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Citation: Irwing, Paul, Cook, Clare, Pollet, Thomas and Hughes, David (2020) Comedians' trait level and stage personalities: Evidence for goal-directed personality adaptation. *Personality and Social Psychology Bulletin*, 46 (4). pp. 590-602. ISSN 0146-1672

Published by: SAGE

URL: <https://doi.org/10.1177/0146167219867963>  
<<https://doi.org/10.1177/0146167219867963>>

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Running Head: Personality of comedians

Comedians' mean level and stage personalities: Evidence for goal-directed personality adaptation.

(9,794 words, 3 tables)

## 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<sup>1</sup>. 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

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3 reactions. If such situations require repeated expression of personality states at odds with  
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5 one's trait levels of personality, personality will likely change in a direction consistent with  
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7 occupational requirements. In sum, the above processes of personality development should  
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9 shape job incumbents' personalities in a direction which tends towards person-environment  
10  
11 fit (Woods, Wille, Wu, Lievens, & de Fruyt, 2019).  
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16 What evidence is there then that different occupations are associated with distinctive  
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18 and homogenous personality profiles? There are relatively few investigations directly  
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20 relevant to this question (Bradley-Geist & Landis, 2012; Denissen et al. 2014; Jordan, Herriot  
21  
22 & Chalmers, 1991; King, Ott-Holland, Ryan, Huang, Wadlington & Elizondo, 2017;  
23  
24 Ployhart, Weekley & Baughman, 2006; Satterwhite, Fleenor, Braddy, Feldman & Hooper,  
25  
26 2009; Schaubroek, Ganster & Jones, 1998), and although they all support the basic  
27  
28 contention, they do so to different degrees. For example, King et al. (2017), in one of the  
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30 larger and more comprehensive studies, found that variance due to occupational grouping  
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32 was small and accounted for 4%, 6%, and 3% of the total variance in Neuroticism,  
33  
34 Extraversion and Conscientiousness, respectively. In contrast, Denissen et al. (2014), in a  
35  
36 similarly large study, reported correlations between ratings of required personality and  
37  
38 averaged occupational personality profiles of .57, .54, and .69 for Extraversion,  
39  
40 Agreeableness and Openness, which suggests strong support for homogeneity of personality  
41  
42 within occupations. It is not clear why findings are so discrepant, even with regard to  
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44 extraversion, the only personality dimension common to these two studies, and it is possible  
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46 as argued by Schmidt and Oh (2010), on the basis of extensive research (e.g., Schmidt &  
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48 Hunter, 1998; Schmidt, Shaffer & Oh, 2008), that for many jobs there is little discrimination  
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50 in personality requirements.  
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### 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

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3 humor tend to be somewhat low in deference (Thorson & Powell, 1993). So, the comparative  
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5 openness and low conscientiousness of creative artists is understandable in these terms, as  
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7 well as consistent with the evidence.  
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10 Of relevance to the presenting aspects of stand-up comedy is a small study by Nettle  
11  
12 (2006) of the personality characteristics of actors. Although comedy and acting differ, they  
13  
14 share the requirement for presenting. Nettle compared 191 actors with a norm sample, and  
15  
16 found d-score differences of .02 for conscientiousness, .62 for openness-to-experience, .20  
17  
18 for neuroticism, .60 for extraversion, and .41 for Agreeableness. As compared with creative  
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20 artists, presenters share high openness, are similar in terms of a weak tendency to  
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22 neuroticism, but are substantially more agreeable, extraverted, and conscientious. On this  
23  
24 basis, comedians should be high on openness-to-experience as this characteristic is common  
25  
26 to both their roles. Otherwise their characteristics will depend on how the conflicting  
27  
28 demands of writing and presenting balance out. Likely low conscientiousness predominates  
29  
30 because of the necessity of a rule breaking mentality to generate sufficiently interesting  
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32 material. In terms of the remaining characteristics, if we assume that the effects of stage  
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34 performance are relatively weak, given its short duration, then comedians should be mildly  
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36 neurotic, somewhat more extraverted, and about the same in agreeableness compared with the  
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38 normal population.  
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44 Most studies that have investigated comedians' personality traits directly suggest that  
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46 comedians exhibit high levels of neuroticism (Fisher & Fisher, 1981; Janus, 1975; Janus,  
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48 Bess, & Janus, 1978). These studies use psychometrically weak projective measures, and rely  
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50 on small samples, which renders their findings questionable. However, the conclusion that  
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52 comedians are neurotic is reinforced by a large scale study (N=523) by Ando, Claridge and  
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54 Clark (2014). In a comparison of comedians with actors (N=350) they found a d-score  
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3 difference of .51 for Bi-polar traits and .35 for Schizotypy. Overall, these studies suggest that  
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5 neuroticism is a core characteristic of comedians.  
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8 Greengross and Miller (2009) is the only study which has used the FFM to investigate  
9  
10 comedians' personality traits. They compared professional (N=31) and amateur (N=9)  
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12 comedians to humor writers (N=10) and college students (N =400) using self-report NEO-  
13  
14 FFI-R scores. In line with our theorizing, comedians of both groups showed significantly  
15  
16 higher openness and lower conscientiousness compared to the students. Yet, they also  
17  
18 showed lower extraversion and agreeableness, while no significant difference was found on  
19  
20 neuroticism. No significant difference was found between amateur and professional  
21  
22 comedians on any trait. However, the size of Greengross and Miller's comedian samples was  
23  
24 very small and students represent a questionable norm group. Thus, investigation of the five  
25  
26 factors in a larger comedian sample, in comparison to a representative general population  
27  
28 group, is needed before firm conclusions can be drawn.  
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33 The first aim of this study is to build on Greengross and Miller's (2009) findings  
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35 whilst addressing some of its limitations. Specifically, we explore the FFM personality  
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37 characteristics of amateur and professional comedians, in comparison to two matched UK  
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39 samples, utilizing self-report measures. The norm samples were substantially larger than  
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41 those of all previous studies, as were the comedian samples, with the exception of the study  
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43 of Ando et al., (2014). Based on our consideration of Feist's (1998) meta-analysis, Nettle's  
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45 (2006) study of performers, together with direct studies of comedians' personality, we  
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47 expected comedians will score lower on conscientiousness and higher on openness, while the  
48  
49 preponderance of evidence points to elevated levels of neuroticism, and extraversion and  
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51 similar levels of agreeableness compared to the general population, given that previous  
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53 investigations likely used a confounded measure of agreeableness (Silvia et al., 2011).  
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3 In a further refinement on previous work, we take advantage of methodological  
4 advances which offer more comprehensive and reliable analyses for investigating group  
5 differences. Collectively, Multi-Group Covariance and Mean Structures Analysis (MG-  
6 CMSA) adopts structural equation modelling to test for equivalence of the covariance  
7 structure within a given measure, and uses this robust structure to compare latent mean  
8 differences in the target constructs (Dolan & Molenaar, 1994). Measurement invariance tests  
9 the assumption that the construct is measured equivalently across groups. Most commonly,  
10 the pattern of factor loadings (configural), degree of factor loadings (metric) and the  
11 intercepts of indicators (scalar) are assessed for invariance (Widaman & Reise, 1997). Only if  
12 invariance holds can precise estimates of group mean differences be calculated (French &  
13 Finch, 2006; Meredith, 1993). Finch and West (1997) suggest that tests of invariance are an  
14 important step forward in personality research and assessment of group differences. This is  
15 the first study to apply this methodology to comedians' personality.

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

### 27 **Adaptiveness of Comedians' Stage Personalities**

28 Because standup comedians have to perform the material they write, they often find  
29 themselves adopting a persona that, in many cases, differs significantly from their everyday  
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3 personality. For example, comedians often express rage or confusion to entertain and elicit  
4 emotional reactions from their audience. From one perspective, expressing a set of  
5 personality states at odds with trait levels might be considered a unique feature of the  
6 comedians' role. However, recent research suggests that most people actually shift their  
7 personality expression across situations, usually to match situational requirements, and to aid  
8 goal attainment. Accordingly, we assess whether comedians shift their personality when on  
9 stage and, if so, whether this aids performance.

19 As we noted in the introduction, recent empirical evidence and theoretical  
20 developments (Fleeson & Jayawickreme, 2015) emphasize the importance of assessing  
21 personality trait levels and personality expression on the same dimensions (Fleeson, 2001). A  
22 series of studies using experience sampling methods have shown that intra-individual  
23 variability in personality expression accounts for about 65% of variance in behavior, with  
24 35% of variance attributable to inter-individual variation (Fleeson & Gallagher, 2009;  
25 Sherman et al., 2015). Some of the most interesting findings in this domain revolve around  
26 density distributions of moment-to-moment personality expression (i.e., the distribution of  
27 expressed levels of say, conscientiousness). Notably, density distributions have been found to  
28 be stable. Correcting Fleeson's (2001) stability estimates, using the Spearman-Brown  
29 formula, shows average reliabilities for mean personality expression (i.e., level of a trait  
30 expressed) of .97 and for the standard deviation (i.e., the amount of variation in trait  
31 expression) of .85 across the Big 5 factors<sup>2</sup>. Thus, variability in personality expression is a  
32 consistent feature of an individuals' personality.

51 The stability of variation in personality expression can also be explained by  
52 examining the role of situations and goals. Specifically, a considerable body of evidence  
53 shows that that intra-personal variability in state personality is situation dependent (e.g.,  
54 Fleeson & Law, 2015; Sherman et al., 2015) and that personality states covary with current  
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3 goals (e.g., Bleidorn, 2009; Heller et al., 2007; McCabe & Fleeson, 2013; Perunovic et al.,  
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5 2011). Such evidence is in line with social cognitive theory (e.g. Bandura, 1997; Mischel &  
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7 Shoda, 1995) in that variation in personality expression appears to result, at least in part, from  
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9 person-situation transactions mediated by interpretive processes, and motivational processes  
10  
11 (goals and expectancies).  
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14  
15 A perhaps more puzzling issue is that some investigations seem to show that  
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17 variability in personality states can be dysfunctional (Clifton & Kuper, 2011; Cote et al.,  
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19 2012; Fournier et al., 2009; Russell, Moskowitz, Zuroff, Sookman, & Paris, 2007; Zeigler-  
20  
21 Hill, Masri, Smith, Vonk, Madson & Zhang, 2013), whilst others show that it can be  
22  
23 functional (Lievens, Lang, De Fruyt, Corstjens, de Vijver, & Bledlow, 2018; Minbashian,  
24  
25 Wood, & Beckman, 2010). Here we suggest a possible approach to resolving this paradox.  
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27 Earlier in this paper we considered evidence that particular personality profiles provide a fit  
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29 to different jobs such that persons with such profiles achieve greater success within the job.  
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31 We infer that this is based on the proposition that their personality is adaptive for the range of  
32  
33 situations they are likely to encounter within their job-role. Implicit in this framework is that  
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35 success in any given situation is dependent on expressing a personality profile which fits the  
36  
37 situation. It would follow that those who consistently express the personality profile needed  
38  
39 to achieve success in each situation, will be more successful than those who are unable to  
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41 match situational requirements. It is possible then, that those who are able to regulate their  
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43 expression of personality to match situational requirements are adaptive, whilst those who  
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45 show inappropriate variation of personality expression are not.  
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51 Following this logic, we examine whether comedians do indeed shift their personality  
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53 when on stage, whether any shifts appear to be goal-directed, and examine whether  
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55 professionals are better able to shift than amateurs. In assessing this, we propose that the  
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57 match between expert ratings of the personality requirements for success in a situation and  
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3 expressed personality will provide a suitable measure of adaptive personality expression. By  
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5 definition, our sample of professional comedians has achieved greater success than the  
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7 amateur or would be comedians. We therefore predict that their expression of personality on  
8  
9 stage will correspond more closely to expert ratings of situational requirements than is true  
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11 for amateurs, and that this will be true across the range of personality states in which they  
12  
13 differ. We investigate this issue using behavioral ratings of video recordings of stage  
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15 performances in a high-stakes setting, i.e. one of the premier UK venues for stand-up  
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17 comedy. In doing so, we meet the call of Baumeister, Vohs, and Funder (2007) for studying  
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19 “actual” behavior.  
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## 23 24 **Method**

### 25 26 **Participants**

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28 Comedians were recruited through a live comedy venue, which is widely regarded as  
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30 one of the two preeminent UK comedy establishments. Professional comedians were  
31  
32 employed to perform at professional shows, were testing new material at a ‘new material’  
33  
34 show, or were the master of ceremonies at an amateur night. Amateur comedians either  
35  
36 performed in a ‘gong show’ or worked, unpaid, at a professional show. Both groups were  
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38 operating in a high stakes situation, the professionals to further their career and the amateurs  
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40 to establish one. The sample comprised 77 professional comedians (67 males, 10 females,  
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42 Mean age = 35.8,  $SD = 7.8$ ) and 125 amateur comedians (107 males, 18 females, Mean age =  
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44 28.7,  $SD = 8.1$ ). The proportion of female comedienne in our sample at 13.9% is smaller  
45  
46 than the 27.4% of female circuit comedienne (Chortle, 2019). Amongst the amateur  
47  
48 comedians, 21.6% had a postgraduate university education, 35.2% had undergraduate  
49  
50 university education, 17.6% had non-university higher education, 11.2% had secondary  
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52 school education to age 18, and 14.4% had secondary school education to age 16, as their  
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54 highest level of education. Amongst the professional comedians, 29.9% had a postgraduate  
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3 university education, 33.8% had undergraduate university education, 13.0% had non-  
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5 university higher education, 9.1% had secondary school education to age 18, and 14.3% had  
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7 secondary school education to age 16, as their highest level of education. The sample size  
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9 was limited by practical considerations, although the multi-group confirmatory factor  
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11 analysis has adequate power due to the equality constraints imposed (see below). The two  
12  
13 separate comparison groups for amateur and professional comedians were drawn from a  
14  
15 general population sample of 333,442 UK residents, collected through multiple studies and  
16  
17 provided by Samuel Gosling.  
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### 21 **Procedure.**

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24 Comedians were approached via email by the club's general manager and/or in person  
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26 on the night of their performance. Participants completed the Big Five Inventory. All, except  
27  
28 gong show participants, completed the questionnaire on the night of their performance in the  
29  
30 comedy club dressing room. Gong show participants were emailed the questionnaire, which  
31  
32 they completed within two weeks of their performance<sup>3</sup>. Participants consented to have their  
33  
34 performance recorded by the comedy club. Due to technical failures 24 of these recordings  
35  
36 were not available for analysis.  
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39  
40 With the comedians' agreement, two experts viewed and rated a five minute sample  
41  
42 of their videoed performance. However, for gong show comedians, the sample period only  
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44 lasted until they were 'gonged'. The experts were an internationally successful comedian and  
45  
46 the comedy club's Technical Director.  
47  
48

### 49 **Measures**

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51 **Self-reported personality.** The Big Five Inventory (BFI: John & Srivastava, 1999)  
52  
53 comprises 44 items assessing extraversion, neuroticism, openness, conscientiousness and  
54  
55 agreeability. Participants respond using a 5-point Likert scale (1=strongly disagree,  
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57 5=strongly agree). The BFI demonstrates strong internal consistency ( $\alpha \approx .83$ ), a clear factor  
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3 structure, and convergence with other Big Five measures (John & Srivastava, 1999). In the  
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5 current study Cronbach alpha reliabilities ranged from .74 to .84 with an average of .80.  
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7

8       **Behavioral observation.** Ten comedy-relevant facets of personality formed the basis  
9  
10 of the observation. They included four facets of neuroticism, one each of extraversion and  
11  
12 openness, two of agreeableness, and two of conscientiousness (see Table 2). To identify  
13  
14 these, interviews were run with two comedians. The 30 NEO-PIR facets (Costa & McCrae,  
15  
16 1992) were described to interviewees. In response to each, interviewees were asked to  
17  
18 indicate if the facet (1) is observable when comedians perform; (2) impacts comedians'  
19  
20 effectiveness; and in line with the possibility that personality variability is a necessity for  
21  
22 performing successful stand-up comedy, (3) requires variation across performances. Twelve  
23  
24 facets met all criteria according to both interviewees. These were Angry Hostility,  
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26 Straightforwardness, Self-consciousness, Assertiveness, Ideas, Compliance, Self-discipline,  
27  
28 Anxiety, Deliberation, Impulsiveness, Activity, and Gregariousness.  
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33       Next, descriptions of the twelve facets were paired with a five-point response scale  
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35 (1=to a great extent, 5=not at all). They were then presented to twelve further industry  
36  
37 experts, via an online survey, who were asked to indicate the extent to which each requires  
38  
39 variation across performances. Experts had multiple roles in the comedy industry including  
40  
41 comedy club manager/director, reviewer, headline comedian, agent, television comedy  
42  
43 producer, promoter, and a festival director. Out of the twelve presented facets, the ten which  
44  
45 required the most variation across performances were selected for inclusion in the study. On  
46  
47 this basis Activity and Gregariousness were excluded.  
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51       For the observational study, the poles of each facet were defined and combined with a  
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53 ten-point scale where 1 denoted the low end of the facet and 10 denoted the high end. Each  
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55 facet along with its response scale was presented twice. In response to the first, the two  
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57 experts were asked to indicate the level that was needed for comedians, to as achieve as high  
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3 a level of success as possible, due to their performance. In response to the second, they rated  
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5 the comedians' expressed behavior in relation to the facet. The reliability of the mean ratings  
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7 of situational requirements with respect to the ten facets was 0.86 across the two sets of  
8  
9 expert ratings. To control for the possibility that requiring the two experts to rate both  
10  
11 required and observed behavior may have created a method artefact, we obtained a further  
12  
13 sample of 11 professional comedians who provided independent ratings of required behavior.  
14  
15 The means of the two sets of ratings correlated at .99. Since the original ratings were  
16  
17 recorded immediately after watching the videos of stage performances (about 180 times), and  
18  
19 were, therefore, not subject to biases due to reliance on memory, we used these ratings in  
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23  
24 subsequent analysis.

## 25 26 **Results**

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28 Amateur and professional comedians were exactly matched on gender and age to  
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30 cases from the reference sample of UK citizens. This was done via the 'Matchit' algorithm  
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32 (Ho, Imai, King, & Stuart, 2011) in R 3.4.1 (R Development core group, 2008). It led to the  
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34 matching of 126,905 reference participants to 77 professional comedians and to 191,631  
35  
36 reference participants to 125 amateur comedians.

37  
38  
39 We then tested for mean differences in BFI scores for professional and amateur  
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41 comedians, separately, in comparison to their respective norm groups using Multi-Group  
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43 Covariance and Mean Structures Analysis (MG-CMS) in Mplus. Because it is well  
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45 established that the BFI does not provide a good fit using conventional confirmatory factor  
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47 analysis (Booth & Hughes, 2014), and the fit of a CFA to the total sample of comedians was  
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49 poor ( $\chi^2(194)=511,417.9, p<.001$ ; CFI=.789; TLI=.775; RMSEA=.076 [.076-.076]), we used  
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53 multi-group exploratory structural equation modelling (MG-ESEM).

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56 For group comparisons to be valid, scalar invariance must hold (Little, 2013). We  
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58 considered good model fit to be indicated by values within the range of  $\leq .06$ –.08 for the root  
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3 mean square error of approximation (RMSEA), and  $\geq .90$ –.95 for the Tucker-Lewis index  
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5 (TLI) and comparative fit index (CFI) (Hu & Bentler, 1999; Schermelleh-Engel,  
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7 Moosbrugger, & Muller, 2003). We tested for measurement invariance in the order: (1)  
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9 configural invariance; (2) metric invariance; and (3) scalar invariance using procedures  
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11 recommended by Millsap and Kim (2018) adapted for the ESEM framework. Decline in  
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13 model fit at a given stage of the invariance analysis indicates that the assumptions of  
14  
15 invariance do not hold in the constrained parameters (French & Finch, 2006). To assess  
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17 possible decline in model fit, we rely on the conclusions of a simulation study by Chen  
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19 (2007). Her primary recommendation, when sample sizes are 500 or more, is that changes of  
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21 equal to or less than -0.01 for CFI and increases less than or equal to .015 for the RMSEA  
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23 indicate that invariance holds.  
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28 [insert Table 1 about here]

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30 In this instance, according to both criteria, and for both sets of analyses, increasingly  
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32 restrictive models showed improved rather than reduced fit, and the scalar models showed  
33  
34 excellent absolute fit which provides unambiguous support for scalar invariance (see Table  
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36 1). All salient item loadings were significant at  $p < .001$ , and barring three items, were in the  
37  
38 range 0.50-0.87 (see supplementary materials, Tables 1 & 2). The average variance extracted  
39  
40 (AVE) for each factor ranged from 28 to 49%. Given that scalar invariance is convincingly  
41  
42 demonstrated and that each of the factors is reliable (McDonald's Omega ranges from .78-  
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44 .89; see supplementary materials, Tables 1 & 2), it follows that the mean differences between  
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46 groups are on the same measurement scale and are substantively interpretable.  
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51 [insert Table 2 about here]

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53 The mean differences between groups are shown in Table 2 in the form of Cohen's *d*-  
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55 scores, with 95% confidence intervals. Cohen (1988) suggested that *d*-scores should be  
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57 considered small, medium, and large, at levels of 0.2, 0.5, and 0.8, respectively. However, he  
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3 also cautioned that uncritical use of such arbitrary guidelines is dangerous. Nevertheless,  
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5 according to these guidelines: In terms of neuroticism amateurs were indistinguishable from  
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7 the normal population, while professionals, as expected, showed a medium level of  
8  
9 neuroticism. Amateur comedians are more extraverted, to a medium degree, than the normal  
10  
11 population while professionals show only a small trend in this direction. Both amateurs and  
12  
13 professionals showed moderately higher levels of openness than the normal population, and  
14  
15 neither are distinguishable from the normal population with respect to agreeableness. Finally,  
16  
17 both groups are less conscientious than the normal population to a medium degree. Although  
18  
19 point estimates show that professionals are markedly more neurotic than amateurs, amateurs  
20  
21 are somewhat more extraverted, and professionals are less conscientious, none of these  
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23 differences achieve significance, probably because of a lack of power.  
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29 The heightened level of neuroticism and openness and low conscientiousness of  
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31 professional comedians conforms to previous studies (e.g., Feist, 1998; Greengross & Miller,  
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33 2009). Equally, that professionals differ only weakly from the normal population in terms of  
34  
35 extraversion, and are indistinguishable in terms of agreeableness is consistent with our  
36  
37 expectations. In addition, the moderately high level of openness demonstrated by professional  
38  
39 comedians fits with the requirements of the job according to our two experts (see Table 3).  
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43 If we compare the mean level personality of professional comedians with the  
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45 requirements of the job as judged by our experts (see Table 3), they are too high in  
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47 neuroticism, too low in extraversion, met with requirements with respect to openness, and  
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49 agreeableness, and are somewhat deficient in conscientiousness.  
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51 [insert Table 3 about here]  
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55 Our second set of analyses concerned the extent to which behavioral ratings of the ten  
56  
57 facets of expressed personality, described previously, matched the expert ratings of required  
58  
59 stage personality depending on whether the participants were amateur or professional (see  
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3 Table 3). Specifically, we expected that the expressed stage personalities of professional  
4 comedians would conform more closely to the personality requirements of successful stage  
5 performance as rated by experts, than is true of amateurs. We tested this proposition by  
6 conducting a multivariate analysis of variance (MANOVA), in SPSS version 23.0, using  
7 professional versus amateur status as the categorical independent variable and the 10  
8 personality facets chosen from the FFM as dependent variables. We used multiple imputation  
9 since 10.38% of cases would have been lost with casewise deletion (see supplemental  
10 materials section 2). Using Pillai's Trace as the multivariate criterion we found a significant  
11 main effect of professional vs. amateur status on the 10 FFM facets ( $V = .245$ ,  $F = 5.58$ ,  $df_1 =$   
12  $10$ ,  $df_2 = 16-72$ ,  $p < .001$ ). Thus, the discriminant variate explained 24.5% of the total  
13 variance. To explore further which personality variables explained the differences between  
14 amateur and professional comedians, we carried out a series of univariate analyses of  
15 variance using a Bonferroni correction. Six personality facets showed a significant mean  
16 difference between amateur and professional comedians: Self-consciousness and Anxiety  
17 (Neuroticism), Assertiveness (Extraversion), Intellectual Curiosity (Openness-to-experience),  
18 Compliance or rather its lack (Agreeableness), and Deliberation or rather its lack  
19 (Conscientiousness). In all cases where there was a significant difference, as expected, the  
20 professional comedians expressed personality conformed more closely to the requirements of  
21 effective stage performance than did that of amateurs (see Table 3).  
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46 We then repeated the previous multivariate analysis of variance but this time  
47 controlling for age as a covariate. Pillai's Trace dropped such that the discriminant variate  
48 explained only 18.7% of the total variance ( $V = .2187$ ,  $F = 3.94$ ,  $df_1 = 10$ ,  $df_2 = 171$ ,  $p <$   
49  $.001$ ), and two of the differences (Compliance and Deliberation) became non-significant (see  
50 Table 3).  
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3 The results in Table 3 show that generally professional comedians conform well to the  
4 requirements of stage performance. With regard to neuroticism, even though professionals  
5 show higher levels of trait neuroticism than do amateurs, when on stage, professionals  
6 express appropriate levels of self-consciousness and anxiety, and score much lower than  
7 amateurs. Given that amateurs, in terms of mean level, are normal with respect to neuroticism  
8 but are much higher on the facets of self-consciousness and anxiety in terms of their stage  
9 presence, it is clear that professionals are much better able to adapt to the requirements of the  
10 stage and show much greater movement from their trait levels. With regard to the other two  
11 facets of neuroticism (angry hostility and impulsiveness), amateurs and professionals are  
12 similar and apparently both too high. The assertiveness facet of extraversion follows a similar  
13 pattern. Although professionals describe their trait levels of extraversion as lower than  
14 amateurs, on stage the professionals show a higher and appropriate level of assertiveness,  
15 whilst amateurs fail to exhibit a sufficiently high level of this trait. With regard to openness,  
16 while both amateurs and professionals describe their trait levels similarly, on stage  
17 professionals exhibit a much higher level of openness than amateurs, albeit short of what is  
18 apparently optimal for performance. In terms of the agreeableness facets of  
19 straightforwardness and compliance, while professionals and amateurs are similar with  
20 respect to straightforwardness, professionals exhibit a level of compliance much closer to  
21 requirements than do amateurs. Similarly, in terms of the two facets of conscientiousness:  
22 With regard to self-discipline, professionals and amateurs are both able to match task  
23 requirements, despite the professionals describing their trait levels of conscientiousness as  
24 relatively low, whilst professionals better meet requirements for lack of deliberation.

### Discussion

25 Both professional and amateur comedians showed unique trait-level personality  
26 profiles as compared with the normal population. Both were more open-to-experience, less  
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3 conscientious, and more extraverted than their corresponding norm samples, while  
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5 professionals additionally showed greater neuroticism. For comedians at least then, the  
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7 prediction derived from the ASTMA (Roberts, 2006) and the TESSERA frameworks (Wrzus  
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9 & Roberts, 2017), that comedians have a distinctive personality profile which conforms to the  
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11 requirements of their profession, appears to hold (see below).  
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15 It should also be noted, that while our findings show a unique personality profile for  
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17 the job of comedians, the contention of Schmidt and Hunter (1998) that a common  
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19 personality profile predicts success across the majority of jobs may still hold (see Schmidt &  
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21 Oh, 2010). However, the personality profile of comedians differs markedly from that found to  
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23 confer an advantage in most work situations. Barrick, Mount, and Judge (2001), in their  
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25 summary of meta-analytic findings, found that conscientiousness, neuroticism, and openness-  
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27 to-experience correlated with work performance at .24, -.15, and .07, respectively. According  
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29 to the ASTMA model, this would imply that the personality profile for most jobs would  
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31 comprise an elevated level of conscientiousness, low neuroticism, and lowish levels of  
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33 openness. So our findings show that comedians are much less conscientious, and much more  
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35 neurotic and open-to-experience than would normally characterize most jobs.  
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40 Arguably a much more significant finding was that professional comedians'  
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42 expression of personality on stage was more adaptive than was true for amateurs, and by a  
43  
44 considerable margin. This occurred despite professionals' mean-levels of neuroticism and  
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46 extraversion diverging more from stage requirements than was so for amateurs. Moreover,  
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48 this greater adaptability was evidenced across six personality facets spanning all of the FFM  
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50 factors of personality. This suggests the existence of a general mechanism for regulation of  
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52 personality expression to situational requirements. Although, an individual level analysis of  
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54 our findings should shed more light on this.  
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3           However, when we controlled for age, the difference between amateur and  
4 professional comedians reduced overall and two of the differences became non-significant.  
5 We interpret this as indicating that regulation of personality expression increases with age,  
6 suggesting it can be learned through experience. Most likely this learning occurs both due to  
7 general and domain specific practice (in our case the greater experience of professional  
8 comedians with stage performance), however, our analysis is not informative with respect to  
9 this distinction.  
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19           The findings also support our contention that variability in personality may be either  
20 functional or dysfunctional depending on whether the change in personality is in a direction  
21 consistent or inconsistent with situational requirements. This suggests a possible resolution of  
22 the apparent paradox that personality variability may be dysfunctional (Clifton & Kuper,  
23 2011; Cote et al., 2012; Fournier et al., 2009; Russell, et al., 2007; Zielger-Hill, et al., 2013),  
24 or functional (Lievens, et al., 2018; Minbashian et al., 2010). In short, measures of match will  
25 reflect functional variation whilst measures of mismatch will index dysfunctional variation in  
26 personality.  
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37           The strong suggestion in our findings that there is an individual difference in capacity  
38 to regulate personality expression in accordance with situational requirements may help  
39 explain another longstanding puzzle. Meta-analyses show that the effect of mean-level  
40 personality on job performance is useful but surprisingly small (Barrick, Judge & Mount,  
41 2001), and this is also found, although to a lesser degree, at the facet level of analysis (Judge,  
42 Rodell, Klinger, Simon & Crawford, 2013). In the somewhat limited case of comedians, it  
43 seems clear that this job requires variation in personality expression depending on whether  
44 the comedian is writing material or presenting. Given that most jobs vary in situational  
45 requirements, it may be that the ability to express personality in an adaptive manner may be  
46 more predictive of job performance than is trait-level personality.  
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## Personality of comedians 22

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3 Our expectation that professional comedians are high on neuroticism, openness, and  
4 extraversion, low on conscientiousness, and show no difference with regard to agreeableness  
5 compared to the general population, was supported. However, this prediction was based on  
6 the assumption that the creative writing role of comedians would predominate over the  
7 performance role, so the trait personality profile of professional comedians indicates that they  
8 are similar to those involved in roles which require a high degree of creation (e.g., Feist,  
9 1998), rather than roles which are performance orientated (e.g., Nettle, 2006). Nevertheless,  
10 in most regards professional comedians seem able to express the appropriate persona when  
11 they perform, irrespective of their mean personality levels. That is, they are adept at  
12 regulating their personality to conform with job requirements, at least while they are on stage.  
13 This fits with and extends the findings that individuals adapt their personality characteristics  
14 to fit situational requirements (Fleeson & Jayawickreme, 2015). Fittingly, the pattern of  
15 adaption is indicative of movement from the trait characteristics of an individual employed in  
16 a creative role towards that of one employed in a performance role. That is, in line with the  
17 situational requirements as rated by the experts, professional comedians showed increased  
18 levels of extraversion and agreeableness during their performance compared to their trait  
19 score, and much less neuroticism. This makes their situational (on-stage) personality  
20 expression more similar to performers than their trait scores (Nettle, 2006).

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45 A partial exception from this pertains to neuroticism. While professional comedians  
46 seem able to regulate their self-consciousness and anxiety to an appropriate level on stage,  
47 according to our experts they are nevertheless somewhat too high on angry hostility and  
48 impulsiveness as compared with amateurs, albeit these differences are slight. While our  
49 experts are of considerable distinction and command substantial experience, are they actually  
50 correct that angry hostility and impulsiveness are prejudicial to a stage performance? It  
51 seems more likely that the elevated scores of comedians on neuroticism is due to neurotic  
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3 traits conferring an advantage. There are at least two possibilities consistent with this  
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5 suggestion.

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7 First, with regard to trait levels of neuroticism, it is well established that humor is a  
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9 protective factor with respect to stress and depression (Southwick, Vythilingam, & Charney,  
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11 2005; Thorson, Powell, 1993). Thus, having a neurotic personality may be a strong motivator  
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13 for comedians to deploy humor in everyday life. In addition, extensive practice is a pre-  
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15 requisite for the development of expertise (Ericsson & Kintsch, 1995). Given that neuroticism  
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17 likely motivates comedians to practice humor in everyday life, they probably develop a  
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19 commensurate expertise with respect to humorousness, which would suit them for the  
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21 profession. Of course, we did not ask our experts about mean levels of neuroticism, so there  
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23 may actually be no discrepancy in this respect.

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

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53 We are arguing then that trait neuroticism is a more or less essential characteristic of  
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55 successful comedians, and we can agree with our experts that the novelty or unexpectedness  
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57 of successful comedy stems from openness (Kaufman et al., 2014; Silvia et al., 2011). So,  
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3 these characteristics of professional comedians are required if comedians are to achieve in  
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5 their profession.  
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8 While our sample of comedians is large compared with previous samples, especially  
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10 when considering the intensity of the study, nevertheless we cannot claim that the sample is  
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12 representative, either of professional or amateur comedians. The sample was ultimately a  
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14 convenience sample and limited in size by time considerations. Necessarily, some of our  
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16 findings are likely sample specific. Equally this was an exploratory study with all its  
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18 concomitant weaknesses. Also, although use of MG-CMSA and exact matching represents a  
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20 substantial advance on previous studies of comedians, there was one covariate we were  
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22 unable to control for, viz. educational level, which likely would have biased our estimates to  
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24 a small degree. We must also acknowledge that there may be other unmeasured variables  
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26 which may potentially have acted as confounds.  
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31 Overall, this study has shown that, as would be predicted by the ASTMA model  
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33 (Roberts, 2006), comedians, as an occupational group, have a distinctive personality profile.  
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35 Interestingly, this profile, consisting of low conscientiousness, moderate neuroticism, and  
36  
37 high openness, differs substantially from the personality profile most typically associated  
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39 with job success (Barrick & Mount, 2001). Further, the results emanating from the  
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41 assessment of on stage personality expression are consistent with the substantial body of  
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43 work which shows that people regulate their personality expression in order to meet with  
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45 situational and goal requirements (e.g., DeYoung, 2014; Fleeson & Jayawickreme, 2015).  
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47 What the current findings add to the literature is that successful job incumbents, at least in the  
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49 comedy field, show a much greater degree of adaptability than do amateurs, probably both  
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51 due to greater experience and a stronger capacity for self-regulation.  
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## Notes

<sup>1</sup>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.

<sup>2</sup>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.

<sup>3</sup>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 <sup>2</sup>	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 <sup>1</sup>	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]

<sup>1</sup>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.

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



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**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	-.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?

1  
2  
3 *Secondary school education to age 16 / Secondary school education to age 18 / Non-*  
4 *university higher education / Undergraduate university education / Postgraduate university*  
5 *education*  
6  
7  
8  
9

10 *Trait Personality*  
11

12 Here are a number of characteristics that may or may not apply to you. For example, do you  
13 agree that you are someone who likes to spend time with others? Please select the appropriate  
14 response to indicate your level of agreement with each statement.  
15

16  
17 I see myself as someone who:  
18

19 Is talkative  
20

21 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
22

23 Tends to find fault with others  
24

25 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
26  
27

28  
29  
30 Does a thorough job  
31

32 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
33

34 Is depressed, blue  
35

36 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
37  
38

39 Is original, comes up with new ideas  
40

41 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
42

43 Is reserved  
44

45 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
46

47 Is helpful and unselfish with others  
48

49 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
50

51 Can be somewhat careless  
52

53 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
54

55 Is relaxed, handles stress well  
56

57 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
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1  
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3 Is curious about many different things  
4

5 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
6

7 Is full of energy  
8

9 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
10

11 Starts quarrels with others  
12

13 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
14

15 Is a reliable worker  
16

17 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
18

19 Is ingenious, a deep thinker  
20

21 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
22

23 Can be tense  
24

25 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
26

27 Generates a lot of enthusiasm  
28

29 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
30

31 Has a forgiving nature  
32

33 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
34

35 Tends to be disorganized  
36

37 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
38

39 Worries a lot  
40

41 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
42

43 Has an active imagination  
44

45 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
46

47 Tends to be quiet  
48

49 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
50

51 Is generally trusting  
52

53 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
54

55 Tends to be lazy  
56

1  
2  
3 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

4  
5 Is emotionally stable, not easily upset

6  
7 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

8  
9 Is inventive

10  
11 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

12  
13 Has an assertive personality

14  
15 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

16  
17 Can be cold and aloof

18  
19 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

20  
21 Perseveres until the task is finished

22  
23 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

24  
25 Can be moody

26  
27 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

28  
29 Values artistic, aesthetic experiences

30  
31 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

32  
33 Is sometimes shy, inhibited

34  
35 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

36  
37 Is considerate and kind to almost everyone

38  
39 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

40  
41 Does things efficiently

42  
43 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

44  
45 Remains calm in tense situations

46  
47 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

48  
49 Prefers work that is routine

50  
51 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

52  
53 Is outgoing, sociable

54  
55 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*

1  
2  
3 Is sometimes rude to others  
4

5 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
6

7 Makes plans and follows through with them  
8

9 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
10

11 Gets nervous easily  
12

13 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
14

15 Likes to reflect, play with ideas  
16

17 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
18

19 Has few artistic interests  
20

21 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
22

23 Likes to cooperate with others  
24

25 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
26

27 Is easily distracted  
28

29 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
30

31 Is sophisticated in art, music, or literature  
32

33 *Strongly disagree/disagree a little/Neither agree not disagree/Agree a little/ Strongly agree*  
34

35  
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40 \*The online questionnaire also included questions not analysed in the current study which are  
41 therefore not included in this document.  
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## 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<sup>+</sup>

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)

1  
2  
3 *Reviewer/ Comedian/ Agent/ Comedy club employee/ Promoter/ Television producer/ Radio*  
4 *producer/ Other*  
5

6  
7 If you selected 'other' please specify below  
8

9 Below is a list of personality characteristics which an individual may show to varying degrees  
10 (e.g. they may show high, low or mid levels of each characteristic). Please indicate the extent  
11 to which you think each one is something that a comedian would need to vary according to  
12 where they were performing or who they were performing to.  
13

	<b>To a great extent</b>				<b>Not at all</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Angry-hostility:</b> An individual's readiness to experience anger and related states such as frustration and bitterness	1	2	3	4	5
<b>Self consciousness:</b> 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
<b>Assertiveness:</b> Assertive people are dominant, forceful and socially ascendant.	1	2	3	4	5
<b>Gregariousness:</b> This is how great a preference individuals have for other people's company.	1	2	3	4	5
<b>Ideas:</b> 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
<b>Straightforwardness:</b> 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
<b>Compliance:</b> 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

<b>Self-discipline:</b> This describes an individual's ability to carry tasks through to completion despite boredom or other distractions	1	2	3	4	5
<b>Deliberation:</b> 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
<b>Anxiety:</b> This is how apprehensive, fearful, prone to worry, nervous, tense and jittery a person is.	1	2	3	4	5
<b>Impulsiveness:</b> This is an individual's ability to control cravings and urges and to resist desires they may later regret.	1	2	3	4	5
<b>Fantasy:</b> This describes how vivid an individual's 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 outcome	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 outcome	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
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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
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