

Personality Traits, Intelligence, Humor Styles, and Humor Production Ability of Professional Stand-up Comedians Compared to College Students

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Individual differences in humor production ability are understudied, especially among experts. This is the first quantitative study of personality traits, humor production ability, humor styles, and intelligence among stand-up comedians. It analyzes data from 31 comedians and 400 college students with regard to the Big Five personality traits (NEO-FFI-R), the Humor Styles Questionnaire (HSQ), a humor production task, verbal intelligence, and, for the comedians, a measure of professional success. Comedians scored higher than students on verbal intelligence, humor production ability, and each of the four styles of humor. Among comedians, openness, agreeableness, and extraversion correlated positively with affiliative humor, and intelligence correlated negatively with self-defeating humor. Professional success was predicted positively by affiliative humor and negatively by self-defeating humor.

Keywords: verbal humor, stand-up comedy, humor styles questionnaire, personality, Big Five, verbal intelligence

Humor is a distinctively human capacity at the heart of creativity, courtship, friendship, social intelligence, and mental health (Kaufman, Kozbelt, Bromley, Geher, & Miller, 2008; Kuiper & Martin, 1998; Li et al., 2009). Yet it remains understudied in psychology, perhaps because researchers assume that its whimsical content is inconsistent with the serious business of science. The small literature on humor has been dominated by studies of college students, with no quantitative studies so far on professional comedians. This study aims to fill that gap by measuring the humor styles, humor production abilities, personality traits, intelligence, and career success of U.S. professional stand-up comedians, including their intercorrelations, and compared to U.S. college students.

Professional stand-up comedians are a unique vocational group, whose distinctive traits, abilities, and interests can illuminate the origins, functions, and predictors of humor (Fisher & Fisher, 1981; Greengross & Miller, 2009). Unlike most other creative professionals, comedians both write their own material and perform it live on stage. Professional comedians in the U.S. also have a demanding lifestyle that requires many skills beyond comedy.

They typically work alone; travel much of the year to comedy clubs in different cities; have no job security, union, or job benefits; and work in relative obscurity for much (if not all) of their career (Greengross & Miller, 2009).

There are several good accounts of stand-up comedians' lives and careers (e.g., S. Martin, 2007; Zoglin, 2008), but almost all are biographical or autobiographical, so contain largely qualitative and anecdotal information. There has been very little systematic research on comedians' lives, personalities, abilities, or determinants of success [except see (Fisher & Fisher, 1981; Janus, 1975; Janus, Bess, & Janus, 1978)]. Within the little research that has been done, most focuses on the humor displayed by comedians on stage (e.g., Greenbaum, 1999; Rutter, 2000), and almost nothing is known about their private humor styles, preferences, and abilities, or how these might affect their public performance and contribute to their success.

Stand-up comedians exemplify having a "good sense of humor," which is one of the most desired human traits, both socially and sexually (Keltner, Young, Heerey, Oemig, & Monarch, 1998). Individuals with a good sense of humor are perceived as friendly, interesting, pleasant, intelligent, emotionally stable, and creative (Cann & Calhoun, 2001; Kaufman et al., 2008; O'Quin & Derks, 1997). Using humor also elicits feelings of closeness among strangers and is attractive to potential mates (Buss, 1988; Fraley & Aron, 2004; Greengross & Miller, 2008; Lundy, Tan, & Cunningham, 1998). Scales that concentrate on when and where people use humor usually focus on just the "positive" (self-enhancing, health-promoting, prosocial, or altruistic) aspects of humor, such as humor as a "coping mechanism" that allegedly promotes physical health (Martin & Lefcourt, 1983; Martin & Lefcourt, 1984; Svebak, 1974). However, such positive uses of humor are counterbalanced by some "negative" (self-harming, stress-increasing, antisocial)

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cial, or derogatory) uses of humor that are less often measured (Anderson & Arnoult, 1989; Martin, 2001, Martin, 2003). People often use humor to disparage other individuals, sexes, ethnic groups, religions, nationalities, or ideologies, and such hostile humor can provoke aggression and reinforce stereotypes (Baron, 1978; Ford, 2000; Ford & Ferguson, 2004; Greengross & Miller, 2008; Maio, Olson, & Bush, 1997).

Such diverse positive and negative uses of humor can be conceptualized and measured in diverse ways. Humor has been viewed as a personality trait (Ruch, 1998), a temperament (Ruch & Carrell, 1998), a tendency to laugh and joke with others (Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003), an ability (Feingold & Mazzella, 1991), or an aesthetic phenomenon (Caron, 2002); (see also: Martin, 2003; R. A. Martin, 2007; Ruch, 2004). Most measures of humor are self-report scales where participants rate their participation in or preferences for various forms of humor.

Recently, a new self-report questionnaire, the Humor Styles Questionnaire (HSQ), was developed to measure both positive and negative uses of humor (Martin et al., 2003), and it is increasingly used by humor researchers (Chen & Martin, 2007; Erickson & Feldstein, 2007; Greengross & Miller, 2008). The HSQ measures two positive uses of humor in everyday life (affiliative and self-enhancing) and two negative uses (aggressive and self-defeating) (Martin et al., 2003). Affiliative humor promotes social bonds and puts others at ease through telling jokes, saying funny things, and not taking oneself too seriously. Self-enhancing humor is the ability to see the funny side of life even in adverse and stressful times, and to use humor as a coping mechanism, as emphasized in previous humor measures (Lefcourt et al., 1995; Martin, 1996). Aggressive humor aims to tease and ridicule others through put-downs, mockery, and ridicule, typically to enhance one's social status at the expense of the victimized individual (as in other-deprecating humor) or group (as in sexist or racist humor). Self-defeating humor amuses others at one's own expense through making oneself the "butt" of jokes and laughing with others after being disparaged, although it can also be valued as self-deprecating humor (Greengross & Miller, 2008).

Professional stand-up comedians use a mix of humor styles, both positive and negative. Many use aggressive humor on stage, including sexual and ethnic humor (Fisher & Fisher, 1981; Janus, 1975), which is often popular with audiences, even if it does not reflect comedians' personal views or private humor use. In a previous study, comedians' personalities off stage were markedly different than on stage (Greengross & Miller, 2009). Comedians tend to display an extraverted personality on stage (Janus, 1975), but are quite introverted in real life compared to noncomedians. This discrepancy suggests that their everyday styles of humor (as assessed by the HSQ) might be different not only compared to other people, but also compared to their on-stage persona. Although the four humor styles measured by HSQ are conceptually and functionally distinct, there are positive correlations within the positive and negative categories, between use of affiliative and self-enhancing humor, and between use of aggressive and self-defeating humor (Chen & Martin, 2007; Greengross & Miller, 2008; Kazarian & Martin, 2006).

Previous studies also found moderate to strong relationships between HSQ humor styles and Big Five personality traits (Greengross & Miller, 2008; Martin et al., 2003; Saroglou & Scariot, 2002). Affiliative humor correlates positively with openness and

extraversion; self-enhancing humor correlates positively with extraversion and negatively with neuroticism. Aggressive and self-defeating humor both correlate negatively with agreeableness and conscientiousness, and self-defeating humor correlates positively with neuroticism.

Beyond these correlations between humor styles and Big Five traits, very little is known about relationships between humor production ability and personality traits, whether among college students, professional comedians, or others. Also, few studies actually measure the ability to be funny. The ones that do typically ask participants to write the punch line of a joke, or to produce captions for a cartoon with no caption (Feingold, 1983; Feingold & Mazzella, 1993). In one study, Howrigan and MacDonald (2008) gave students several questions such as "What do you think the world will be like in a hundred years?" and asked them to write funny answers. They found significant, albeit small, positive correlations of .17 between the rated funniness of the answers, and both openness and extraversion.

Further, little is known about how general intelligence relates to humor styles and humor production. Howrigan and MacDonald (2008) found a correlation of .29 between humor production and intelligence as measured by the Ravens Advanced Progressive Matrices among college students. Masten (1986) found positive correlations between the ability to understand, enjoy, and produce humor and IQ and academic success, also among college students. Two previous studies measured the intelligence of nationally famous comedians who had worked as full time comedians for at least 5 years (Janus, 1975; Janus et al., 1978). The first study, with a sample of 55 male comedians, found well above average IQs ranging from 115 to 160 with an average of 138, as measured by the Wechsler Adult Intelligence Scale (Janus, 1975). In a subsequent study with 14 female comedians, IQ scores were also high, ranging from 112 to 144 with an average of 126 (Janus et al., 1978). Comedians' use of humor could potentially signal their intelligence, as suggested by recent evolutionary theories of humor as a sexually selected trait (Greengross & Miller, 2011).

There are huge gaps in research on humor production ability, including its personality and cognitive predictors, its relationships to humor styles measures, and its manifestations among professional comedians. This study is the first quantitative analysis of everyday humor styles, personality traits, intelligence, and rated humor production abilities among a sample of professional stand-up comedians. It also compares the comedians to a large sample of college students with regard to all of these measures. It would be no surprise to find that professional comedians are funnier than most college students, and thereby score higher on humor production ability measures and most of the humor styles scales. However, the profile of humor styles, and their relationships with personality and intelligence, may differ between comedians and students, and may predict career success among comedians, in ways that inform our understanding of humor.

Method

Participants

A total of 31 professional stand-up comedians were recruited through a local comedy club in Albuquerque, New Mexico. Their average age was 38.9 years ($SD = 8.02$). Comedians had an

average of 15.5 years of education ($SD = 3.33$), with 16 years corresponding to a completed college degree. The vast majority of professional comedians are male, as was most of this sample (28 out of 31).

The noncomedy sample consisted of 400 undergraduates (200 males, 200 females) enrolled in psychology courses at the University of New Mexico, who received partial credit for participation. UNM is the largest state university in New Mexico, and has a diverse population, including many Hispanic and Native American students and nontraditional students. The average age of the students was 20.5 years ($SD = 4.65$). Participants had an average of 13.41 years of education ($SD = 1.33$), so were typically about half-way through college. Note that both samples in the current study are the same as in Greengross and Miller (2009).

Procedures

Up to 15 students sat in a classroom together and completed the questionnaires. Professional comedians were recruited by the first author introducing himself after they performed at the comedy club, and asking if they wanted to participate in a study on the psychology of humor. A meeting on a later day was scheduled for those who agreed to participate. Meetings were held in a coffee shop during the day, while the comedians were off work. All comedians signed informed consent before participating and were debriefed after they completed the questionnaires. After each questionnaire was completed, it was put in a box with the other comedians' questionnaires to ensure anonymity. Comedians were compensated with a small meal during the meeting.

Measures

Big Five personality scale. Participants completed the NEO-FFI-R survey (Costa & McCrae, 1992), which measures the Big Five dimensions of personality (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism). Participants rated themselves on 60 items using 7-point scales, from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). All five personality dimensions showed high internal consistency scores in the complete sample ($N = 431$) (Cronbach's alpha: openness to experience: .80; conscientiousness: .83; extraversion: .77; agreeableness: .75; neuroticism: .84).

Humor Styles Questionnaire. Participants completed the HSQ, a self-report questionnaire that measures four ways people tend to use humor in their everyday lives (Martin et al., 2003). The HSQ consists of 32 statements rated on a 7-point scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). The scale yields four dimensions: affiliative humor (e.g., "I laugh and joke a lot with my friends"); self-enhancing humor (e.g., "My humorous outlook on life keeps me from getting overly upset or depressed about things"); aggressive humor (e.g., "If someone makes a mistake, I will often tease them about it."); and self-defeating humor (e.g., "I often try to make people like or accept me more by saying something funny about my own weaknesses, blunders, or faults."). The instructions on the questionnaire clearly state that participants should rate their ordinary, everyday humor, and the comedians understood that they were not to rate their on-stage persona or its humor styles.

Humor production ability. Participants were given three cartoons without captions and were instructed to write as many

funny captions as they could think of, for all cartoons, in 10 minutes. This open-ended humor production is a valid measure of spontaneous humor (Feingold & Mazzella, 1991, Feingold & Mazzella, 1993). Unrestricted humor creation in response to an ambiguous stimulus is a method that separates individuals with a creative sense of humor from others.

Each participant produced 2–26 captions in total ($M = 10.9$, $SD = 4.0$). The captions were rated by six independent judges (four females, two males), on a scale from 1 (*not funny at all*) to 7 (*very funny*). Caption order was randomized, and the judges were blind to any characteristics of the participants. All ratings were standardized to control for judges using the rating scales in different ways. Funniness ratings were highly skewed, with most captions rated not funny at all, and even the funniest students producing only a few captions per cartoon that were even moderately funny. So, from each judge's ratings of each caption for each cartoon, we took the highest-rated caption as most representative of the participant's humor ability. Then we averaged these high scores across the six judges and the three cartoons to yield an overall humor ability score. Judged internal consistency scores were .78, .73 and .69, respectively, for the three cartoons. For more details about the measure see Greengross and Miller (2011).

Verbal intelligence. Verbal intelligence was measured with the vocabulary subtest of the Multidimensional Aptitude Battery (MAB), a 46-item verbal test that requires the respondent to choose a word with the nearest meaning to the word given (Jackson, 1984). This subset is the best predictor of verbal ability and has a .74 correlation with the verbal subset of Wechsler Adult Intelligence Scale-Revised (WAIS-R) (Wechsler, 1981), and .62 correlation with WAIS-R total score reflecting general intelligence (Carless, 2000).

Career success of comedians. Professional stand-up comedians compete intensely to get bookings at comedy clubs around the country, and most bookings entail performing each evening at a club for a few days. Club owners favor comedians who develop a reputation for being funny, popular, reliable, and easy to deal with. Club bookings, and the resulting proportion of evenings working versus not working, are a strong index of professional success as a stand-up comedian. Thus, to measure professional success, we asked comedians to report how many weeks they had performed in the previous 12 months. They also reported their current age, and the age at which they turned professional as a comedian, so we could estimate number of years they had worked professionally, which tends to predict reputation and weeks worked per year. Bad comedians tend to quit young and after only a few years of trying to get club bookings.

Results

Verbal Intelligence and Humor Production Ability of Comedians Versus Students

Comedians and students were compared by t tests and by calculating Cohen's d effect sizes for the differences in the number of correct words on the MAB test, total number of captions produced, the standardized funniness ratings for each cartoon and their average across all cartoons (see Table 1) (Cohen, 1988). Effect sizes are typically classed as small (d around .2), medium (d around .5), or large (d around .8). Compared to the students,

Table 1

Comparisons and Effect Sizes Between Professional Comedians and Students on the Vocabulary Test and Humor Production Scores on the Cartoon Captioning Task

	Comedians	Students		
	Mean (SD)	Mean (SD)	<i>t</i>	<i>d</i>
Vocabulary	27.33 (5.69)	19.55 (5.93)	6.94***	1.34
No. of captions	14.20 (4.08)	10.62 (3.90)	4.89***	.89
Cartoon 1	.67 (.63)	-.09 (.64)	3.64***	1.20
Cartoon 2	.53 (.68)	-.06 (.62)	3.10***	.90
Cartoon 3	.66 (.57)	-.08 (.57)	5.57***	1.30
Humor production	.62 (.57)	-.07 (.57)	8.07***	1.60

Note: Comedians: $n = 31$, students: $n = 400$. Positive effect size denotes that professional comedians scored higher than students. Levene's homogeneity tests were all n.s.

*** $p < .001$.

comedians had higher vocabulary scores and produced more and funnier captions. The effect sizes were all large. Since most comedians in the sample were men, a comparison between male comedians and male students was conducted on the same scales. Results were similar to those in Table 1. Male comedians scored statistically significantly higher on each task ($p < .001$), albeit the effect sizes were smaller (vocabulary: $d = 1.17$; no. of captions: $d = .64$; cartoon 1: $d = 1.06$; cartoon 2: $d = .75$; cartoon 3: $d = 1.10$; captions average: $d = 1.39$).

Correlations Among Humor Styles

Table 2 displays the correlations among all four HSQ humor styles for both comedians and students with Cronbach's alpha's for all participants. The HSQ appeared reliable and valid for both comedians and students. Cronbach's alphas within each of the four 8-item scales were moderate to good (.72 to .83) for the combined sample. Consistent with previous research, the two positive humor styles (affiliative and self-enhancing) are positively correlated, and the two negative humor styles (aggressive and self-defeating) are positively correlated. Also, self-enhancing and self-defeating styles are positively correlated among comedians but not among students. This difference in correlations was significant (two-sided Fisher r -to- z transformations for the difference between the two was $z = 2.47$ [$p < .02$]).

Table 2

Cronbach α -Coefficients for All Participants ($n = 431$, on the Diagonal) and Scale Intercorrelations Among the Four Humor Styles Questionnaire Scales for Comedians ($n = 31$, Above the Diagonal) and for Students ($n = 400$, Below the Diagonal)

	Affiliative	Self-enhancing	Aggressive	Self-defeating
Affiliative humor	.83	.42*	.24	.11
Self-enhancing humor	.49***	.82	.31	.47**
Aggressive humor	.15**	.01	.72	.37*
Self-defeating humor	.06	.03	.28***	.83

* $p < .05$. ** $p < .01$. *** $p < .001$.

These differences between comedians and students could potentially have been due to sex-ratio differences: almost all comedians were male (28 out of 31), whereas only half the students were male (200 out of 400). To reduce this potential confound, we ran a separate analysis for just the male comedians and students. Overall, the results were similar to the total sample. For male comedians ($n = 28$), there are two significant positive correlations: affiliative and self-enhancing ($r = .45$, $p < .01$), and self-enhancing and self-defeating ($r = .54$, $p < .01$). For students ($n = 200$), there were three significant positive correlations: affiliative and self-enhancing ($r = .46$, $p < .001$), aggressive and self-defeating ($r = .23$, $p < .01$), and affiliative and aggressive ($r = .19$, $p < .001$). All other correlations were nonsignificant.

Humor Styles of Comedians Versus Students

Figure 1 compares average scores on each humor style for comedians versus students (both sexes). Using t tests, we assessed the mean differences between comedians and students on each humor style, along with Cohen's d effect sizes (Cohen, 1988).

The results showed that comedians score higher than students on each of the four dimensions of humor: affiliative [$t(428) = 2.22$, $p < .001$, $d = .47$], self-enhancing [$t(427) = 2.63$, $p < .001$, $d = .55$], aggressive [$t(426) = 3.88$, $p < .001$, $d = .80$], and self-defeating [$t(427) = 4.11$, $p < .001$, $d = .69$]. A second males-only comparison yielded similar differences: affiliative [$t(226) = 1.64$, $p < .05$, $d = .37$], self-enhancing [$t(224) = 2.47$, $p < .05$, $d = .45$], aggressive [$t(225) = 2.70$, $p < .01$, $d = .49$], and self-defeating [$t(221) = 2.26$, $p < .05$, $d = .42$]. The overall pattern of use across humor styles was similar for comedians and students, with affiliative humor the most often used, followed by self-enhancing humor, aggressive humor, and self-defeating humor.

Humor Styles, Personality, Humor Ability, and Intelligence

The correlations between the humor styles and the Big Five personality scales, verbal intelligence, and humor production abil-

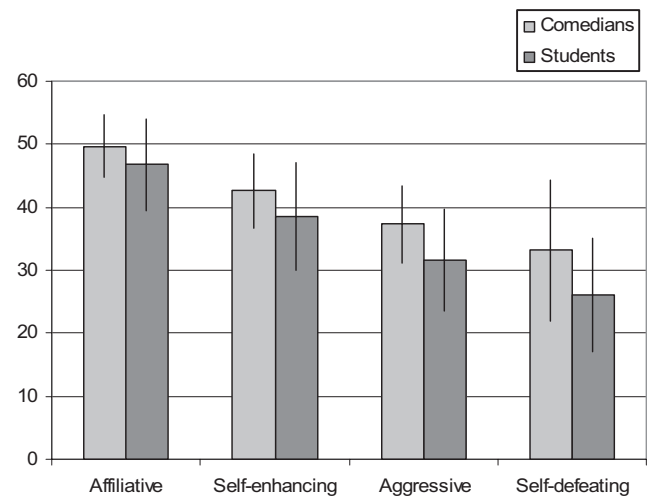


Figure 1. Average scores for comedians and students on the four Humor Styles Questionnaire scales with 95% error bars.

Table 3

For Stand-Up Comedians (n = 31): Pearson Correlations Between Humor Styles Questionnaire Scales, and the Big Five Personality Dimensions, Verbal Intelligence, and Humor Production Ability

	Affiliative	Self-enhancing	Aggressive	Self-defeating	Humor production
Openness	.38*	.05	.20	.08	-.32
Conscientiousness	-.15	.12	.17	.13	-.19
Extraversion	.35*	.07	.15	.16	-.30
Agreeableness	.44*	.06	-.12	.12	-.13
Neuroticism	-.08	-.14	.01	.30	.09
Intelligence	-.03	-.29	.03	-.37*	-.08
Humor production	-.35*	.07	.07	.07	

* $p < .05$.

ity are displayed in Table 3 (for comedians) and Table 4 (for students).

For comedians, affiliative humor correlated positively with openness (.38), extraversion (.35), and agreeableness (.44), but negatively with humor production ability (-.35); self-defeating humor correlated negatively with intelligence (-.37); self-enhancing and aggressive humor did not correlate with anything. For students, the larger sample size allowed a larger number of correlations to reach statistical significance. Student affiliative humor correlated positively with openness (.26), extraversion (.40), and humor production ability (.23), and negatively with neuroticism (-.27). Student self-enhancing humor correlated positively with openness (.19), conscientiousness (.19), extraversion (.36), agreeableness (.19), and humor production ability (.19), and negatively with neuroticism (-.53). Student aggressive humor correlated negatively with conscientiousness (-.28) and agreeableness (-.52), and positively with neuroticism (.14). Student self-defeating humor correlated negatively with conscientiousness (-.27) and positively with neuroticism (.26). Notably, student intelligence did not correlate with any humor style, and humor production ability correlated only modestly with affiliative and self-enhancing humor, and not at all with aggressive or self-defeating humor.

There was a significant difference in the correlations between conscientiousness and aggressive humor, and between conscientiousness and self-defeating humor for the two samples (aggressive humor: two-sided Fisher r -to- z transformations for the difference between the two was $z = 2.34$ [$p < .02$]; self-defeating humor:

two-sided Fisher r -to- z transformations for the difference between the two was $z = 2.08$ [$p < .04$]).

We also looked at the correlations between humor production ability and intelligence and the Big Five traits. For comedians, only the correlation between openness and verbal intelligence was significant (all comedians: $r = .46$, $p < .05$; males only: $.51$, $p < .001$). For students, openness was significantly correlated with both humor production ability (all students: $r = .26$; $p < .001$; males only: $.24$, $p < .001$) and verbal intelligence (all students: $r = .26$; $p < .001$; males only: $.26$, $p < .001$). Also for students, verbal intelligence correlated significantly with openness (all students: $r = .26$, $p < .001$; males only: $.26$, $p < .001$) and extraversion (all students: $r = -.19$, $p < .001$; males only: $-.15$, $p < .05$).

In addition, there was a positive significant correlation between verbal intelligence and humor production for students but not for comedians. This difference in correlations was significant (two-sided Fisher r -to- z transformations for the difference between the two was $z = 2.45$ [$p < .02$]). Also, humor production ability was negatively correlated with affiliative humor for comedians, and positively correlated for the student sample, a difference in correlations that was significant (two-sided Fisher r -to- z transformations for the difference between the two was $z = 3.00$ [$p < .005$]).

Predicting Comedians' Success

In this sample, the stand-up comedians turned professional at an average age of 26.9 ($SD = 6.5$). They had performed as professionals for an average of 12.0 years ($SD = 7.7$), and had performed

Table 4

For Students (n = 400): Pearson Correlations Between Humor Styles Questionnaire Scales, and the Big Five Personality Dimensions, Verbal Intelligence, and Humor Production Ability

	Affiliative	Self-enhancing	Aggressive	Self-defeating	Humor production
Openness	.26***	.19***	.01	-.05	.26***
Conscientiousness	.09	.19***	-.28***	-.27**	-.01
Extraversion	.40***	.36***	.01	-.02	-.04
Agreeableness	.03	.19***	-.52***	-.09	-.02
Neuroticism	-.27***	-.53***	.14**	.26***	-.09
Intelligence	.10	.01	.09	-.02	.39***
Humor production	.23*	.19*	.08	.11	

* $p < .05$. ** $p < .01$. *** $p < .001$.

an average of 31.6 weeks ($SD = 14.4$) out of the previous 52 weeks. To assess the possible effects of comedians' humor styles and humor production ability on their professional success, we conducted a backward elimination regression, wherein the number of weeks comedians performed in the past year was regressed on the four humor scales (affiliative, self-enhancing, aggressive and self-defeating), humor production ability, verbal intelligence, age, and number of years as a professional comedian. The final model was significant [$F(3, 27) = 5.40$, adjusted $R^2 = .31$, $p < .01$], with three predictors: affiliative humor ($b = 1.13$, $p < .05$), self-defeating humor ($b = -.42$, $p < .05$) and years as a professional comedian ($b = -0.77$, $p < .05$). Professional success was positively predicted by affiliative humor, and negatively by self-defeating humor and years as a professional comedian. Applying the same regression to only male comedians yielded similar results with only the humor styles as significant predictors. This final regression model [$F(3, 27) = 4.85$, adjusted $R^2 = .37$, $p < .01$], had two predictors: affiliative humor ($b = 1.32$, $p < .05$) and self-defeating humor ($b = -.69$, $p < .05$).

Although comedians scored higher on the humor production task than students did, there were no significant correlations among comedians between humor production ability and weeks performed on stage, suggesting that the humor production task may not have been sensitive enough to detect humor ability differences within the set of comedians.

To test the possible effects of personality on comedians' professional success, we also conducted a backward elimination regression wherein the number of weeks comedians performed in the past year was regressed on the five personality dimensions, age, and number of years as a professional comedian. None of the models or any of the predictors was significant for either the full sample of comedians or the male-only subset.

Discussion

This study is the first quantitative study of modern professional stand-up comedians. It examined the everyday humor styles of comedians ($N = 31$) compared to college students ($N = 400$), including the relationships among humor styles, rated humor production ability, Big Five personality traits, and verbal intelligence. It also analyzed which of these traits predicted comedians' professional success.

Comedians scored higher than students on verbal intelligence and had better humor production ability. It might not be surprising that comedians were considered funnier and have better verbal skills, since their job is to be funny using verbal humor, but it is important to remember that their performances on stage require different humor qualities than the caption creation task. Creating humor that is performed in front of an audience requires a large investment in time and includes endless practice and tuning in to the audiences' reactions. It is not necessarily the same skill as producing humor in response to an ambiguous stimulus, though both tasks probably share the same talent to some extent. The ability to be funny can manifest itself in different ways, even if comedians are not particularly familiar with this type of humor creation task. As such, these results provide additional support for the validity of the cartoon captioning task as a measure of humor creation ability.

Comedians' professional success, as measured by the number of weeks they performed in the previous year (more weeks = more successful), was predicted positively by affiliative humor and negatively by self-defeating humor. Comedy club patrons may prefer affiliative to self-defeating humor, but club owners may also prefer to book comedians who are friendly and confident. It is not surprising that professional stand-up comedians scored higher than college students on each of the humor scales. Comedians surround themselves with humor and devote their careers to observing, analyzing, creating, practicing, and performing humor. They think about new material every day, write jokes for their act, perform on stage with clear feedback from audiences, and watch other comedians, with whom they discuss their work.

What might be surprising are comedians' relatively low scores on the negative humor styles (aggressive and self-defeating) compared to the two positive styles. This is a striking difference from their on-stage use of humor, which is often hostile and aggressive, making fun of the audience, telling sexist and racist jokes, and using foul language (Fisher & Fisher, 1981; Janus, 1975). This discrepancy in humor styles epitomizes the difference between comedians' apparent on-stage personas (aggressive, extraverted) and their private personas (generally nice, and surprisingly introverted, compared to both comedy writers and college students) (Greengross & Miller, 2009). On the other hand, comedians' scores on negative humor styles were substantially higher than those of college students.

Affiliative humor plays an important role in comedians' social lives and is crucial to their professional success. Comedians' affiliative humor is the only style with strong correlations with their Big Five personality traits, including openness, extraversion, and agreeableness. Openness to experience and agreeableness probably promote comedians to engage with other people in social situations, and the resulting pleasant atmosphere could help facilitate humor. The ability to laugh with other people, share humorous stories, and put others at ease by using humor is no doubt an important role of a successful comedian, and hence explains why affiliative humor was a significant predictor of their on-stage success. Comedians must be sensitive to audience reaction and tune their act accordingly. Even if they use aggressive humor in their performance, they still have to take into account what a specific audience finds funny. Those who are high on affiliative humor may have an advantage since they can bring their own social experience to the stage. Comedians who score low on this scale may be more likely to "lose" the audience, and not know how to adjust their act properly.

By contrast, the use of self-defeating humor in everyday life negatively predicted comedians' professional success. Clearly, self-defeating humor is a negative humor style that could have a harmful effect on an individual's well being (Martin et al., 2003). Self-defeating humor is usually regarded as a destructive humor style, a style that individuals use to make fun of themselves and let others make jokes at their expense. Of all humor styles, this is the type that is used least often by comedians and others. Comedians who score high on self-defeating humor are perceived to be weaker, having a lower status, less dominant, and even more pathetic, and hence less funny. It is also possible that self-defeating humor impairs relationships with club managers, agents, and other comedians, and thereby reduces comedy club bookings in a business that relies heavily on good social skills. Previous research has

consistently shown that self-defeating humor is associated with low self-esteem, lack of self-confidence, anxiety, and depression (Martin et al., 2003). (The correlation here between self-defeating humor and neuroticism among comedians was .30, although it was not statistically significant given the fairly small sample size.) Consequently, comedians who often use self-defeating remarks might be viewed as insecure, low status, and destined for failure. Previous research showed that low-status individuals who use self-deprecating humor are perceived as less attractive by people of the opposite sex, and this effect might apply to professional relationships as well (Greengross & Miller, 2008). Comedians also need to be savvy to succeed in the comedy business, both on and off stage. Comedians have higher average intelligence than the general population (Janus, 1975; Janus et al., 1978) and also compared to our student sample, and intelligent comedians scored lower in self-defeating humor ($r = -.37$) in our study. This implies that smarter comedians know when self-deprecating humor shades over into self-defeating humor.

One puzzling result here is that comedians' scores on the cartoon-captioning tasks, although higher than those of college students, did not predict their professional success as measured by the number of weeks they performed in the previous year. This null result may arise from a small sample size ($N = 31$), a restriction of range in weeks worked per year (31.6 ± 14.4 , indicating mostly rather high degrees of success), and/or a restriction of range in humor ability among comedians who already have been working professionally for an average of 12 years, after the less-funny have been weeded out. It may also reflect the role of nonhumor traits (such as intelligence, conscientiousness, and emotional stability) in predicting success in this highly competitive business. Finally, spontaneous humor production in the cartoon-captioning task may be quite distinct cognitively from planned humor production in stand-up comedy. Comedians work on their acts for weeks, rehearsing many times before their first performance, and endlessly refining their content and delivery in response to audience feedback. It is an open secret in comedy shows that most of the material we see on stage is well-rehearsed, and only a small portion of the show is new and invented on the spot. The cognitive abilities to invent and refine a stand-up comedy act over the long term may overlap only somewhat with the cognitive abilities to create funny captions to cartoons in the short term.

One interesting difference between the professional comedians and students is that all four of the humor styles tended to be correlated with various Big Five personality traits among students, whereas only affiliative humor was significantly correlated with any of the Big Five traits for comedians. This is evident not just from the pattern of statistical significance (which favors finding significant correlations in the larger student sample), but in the larger magnitudes of the correlations in Table 4 (students) versus Table 3 (comedians). This finding suggests that, for students, their everyday styles of humor reflect their personality traits more clearly. For example, high levels of conscientiousness in students are revealed by lower use of aggressive and self-defeating humor. In contrast, comedians' Big Five personality traits seem less manifest in their everyday humor styles, apart from affiliative humor. This suggests that, because of their constant immersion in many types of humor, the everyday humor styles of comedians may become less closely tied to their personality traits. For example, their tendency to use an aggressive style of humor is less clearly a

reflection of low agreeableness or low conscientiousness than it would be in the general population.

There are some limitations in our study that should be addressed in further research on personality traits, humor styles, and humor production ability. First, this was a relatively small sample of comedians, all English-speaking, almost all male, at a midlevel of success midcareer, who worked one comedy club in Albuquerque. Larger samples of comedians across a wider range of success, seniority, and cultures would be welcome, although the U.S. stand-up comedy scene is especially well-developed compared to other countries. Although a very low proportion of stand-up comedians are female, larger female-targeted samples would permit some very illuminating studies of sex differences in humor styles and personality traits in relation to professional success. Second, this study did not include any measure of comedians' on-stage humor styles (e.g., by quantifying affiliative vs. aggressive content of each act), on-stage funniness (e.g., through humor ratings by observers such as comedy club patrons), or apparent on-stage personality traits (e.g., through trait ratings by observers); such measures would be a very useful supplement to our off-stage measures of professional success, humor styles, and personality traits. Third, further research could include people who use humor professionally in different roles, such as TV comedy writers, comic movie actors, columnists, cartoonists, and psychology lecturers. These different jobs draw upon different cognitive abilities for humor production in different media, modalities, and contexts, with different auxiliary requirements for professional success (such as physical attractiveness for comic movie actors or drawing ability for cartoonists).

Overall, the results of this study suggest that professional stand-up comedians are a distinct vocational group: they score higher on all humor styles, on humor ability (as revealed by their rated cartoon captions), and on verbal intelligence than college students, but they also show different patterns of correlations between Big Five personality traits and humor styles, and a discrepancy between on-stage persona and private personality. Comedians' professional success depends not just on their short-term spontaneous humor production ability, but also on their long-term skill, dedication, and ambition in crafting and refining an effective act that can be modulated for different audiences in different cities with different tastes, traits, backgrounds, and levels of inebriation. It also depends upon their fluent, strategic use of affiliative humor and self-deprecating humor when interacting with club patrons, club owners, booking agents, and other comedians. Apart from our quantitative results, we were impressed by the range of personality traits, social skills, and intelligence required to succeed in the stand-up comedy business, and by the potential fruitfulness of stand-up comedians as a group for further research in personality, humor, and creativity.

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