is undertaken and will not be written in any report or publication. Your responses are confidential.

*Biographical Details*

What is your name? (please type in the box below - Your name will be removed before any analysis is undertaken and will not be written in any report or publication.)

What is your gender?

*Male/ Female*

What is your date of birth? (please type in the box below using the dd/mm/yyyy format)

What is your highest level of education?

*Secondary school education to age 16 / Secondary school education to age 18 / Non-university higher education / Undergraduate university education / Postgraduate university education*

*Trait Personality*

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please select the appropriate response to indicate your level of agreement with each statement.

I see myself as someone who:

Is talkative

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Tends to find fault with others

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Does a thorough job

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is depressed, blue

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is original, comes up with new ideas

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is reserved

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is helpful and unselfish with others

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Can be somewhat careless

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is relaxed, handles stress well

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is curious about many different things

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is full of energy

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Starts quarrels with others

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is a reliable worker

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is ingenious, a deep thinker

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Can be tense

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Generates a lot of enthusiasm

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Has a forgiving nature

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Tends to be disorganized

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Worries a lot

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Has an active imagination

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Tends to be quiet

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is generally trusting

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Tends to be lazy

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is emotionally stable, not easily upset

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is inventive

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Has an assertive personality

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Can be cold and aloof

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Perseveres until the task is finished

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Can be moody

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Values artistic, aesthetic experiences

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is sometimes shy, inhibited

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is considerate and kind to almost everyone

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Does things efficiently

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Remains calm in tense situations

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Prefers work that is routine

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is outgoing, sociable

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is sometimes rude to others

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Makes plans and follows through with them

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Gets nervous easily

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Likes to reflect, play with ideas

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Has few artistic interests

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Likes to cooperate with others

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is easily distracted

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

Is sophisticated in art, music, or literature

*Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

*The online questionnaire also included questions not analysed in the current study which are therefore not included in this document.

**2a) Expert interviews – for identification of comedy relevant facets of personality**

*Instructions*

(delivered once ethical issues - anonymity, use of data, data destruction, consent and right to withdraw - had been covered.)

I am now going to read out a list of personality characteristics to you one by one. In response to each, I am going to ask you to indicate:

if it would be observable when comedians perform;

if it impacts on how effective a comedian would be during their performance; and

if it is something a comedian would need to vary (that is, show different levels of it) in different performances in order to have a successful show.

A simple yes or no response would be useful in response to each of these questions. Are you happy to proceed?

*Descriptions of the facets were read directly out of the Revised NEO-PIR technical manual (Costa & McCrae, 1992). After each one had been read out, respondents were asked the following three questions:*

Would you be able to observe this in a comedian when they perform?

Would a comedian's level of this have an impact on how effective their performance was?

Would a comedian need to vary this across different performances?

**2b) Expert survey – for identification of comedy relevant facets of personality**[+]

This questionnaire will ask you, as an industry expert, your opinion on a number of issues relating to the performance and success of comedians. Please answer all questions as openly and honestly as possible. Your responses will be treated with the strictest of confidence, your name will not be attached to any comments that you make and certainly will not be shared with anyone not involved in this study. You can choose not to give your name (below) if you prefer.

What is your name? (Please type 'anonymous' or 'not given' if you prefer not to give your name)

How would you describe your role in the industry? (select as many as appropriate)

*Reviewer/ Comedian/ Agent/ Comedy club employee/ Promoter/ Television producer/ Radio producer/ Other*

If you selected 'other' please specify below

Below is a list of personality characteristics which an individual may show to varying degrees (e.g. they may show high, low or mid levels of each characteristic). Please indicate the extent to which you think each one is something that a comedian would need to vary according to where they were performing or who they were performing to.

| | **To a great extent** **1** | **2** | **3** | **4** | **Not at all** **5** |
|---|---|---|---|---|---|
| **Angry-hostility:** An individual's readiness to experience anger and related states such as frustration and bitterness | 1 | 2 | 3 | 4 | 5 |
| **Self consciousness:** This how uncomfortable an individual is around others, their sensitivity to ridicule, proneness to feelings of inferiority and the extent to which they are disturbed by awkward social situations. | 1 | 2 | 3 | 4 | 5 |
| **Assertiveness:** Assertive people are dominant, forceful and socially ascendant. | 1 | 2 | 3 | 4 | 5 |
| **Gregariousness:** This is how great a preference individuals have for other people's company. | 1 | 2 | 3 | 4 | 5 |
| **Ideas:** This describes a person's level of open mindedness, willingness to consider new or unconventional ideas and if they take an active pursuit of intellectual interests. | 1 | 2 | 3 | 4 | 5 |
| **Straightforwardness:** This refers to how frank, ingenuous and sincere individuals are or, on the other hand, if they are willing to be more manipulative of people | 1 | 2 | 3 | 4 | 5 |
| **Compliance:** This is how willing an individual is to defer to others, to inhibit aggression, to forgive and forget and how meek and mild they are | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| **Self-discipline:** This describes and individual's ability to carry tasks through to completion despite boredom or other distractions | 1 | 2 | 3 | 4 | 5 |
| **Deliberation:** This is a tendency to think carefully before reacting. It describes how hasty individuals are and if they speak without thinking. | 1 | 2 | 3 | 4 | 5 |
| **Anxiety:** This is how apprehensive, fearful, prone to worry, nervous, tense and jittery a person is. | 1 | 2 | 3 | 4 | 5 |
| **Impulsiveness:** This is an individual's ability to control cravings and urges and to resist desires they may later regret. | 1 | 2 | 3 | 4 | 5 |
| **Fantasy:** This describes how vivid an individuals' imagination is and if they have an active fantasy life e.g. if they daydream for its own sake or if they keep their mind on the task in hand. | 1 | 2 | 3 | 4 | 5 |

[+]The expert survey also included questions not analysed in the current study which are therefore not included in this document.

**3) Behavioural ratings - for collection of required and expressed personality state data**

Below are ten aspects of personality. The high and low end of each is described and individuals may fall anywhere along the 10 point scale, depending on how accurate either description is of them.

1) Please select the number which best reflects how the person you are rating needed to be to do the best that they possibly could have when they were on stage.

2) Then select the number which best represents how the person you are rating actually was when they were on stage - as far as you can tell.

Please base your ratings of the person on how they were in the recordings not how you may know them to be at other times.

1a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Easy going and slow to anger | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Appears ready to experience anger, or related states e.g. frustration, bitterness |
| | | | | | | | | | | | |

1b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Easy going and slow to anger | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Appears ready to experience anger, or related states e.g. frustration, bitterness |
| | | | | | | | | | | | |

2a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Comfortable regardless of the awkwardness of the situation, not easily embarrassed | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Uncomfortable in awkward situations, sensitive to ridicule, |

2b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Comfortable regardless of the awkwardness of the situation, not easily embarrassed | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Uncomfortable in awkward situations, sensitive to ridicule, |

3a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Unassertive, keeps in the background, lets others do the talking | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Dominant, forceful and socially ascendant. |

3b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Unassertive, keeps in the background, lets others do the talking | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Dominant, forceful and socially ascendant. |

4a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Narrowly focuses on a limited number of topics, less willing to consider unconventional ideas | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Open minded, considers new or unconventional ideas, pursues intellectual interests. |

4b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Narrowly focuses on a limited number of topics, less willing to consider unconventional ideas | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Open minded, considers new or unconventional ideas, pursues intellectual interests. |

5a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Willing to use flattery, craftiness, deception or to hide their true feelings to gain their desired out come | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Frank, ingenuous and sincere |

5b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Willing to use flattery, craftiness, deception or to hide their true feelings to gain their desired out come | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Frank, ingenuous and sincere |

6a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aggressive, prefers to compete than cooperate, willing to express anger | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Meek and mild. willing to inhibit aggression and to forgive and forget. |

6b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aggressive, prefers to compete than cooperate, willing to express anger | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Meek and mild. willing to inhibit aggression and to forgive and forget. |

7a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Casual about the performance, procrastinates, easily distracted, discouraged or willing to quit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Focuses on the performance, not easily distracted from their material. |

7b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Casual about the performance, procrastinates, easily distracted, discouraged or willing to quit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Focuses on the performance, not easily distracted from their material. |

8a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Spontaneous, able to make snap decisions, hasty, may speak without considering the consequences. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Thinks carefully before reacting, cautious and deliberate |

8b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Spontaneous, able to make snap decisions, hasty, may speak without considering the consequences. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Thinks carefully before reacting, cautious and deliberate |

9a. How they needed to be

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm, relaxed, does not dwell on things that might go wrong | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Apprehensive, fearful, nervous, tense & jittery |

9b. How they were

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm, relaxed, does not dwell on things that might go wrong | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Apprehensive, fearful, nervous, tense & jittery |

10a. How they needed to be

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Does not control cravings and urges | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Controls cravings and urges, resists desires |

10b. How they were

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Does not control cravings and urges | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Controls cravings and urges, resists desires |