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**A study examining the relationship between the implicit power motive and humor
production ability**

Paul van Schie

Student number: 5999650

Master Social, Health and Organisational Psychology

Utrecht University

Thesis supervisor and reviewer: Dr. Madelijn Strick

Second reviewer: Onur Sahin, MSc.

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Abstract

Long-term differences in motivation to influence others are reflected in the implicit need for power (*nPower*). Prior research substantiates the belief that individuals high in *nPower* are more prone to develop and optimize prosocial behavior strategies that enable them to exert influence. While the power motive has been found to predict a variety of behavioral strategies, no study to date has examined the relation with humor ability and its manifestations as a means of exerting influence. The aim of the present study is to explore how the implicit power motive may be related to the development and expression of humor. By integrating two formerly distinct research fields, it was hypothesized that individuals high in *nPower* differ substantially in humor production ability from individuals relatively low in *nPower*, and are more likely to express an affiliative humor style. A total of 138 U.S. participants from the general population conducted several tasks and questionnaires. The 'Picture Story Exercise' was conducted to assess participants *nPower*. Humor production ability was measured through the 'Cartoon Caption Task'. Finally, participants completed the affiliative humor dimension of the 'Humor Styles Questionnaire'. The results of the present study indicate that power-motivated individuals do not substantially differ in humor production ability, however, they are more likely to use an affiliative humor style. Finally, concrete recommendations for future research are given, that could validate predictive conclusions that cannot be drawn from the present study.

Keywords: Implicit Motives; Need for Power; Humor Production Ability; Affiliative Humor Style

Years before he became Twitter's CEO, Dick Costolo was a professional stand-up comedian. A day before he started at Twitter as Chief Operation Officer, he wrote the tweet: "First full day as Twitter COO tomorrow. Task #1: undermine CEO, consolidate power." (Costolo, 2009). One year later, he became Twitter's Chief Executive Officer. Costolo often embraced and utilized his comedic talents in the business world, and had an enormous impact on Twitter and its company culture (New York Times, 2012). TIME magazine (2013) named him one of the most influential CEO's in the tech industry. In addition to Costolo, many other influential people often seem to be humorous, think of people such as Barack Obama, Abraham Lincoln, Gandhi, and Einstein. Is this a coincidence?

To answer this question, it is first important to note that individuals differ in regard to how motivated they are to influence others. In the past several decades, implicit power motives have played an important role in examining these differences and effects on long-term behavior patterns (Fodor, 2009). The implicit power motive represents a relatively enduring motivational disposition to strive towards opportunities and incentives to influence, control or impress others (McClelland, 1987). Importantly, power-motivated individuals are not only motivated to influence others, but are also skilled in adopting behavioral means and context-specific strategies to be influential (Schultheiss & Brunstein, 2002). Gaining influence on others can manifest itself in performing a variety of behaviors. Varying from direct expression of dominance behavior – such as egoistic or aggressive behavior, to behavior in a more socially acceptable subtle way – such as persuasive communication or eliciting strong emotions in others (Schultheiss, 2008).

A subtle manifestation to gain influence may lie in the use of humor, as humor is seen as one of the most desired human traits, both socially and sexually (Keltner, Young, Heerey, Oemig, & Monarch, 1998). In leadership context for instance, humor is seen as a valuable means to facilitate influence processes, since it enables one to communicate both power and

politeness, often simultaneously (Holmes & Marra, 2006). Moreover, humor can be used to elicit feelings of closeness among strangers (Fraley & Aron, 2004; Greengross & Miller, 2008). Why individuals differ in humor ability, however, has not been widely studied yet. Research on humor production ability reveals gaps with regard to personality dispositions and cognitive predictors (Greengross, Martin & Miller, 2012). While the power motive has been found to predict a variety of behavioral means and context-specific strategies (Schultheiss, 2008), no study to date has examined the relation with humor ability and its manifestations as a means of exerting influence.

Dual System Approach: Implicit Motives & Explicit Motives

To be motivated means to be moved to do something (Deci & Ryan, 2002), but what causes power-motivation and how can it be measured? Research on motivation and measures, has a long tradition within the field of psychology. Primarily, dual system approaches have been influential and adapted in measuring and understanding differences in motivational psychology. The general assumption is that an individual is a complex system, that is composed of several subsystems (Brunstein et al., 1998; Deci & Ryan, 2002). Based on this assumption, McClelland (1980) constituted two independent distinct operating motivational systems as a conceptual framework for human motivation. The most important implication of this conceptual distinction, is that there are two different sources that make an individual moved to do something. A system, in which people can explicitly report on what motivates them, and another system that is driven through unconscious awareness (McClelland et al., 1989). Particular attention has been drawn to implicit and explicit motive systems, which are assumed to orient, select, and energize behavior (McClelland et al., 1989; Schultheiss, 2008). Both systems are often categorized according to similar motive themes (Brunstein et al, 1998), for example in achievement, dominance, and affiliation-related categories (Jackson, 1984; McClelland et al., 1989). Individual differences are defined as motives or motive dispositions, whereas

expressions of these motives are referred to as motivation or motive imagery (Ditlmann et al., 2017; Schultheiss, 2008). However, a fundamental proposition of dual motive system approaches is that implicit and explicit motives are largely operating and activated in an independent way: they are related to different aspects of an individual (Brunstein et al., 1998; McClelland et al., 1989).

Implicit motives are largely unavailable through conscious awareness and are related to unconscious needs. An implicit motive is conceptualized as an unconscious, affect-driven, motivational disposition that leads to enduring preferences for specific classes of affective incentives (McClelland et al., 1989). Implicit motives develop early in life and are relatively independent of social demands and normative pressure (Koestner et al., 1991). They predict behavioral impulses and unplanned behavior, that is often characterized as spontaneous, expressive and pleasurable and is aroused by factors intrinsic to an activity (Deci & Ryan, 2000; McClelland et al., 1989). For instance, implicit motives predict relatively more internalized standards of excellence during tasks, more response to a challenge inherent in an activity, and less response to external instructions during tasks (Koestner et al., 1991). In contrast, explicit motives are available through conscious awareness. They are defined as the reasons people self-attribute for their behavior, and are therefore conceptualized as a self-concept-regulated system (McClelland, 1995; McClelland et al., 1989). They predict planned behavior, that interact with social incentives and demands and are strongly aroused by factors extrinsic to an activity (Deci & Ryan, 2000; McClelland et al., 1989). For instance, explicit motives predict relatively more response to external- instructions, expert opinions during tasks, and social norms. (Koestner et al., 1991).

Implicit motives seem more appropriate to determine the long-term behavioral patterns (Brunstein & Maier 2005; McClelland et al., 1989; Spangler, 1992). This might be due the assumption, that engagement in behavior congruent with implicit motives, leads to more

satisfaction, and in turn, accumulates emotional well-being over time (Brunstein et al. 1998). However, engagement in behavior congruent with implicit motives, often requires effort and competencies. For instance, an individual with a motive for power must first learn the skills that enable him or her to acquire and maintain power. Accordingly, research has shown that implicit motives not only predict how much satisfaction someone gets from engaging in motive-congruent behavior, but also from motive-congruent goal-striving and progress towards a goal (Brunstein et al. 1998; Schultheiss & Kollner, 2014). Thus, a person with a strong implicit power motive also derives energy and pleasure from developing skills to achieve his goal, and is therefore more likely to develop such competences.

Empirical findings firmly established the notion of a two-systems model of motivation which defines implicit and explicit motives as two distinct constructs. Generally, implicit motives appear to shape self-initiated and spontaneous behavior, which enables predicting long-term behavioral patterns (Brunstein & Maier 2005; McClelland et al., 1989; Spangler, 1992). On the contrary, explicit motives shape deliberate responsive behavior to specific situations and appears to be better at predicting short term behavior in response to extrinsic demands of a situation (Bernecker & Job, 2011; McClelland, 1985). Notably, Spangler's (1992) meta-analysis indicated that implicit and explicit motives are empirically uncorrelated and display divergent predictive validity (McClelland et al., 1989; Schultheiss & Kollner, 2014). In the present study, the central proposition of a two-system model of motivation is applied and followed, in which behavior is regulated by two distinct systems. Particular emphasis is on implicit motives, since they are distinct from explicit beliefs that people hold about their motivational needs and are considered to be more appropriate in determining long-term behavior.

Implicit motives. Over the last several of decades, the majority of prior research on human motivation and implicit motives has focused primarily on the “Big Three Motives”,

often referred to as the need for (*n*) Affiliation, Achievement and Power (Schultheiss, 2008). The *n*Achievement represents the capacity to derive satisfaction from autonomous mastery of challenging tasks (McClelland, 1987; Schultheiss, 2008) and the need to attain a high standard or do well compared to a standard of excellence (Schultheiss & Pang, 2007). As a result, achievement-motivated individuals prefer to work on tasks that demand their full effort and capacity (Pang, 2010). The *n*Affiliation represents the capacity to derive satisfaction from establishing, maintaining and restoring positive relationships (Heyns et al., 1958; Weinberger et al., 2010). Affiliation-motivated individuals derive satisfaction from spending time with people and out of their intimate relationships (Dufner et al., 2015). Finally, the *n*Power represents the capacity to derive satisfaction from having physical, mental, or emotional impact on others and an aversion to the experience of impact of others on themselves (Schultheiss, 2008; Schultheiss et al., 2005). Therefore, power-motivated individuals display strong energetic actions, elicit strong emotions in others and have a high concern for reputation (Kollner & Schultheiss, 2014). The present study has a particular focus on *n*Power.

Implicit power motive. Despite the eventual objective of *n*Power may be dominance over others, the prevailing definition for *n*Power has appealed to focus on the necessary steps toward dominance, which is predominantly having impact on others. This an essential distinction to mention, since the *n*Power yields a stereotypical portrayal of egoistic, aggressive and dominant behavior (Kollner & Schultheiss, 2014). Although some power-motivated individuals may express less socially appropriate behavior (Hofer et al., 2010; Rawolle, Schultheiss, Strasser, 2017), more often they have been found to be adept and intelligent in their recurrent goal striving for impact experiences (McClelland & Burnham, 2003). Not only are power-motivated individuals able to signal opportunities for impact or influence (Fodor, 2009), they often tend to be classified as persuasive and competent by others (Schultheiss & Brunstein, 2002). Another study demonstrated that power-motivated individuals tend to acquire socially

engaging communication strategies that were perceived as warm and had a greater impact on their audience (Ditlmann, Purdie-Vaughns, Dovidio & Naft, 2017). In line with these findings, research by Anderson and Kilduff (2009) demonstrated that socially appropriate behaviors can lead to being perceived as more friendly in groups, which in turn, results in a higher status and reputation. Therefore, they suggested that individuals who strived for reputation and status succeeded through acting strategically pro-social.

Recently, a new body of research has emerged from different domains that focused on the underlying mechanisms of how power-motivated individuals thrive at having social impact. Research within the neurobiological field on power-motivated individuals, demonstrated enhanced processing and memory for emotional signals, even below the threshold of conscious perception (Wang et al., 2014). Likewise, studies within the field of social cognition have shown that they are agile in detecting and classifying emotional facial expressions of others (Donhauser et al., 2015; Vongas & Hajj, 2017). Furthermore, studies showed that power-motivated individuals have a preference of viewing submissive faces over dominant faces and that they are adept in learning behaviors reinforced by low power emotional cues and signals of others (Stoeckart et al., 2018). This might be due to the assumption that they associate facial submissiveness with the opportunity of exerting dominance (Stanton et al. 2010) and associate dominant faces with aversion to impact on themselves (Schultheiss, 2008).

Altogether, power-motivated individuals seem to have a relatively high sensitive social-impact detection system, that empowers them to optimize their behavior for exerting influence (Schultheiss & Schiepe-Tiska, 2013). Instead of less social appropriate or egoistic behavior, power-motivated individuals often exhibit prosocial behavior in which they are perceived as warm and competent. These behavioral strategies might be optimized by power motivated individuals in consideration of their reputation and status, in order to achieve the ultimate goal of dominance. This line of reasoning is congruent with the assumption that implicit motives act

on a functionality principle in which behavioral means and strategies that lead to motive-related rewards, is more prone to be developed and applied (Schultheiss & Brunstein, 2002). Gaining influence in a socially desired manner may manifest itself in various ways. A subtle instrument to elicit strong emotions, be persuasive and gain influence may lie in the use of humor.

Humor Styles and Ability

Although people may not immediately associate the need for power with humor production ability, there is reason to believe these two psychological constructs are related. Humor is involved in most human behavior (Martin & Ford, 2018). A good sense of humor is considered as one of the most desired human traits (Keltner et al., 1998). Consistently, extensive theories provided evidence that humor plays an important role in shaping, maintaining and regulating interpersonal relationships (Lefcourt, 2001; Shiota et al., 2004). Individuals with a good sense of humor are perceived as warm, intriguing and intelligent (Cann & Calhoun, 2001; Kaufman et al., 2008; O'Quin & Derks, 1997). Using humor often enables individuals to evoke feelings of closeness, both among strangers and established relationships (Fraley & Aron, 2004). However, different styles of humor are acknowledged that serve different functions in everyday life.

Martin et al., (2003) identified distinctive humor styles that serve different functions. Based on a comprehensive review of previous theoretical and research literature, four main dimensions of humor expression are suggested, two of which are considered relatively healthy or adaptive and two as relatively unhealthy. Affiliative humor (tendency to amuse others and promotes social cohesion) and self-enhancing humor (humorous view on the world and used as coping) are considered as adaptive. In contrast, aggressive humor (sarcasm, use of humor to humiliate others) and self-defeating humor (excessive self-contemptuous humor, such as avoidance or denial) are considered maladaptive (Martin et al., 2003; Martin & Ford, 2018). The present study focuses on the affiliative humor dimension, since it contains an interpersonal

focus, that is considered socially adaptive, for both self and others.

The use of affiliative humor is often related to a desire to relate, entertain and improve relationships with others. Individuals high in this dimension, tend to use spontaneous humor to amuse others, facilitate relationships and reduce tension (Lefcourt, 2001). Affiliative humor is associated with self-esteem, interpersonal cohesion, interpersonal attraction, and in general positive feelings and emotions. It is considered as a non-hostile, socially accepted use of humor that is affirming of both self and others (Martin et al., 2003). Moreover, research have shown that individuals are less likely to engage in future interactions, with individuals that displayed maladaptive humor styles, compared to individuals that displayed an affiliative humor (Kuiper et al., 2010)

Despite the seemingly positive and desired effects, individuals differ in the use of humor. This might be due to the assumption that sense of humor is a multi-faceted construct, that requires multiple independent related traits and can therefore differ per individual (Martin et al., 2003). For instance, it can be conceptualized as a stable personality trait (Ruch, 2010), a habitual behavioral tendency (Craik, Lampert, & Nelson, 1996), or a cognitive ability (Feingold & Mazzella, 1993). Similarly, individuals differ substantially in humor production ability – the ability to generate funny ideas and use of humor on the spot. While some people are perceived as immensely humorous, others are perceived as extremely unfunny, and most are somewhere in between (Greengross et al., 2012). Although there are many studies on humor production ability, antecedents of differences in humor production ability remains limited. Despite the growing interest from different fields such as cognitive psychology, creativity research and evolutionary psychology (Bressler, Martin, & Balshine, 2006; Greengross, Martin, & Miller, 2012; Greengross & Miller, 2011; Kozbelt & Nishioka, 2010), there remain gaps in research on humor production ability, along with its personality dispositions, cognitive predictors and the relation to different humor styles (Greengross, Martin & Miller, 2012).

Present Study

As mentioned, behavior that is congruent with implicit motives leads to positive affective experiences (Brunstein et al., 1998). The *n*Power has appealed as predominantly a need of having impact on others. As a result, power-motivated individuals display strong energetic actions, elicit strong emotions in others and have a high concern for reputation. (Kollner & Schultheiss, 2014). Importantly, high implicit power individuals are not only motivated to influence others but are also particularly adept at adopting context-specific strategies to be influential (Schultheiss & Brunstein, 2002). Instead of less social appropriate or egoistic behavior, power-motivated often exhibit strategically prosocial behavior in which they are perceived as warm and competent, which subsequently leads to a higher status and good reputation (Anderson & Kilduff, 2009). These behavioral strategies might be optimized by power motivated individuals since they are more prone to developed and express strategies that lead to motive-related rewards (Schultheiss & Brunstein, 2002). Although gaining influence in a socially desired manner may manifest itself in various ways, a socially engaging communication strategy may yield in the use of humor due to its desirable characteristics. However, while the power motive has been found to predict a variety of behavioral means and context-specific strategies (Schultheiss, 2008), no study to date has examined the relation with humor production ability and its manifestations as a means of exerting influence. Similarly, it has not been widely studied yet why individuals differ in humor production ability (Greengross, Martin & Miller, 2012).

The aim of the present study is to explore how the implicit power motive may be related to the ability and expression of affiliative humor – a subtle behavioral strategy that at first glance might not seem related to the power motive. Hereby, the present study offers two distinct contributions to the scientific literature. First, to extend the breadth of the current knowledge-base of fields interested in human motivation, by exploring new forms of expressions of implicit

motives, particularly the power motive. Secondly, by narrowing the relatively unexplored gap between humor production ability and its predictors. In doing so, it is hypothesized that individuals high in *nPower*, possess more humor production ability than individuals relatively low in *nPower*. Furthermore, it is expected that individuals high in *nPower* are more likely to express an affiliative humor style, compared to individuals relatively low in *nPower*.

Method

Participants and Design

The present research included 138 participants (78 females, 59 males and 1 gender variant). Their age ranged between 18 and 74 years and participants reported the following percentages 18-24 years old (1,4%), 25-34 years old (25,4%), 35-44 years old (33,3%), 45-54 years old (15,9%), 55-64 (21,0%) and 65-74 (2,9%). They were 89,1% White, 8,0% Asian, 3,6% Black or African American, 1,4%, and 2,9% American Indian, Alaska Native, Hawaiian or Pacific Islander or Other. The entire study was programmed in Qualtrics software. Participants were recruited using a convenience sampling method through the American platform Amazon Mechanical Turk (MTurk), and were financially compensated for their participation. The required number of participants for the current study was calculated using a G * power analysis that recommended a sample of 175 participants (Faul, et al., 2009), however this guideline was not completely met in the final sample size due to a lack of participants on the Amazon MTurk platform who were willing to complete this study. Perhaps this was due to the length of the study (45 minutes). There were 22 participants eliminated from the original sample size ($N = 160$). Thirteen participants were eliminated for incomplete data and 9 participants were excluded since they did not meet the inclusion requirements of the used measure instruments, which will be explained more detailed in the preparatory data-analysis section.

The present study used a correlational study design to examine the relation between the

need for power (*nPower*) and the ability to produce humor, and the relation between *nPower* and the use of affiliative humor.

Materials and Procedure

Implicit power motive. To assess participants' *nPower* the present study started with the 'Picture Story Exercise' (PSE; Koestner & McClelland, 1992; McClelland et al., 1989). The PSE is a projective measure in which participants write imaginative stories in response to a set of picture cues. It is a modern version of story-based thematic apperception method and is the most widely used method to capture and assess implicit motives, especially the "Big Three" motives (Schultheiss et al., 2009). Thematic story analysis refers to methods in which complex cognitive personality processes from an individual can be assessed through written or oral responses to open-ended questions. Subsequently, naturally-occurring narrative content can be analyzed. The methodology is open ended and non-reactive. Therefore, it is less likely that participant's responses will contain limitations of introspection and accessibility, that are often found in self-report measures for cognitive processes (Nisbett & Wilson, 1977). Prior research substantiates the belief and consensus that the PSE is a reliable, valid, and stable measure of implicit motives (Pang, 2010; Schultheiss & Pang, 2007; Schultheiss & Schultheiss, 2014). Additionally, previous studies have demonstrated that the PSE shows no or only small correlations with explicit motive measures (Köllner & Schultheiss, 2014).

In the present study the PSE consisted of the following six pictures, in random order of their presentation: *Women in Laboratory*, *Ship Captain*, *Nightclub Scene*, *Couple by River*, *Trapeze Artists*, and *Boxer* (McClelland 1975; Smith, 1992). These pictures have been used extensively in past research on implicit motives and their cue properties are described in Schultheiss and Pang (2007). Each picture was shown for 10 seconds on a white background and then was replaced by a screen with writing instructions adapted from Schultheiss and Pang (2007): "In the Picture Story Exercise, your task is to write a complete story about each of a

series of six pictures—an imaginative story with a beginning, a middle, and an end. Try to portray who the people in each picture are, what they are feeling, thinking, and wishing for. Try to tell what led to the situation depicted in each picture and how everything will turn out in the end.” For each picture, participants had 5 min to write an imaginative story. Stories were later coded for motivational imagery, separately by two trained scorers using Winter’s (1994) Manual for Scoring Motive Imagery in Running Text. Both scorers exceeded confidence agreement $> .85$ with practice materials pre-scored by experts. The intraclass correlation coefficient (ICC) was used to assess inter-rater reliability. A two-way mixed-effect model based on fixed average measures along with 95% confidence intervals was computed on *nPower* scores from both raters, $ICC = .889$. In a similar way, the ICC was applied to *nAchievement*, $ICC = .896$, and *nAffiliation*, $ICC = .886$. According to the criteria and interpretation of Landis and Koch (1977), ICC indicate almost perfect agreement between raters. According to Winter’s (1994) manual, power motive imagery (*nPower*) was scored whenever the participant’s story mentioned a concern about having impact on others through strong, forceful actions, and controlling, influencing, helping, impressing, or eliciting emotions in others. Affiliation motive imagery (*nAffiliation*) was scored whenever a participant showed concern for establishing, maintaining and restoring positive relationships. Finally, achievement-related imagery (*nAchievement*) if there was a mention of a high standard or a standard of excellence. The overall average power motive imagery scores from all stories ($M = 1.25$, $SD = .68$) correlated significantly with overall story length in words ($M = 104.48$, $SD = 34.86$), $r(137) = .68$, $p < .001$. Therefore, the power motive scores were subjected to word count correction through regression. The residuals were converted to z scores before being used as indicators of the strength of the implicit power motive in further data analysis. This procedure assured that power motive imagery scores were not just a by-product of verbal fluency (Schultheiss & Pang, 2007).

Explicit power motive. In contrast to implicit motives, explicit motives are self-attributed, cognitively accessible motives and thus can be measured directly using self-reports. Therefore, explicit motives were measured directly, by responding to self-statements in a questionnaire. To assess participants' explicit power motive, a shortened version of the 'Personality Research Form' (PRF) was administered (Jackson, 1984). The shortened PRF comprises three subscales (achievement, power, and affiliation), each consisting of 12 statements, six worded positively and six negatively. All statements were randomly presented and participants indicated whether each statement applied to them on a 7-point Likert type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). An example of a positively worded power item is "I try to control others rather than permit them to control me" and an example of a negatively worded power item is "I have little interest in leading others." Negatively worded items were recoded. The PRF is extensively used to assess personality across a wide variety of settings. Although the PRF was originally developed to assess different factors of personality, the subscales achievement, affiliation and dominance show many theoretical similarities with the "Big Three" motives, and is thus often used for explicit motive measures (Brunstein & Maier 2005; Schüler, 2010). The PRF is considered to be psychometrically sound and shows high internal consistency and test-retest reliability (Hogan, 1989). The Cronbach's alphas of the subscales in the present research were $\alpha = .919$ (*power*), $\alpha = .832$ (*achievement*), $\alpha = .832$. (*affiliation*).

Humor production ability. To assess humor production ability, participants completed the 'Cartoon Caption Task' (CCT). The CCT is the most commonly used task for humor assessment (Nusbaum & Silvia, 2017). The CCT requires participants to write a funny caption for caption-less cartoons. Subsequently, independent raters score the captions for funniness. This task is by far the most common task in humor assessment, although the actual cartoons presented to participants vary across studies (Nusbaum & Silvia, 2017).

Participants were presented five different caption-less cartoons and were asked to provide each cartoon with one funny caption of 250 characters or less within ten minutes in total. After the data was collected, two raters separately coded the funniness of each caption on a 7-point Likert-type scale ranging from 1 (*Not at all funny*) to 7 (*Very funny*). Again, the intraclass correlation coefficient (ICC) was used to assess inter-rater reliability. A two-way mixed-effect model based on fixed average measures along with 95% confidence intervals was computed on average scores from both raters. According to the criteria and interpretation of Landis and Koch (1977) there was almost perfect agreement between the two raters, $ICC = .863$. The mean rating score of both raters were converted to standardized scores, before being used as indicators of humor production ability in subsequent analyses.

Affiliative humor style. Finally, the participants completed the affiliative humor subscale of the Humor Styles Questionnaire (HSQ; Martin et al., 2003). The HSQ provides a simply administered assessment of distinct styles of humor and is one of the most widely used self-report measures of a multidimensional approach to sense of humor (Martin & Ford, 2018). The HSQ examines four dimensions corresponding to individual differences in the spontaneous experience and expression of humor. In the present study, solely the affiliative humor dimension was administered since it is considered a warm and benevolent adaptive style of humor that includes a focus on others, in contrast to the other dimensions (Kuiper, 2012). The affiliative humor dimension consists of 8 items rated on a 7-point, Likert-type scale, ranging from 1 (*totally disagree*) to 7 (*totally agree*). The items on the affiliative humor scale primarily relate to the tendency to adaptively enhance and facilitate interpersonal relationships in a way that is accepting for both self and others. An example of a positively worded affiliative humor item is “I enjoy making people laugh” and an example of a negatively worded item is “I usually can’t think of witty things to say when I’m with other people.” The five negatively worded items were recoded before they were used in further analysis. Prior research has shown that the

HSQ is psychometrically sound and a reliable and valid measure of sense of humor (Kuiper, Grimshaw, Leite, & Kirsh, 2004; Martin & Ford, 2018). The Cronbach's alphas of the affiliative humor subscale in the present study was $\alpha = .897$.

Preparatory Data-analysis

After data collection, the entire data file was exported from Qualtrics to SPSS Statistics 24.0, which was used for all further analyses. First each participant was numbered and necessary adjustments in the data set were inspected. It was examined whether all participants had agreed to the informed consent. Participants who only read or accepted the informed consent without any further response or participation were excluded from the analyses. Subsequently, a "missing value" analysis was performed to check whether all questions were answered by the 160 participants who were remaining. Due to incomplete or missing data on the PSE and CCT, 13 participants were excluded for further analysis. Based on exclusion criteria from Pang (2010), nine other participants were excluded for further analysis, since they wrote PSE stories with an average of fewer than 30 words. The final sample size for further analysis in the present study included 138 participants.

Results

Preliminary Analyses

Preliminary analyses crossed demographic variables (gender, age and educational level) with the dependent variables of interest (implicit power, explicit power, humor production ability and affiliative humor style). An independent samples *t* test was used to assess explicit power motive scores reported by males ($N = 59$) to the explicit power motive scores reported by females ($N = 78$). Shapiro-Wilk was non-significant, indicating that the assumption of normality was not violated. Levene's test was non-significant, thus equal variances can be assumed. The *t* test was statistically significant, with males ($M = 4.25$, $SD = 1.29$) reporting

higher explicit power motive scores, than females ($M = 3.48$, $SD = 1.21$), $t(135) = 3.60$, $p < .001$, $d = 0.06$. Preliminary assumption testing indicated that males explicit humor scores ($M = 5.30$, $SD = 1.09$) and females explicit humor scores ($M = 4.66$, $SD = 1.34$), were not normally distributed, and that there was substantially more variance in scores of females. Consequently, Welch's t test was used to assess males and females explicit humor scores. The t test was significant, $t(134.02) = 3.13$, $p < .001$, $d = 0.05$. However, effect sizes of this magnitude are trivial (Cohen, 2013). No other demographic variables were found to have significant effects on dependent measures. This indicates that, besides gender, other demographic variables cannot explain differences that are observed in further analyses of the main variables. Table 1 shows the means and standard deviations of the main dependent measures.

Table 1

Descriptive statistics of main variables

Variables	$M (SD)$	Minimum	Maximum
1. Implicit power motive	1.25 (0.68)	0.00	3.42
2. Explicit power motive	3.81 (1.30)	1.08	6.75
3. Humor production ability	4.27 (0.92)	1.20	5.70
4. Affiliative humor style	4.95 (1.28)	1.13	7.00

Note. Implicit Power Motive is measured with the Picture Story Exercise, Explicit Power with the Personality Research Form, Humor Production Ability with the Cartoon Caption Task and affiliative humor style with the Humor Styles Questionnaire. Although the analyses were performed on standardized scores of the implicit power motive and humor production ability, unstandardized scores are presented here for interpretability.

Main Analyses

Correlational analyses (Pearson, two-tailed) were used to examine the relations between all motive and humor variables and can be found in Table 2. Correlational analyses were used, since the present study has particular interest in absolute associations between variables, and is not necessarily interested in statistically controlling for other motives. Besides, in line with previous studies (Kolner & Schultheiss, 2014; McClelland et al., 1989; Sprangler, 1992), there is no overlap between the implicit power motive and the other implicit motives, nor between the implicit power motive and the explicit power motive. It is therefore not necessary to control for other motives. Notably, there was no significant correlation between humor production ability and affiliative humor style, which will be further addressed in the discussion section.

In the present study it was hypothesized that individuals high in *n*Power, have a stronger humor production ability than individuals relatively low in *n*Power. In contrast with the hypothesis, the analysis showed no significant association between *n*Power and humor production ability, $r(136) = -.006, p < .01$. Furthermore, it was expected that individuals high in *n*Power are more likely to express an affiliative humor style, compared to individuals relatively low in *n*Power. Consistent with this hypothesis, the correlation analysis showed that there was a significant positive association between the implicit power motive and affiliative humor, $r(136) = .228, p < .01$. Taken together, the present findings suggest that individuals high in *n*Power do not differ significantly in their humor production ability from individuals relatively low in *n*Power, but are more likely to use an affiliative humor style.

Table 2

Pearson correlational analysis including main variables and achievement- and affiliation motives

Variables	1	2	3	4	5	6	7	8
1. Implicit power	–							
2. Implicit achievement	-.002	–						
3. Implicit affiliation	-.142	.215*	–					
4. Explicit power	.086	.089	-.066	–				
5. Explicit achievement	.128	.097	-.002	.369	–			
6. Explicit affiliation	.183	.110	.028	.323**	.431**	–		
7. Humor production ability	-.006	.010	-.081	.041	.066	.140	–	
8. Affiliative humor style	.228**	.049	-.074	.285**	.254**	.343**	.141	–

Note. $N = 138$, **correlation is significant when $p < .01$ (2-tailed). *Correlation is significant when $p < .05$ level (2-tailed)

Explorative Analyses

Additional Pearson correlational analyses were used to assess the extent to which the aforementioned predictive relations could be considered implicit and motive-specific. Similar

to the implicit power motive, no significant relation was found between humor production ability and the explicit power motive. Affiliative humor style on the other hand, also yielded a positive significant relation with the explicit power motive, $r(136) = .285, p < .01$. This suggests that individuals with a high self-attributed need for power do not possess more humor production ability than individuals with a low self-attributed need for power, although they seem more likely to use an affiliative humor style. This result also suggests that the hypothesized and observed correlation between the need for power and affiliative humor is not specific to the implicit power motive; it also holds for the explicit power motive.

Furthermore, analyses also showed significant associations between affiliative humor style and the explicit achievement motive, $r(136) = .254, p < .01$, and the explicit affiliation motive $r(136) = .343, p < .01$. These findings suggest that aforementioned relations between the implicit power motive and affiliative humor style may not be implicit or motive-specific. Finally, no significant relations between *nPower* and other implicit motives were found. This indicates that other implicit needs cannot explain previous findings observed for *nPower*.

Discussion

The present study aimed to explore if the implicit power motive (*nPower*) is related to humor production ability, and an affiliative humor style as a means of exerting influence. It was hypothesized that individuals high in *nPower* would have stronger humor production ability, than individuals relatively low in *nPower*. Finally, it was hypothesized that individuals high in *nPower* are more likely to exhibit an affiliative humor style.

The first hypothesis on the relation between *nPower* and humor production ability was rejected. This contrasts with prior studies, suggesting that power-motivated individuals are particularly adept in developing, optimizing and expressing adaptive behavioral strategies that lead to motive-related rewards, such as gaining influence (McClelland & Burnham, 2003; Schultheiss, 2008; Schultheiss & Brunstein, 2002). It is also contrary to studies that considered

humor a non-hostile, socially adaptive construct (Martin et al., 2003) that facilitates influence processes in specific contexts due to its desirable characteristics (Holmes & Marra, 2006). The present findings could simply indicate that power-motivated individuals do not possess stronger humor production ability than individuals relatively low in *n*Power. However, it is important to highlight the fact that differences in humor production ability, is a relatively unexplored area of research, given the relatively few studies on the cognitive psychology of humor (Christensen et al., 2018; Greengross, Martin & Miller, 2012). Although not widely studied yet, it should be noted, that there are considerable studies indicating general intelligence as an important cognitive predictor of differences in humor production ability. For instance, Howrigan and MacDonald (2008) reported a significant correlation between humor production and intelligence. Also, Christensen et al., (2018) illustrated the influential role of intelligence in the ability to come up with funny ideas. So alternatively, it could be argued that the present contrasting findings might also be due to the fact that the present study did not control for other cognitive variables and predictors. Nonetheless, it remains unclear to which extent other potential personality dispositions or cognitive predictors, such as general intelligence, might be accountable for the present absence of stronger humor production ability in power-motivated individuals.

Although there was no statistically significant relation between humor production ability and *n*Power, participants high in *n*Power reported a higher use of affiliative humor. This confirms the second hypothesis and is consistent with previous studies suggesting that affiliative humor is considered a socially adaptive use of humor that is affirming of both self and others (Martin et al., 2003). Moreover, it is consistent with studies demonstrating that power-motivated individuals are more likely to adapt and exhibit socially engaging communication strategies in which they are perceived as warm and competent (Cann & Calhoun, 2001; Dittmann et al., 2017; Kaufman et al., 2008; O'Quin & Derks, 1997).

Participants high on explicit need for power also reported significant higher use of affiliative humor style as did participants high on explicit- affiliation and -achievement. Taken together, these findings indicate that aforementioned findings between implicit power and affiliative humor style are not implicit and motive-specific. These findings are consistent with the notion that motives have no fixed repertoire of instrumental behaviors (Pang, 2010). This indicates that affiliative humor, can be exerted for different reasons and is not exclusive and specific to one motive. Importantly, present findings showed no significant relation between the implicit power motive and the explicit power motive, which is in line with the conception of two distinct motivational systems (McClelland, 1980) and a meta-analysis that demonstrated that implicit motive measures typically show no correlation with questionnaire motive measures of the same domain (Sprangler, 1992). It is therefore expected that the present findings still reflect divergent predictive validity of implicit and explicit motives (Kolner & Schultheiss, 2014; McClelland et al., 1989).

Limitations and Future Directions

The findings of the present study implicate that individuals high in *n*Power do not differ significantly in their humor production ability from individuals relatively low in *n*Power, but are more likely to have an affiliative humor style. However, it is necessary to point out that the findings of the present study, must be seen in light of some limitations.

The first limitation involves the correlational research method. Limitations of this study design naturally include the lack to provide conclusive information about causal relationships among variables. It is uncertain whether one variable causes changes in the other variable, as it could be that a third unknown variable is causing both variables to change together (Cronbach, 1975). Despite the present absence of a relatively stronger humor production ability in power-motivated individuals, future research could continue to explore the issue further. For instance, by controlling for potential personality dispositions or cognitive predictors, such as general

intelligence as a third variable (Christensen et al., 2018; Howrigan & MacDonald, 2008).

Secondly, it is important to note, that findings on humor production ability in the present study relied solely on the CCT. Although the CCT has dominated past humor research, there are growing appeals for more diverse complementary practical methods; methods that capture different sides of humor production, and its underlying abilities in task-specific contexts (Nusbaum & Silva, 2017). Thus, it would be of special interest for future research, to assess how power-motivated individuals differ in humor ability with task-specific requirements, such as persuading or influencing others using an affiliative humor style.

Finally, future research is recommended to further develop and confirm the promising finding that power-motivated individuals seem more likely to have an affiliative humor style. It is a novel finding, although it appears not to be limited to implicit or specific motives. Moreover, it is notable that there was no significant association between humor production ability and affiliative humor style. This might be due to the measures in the present study, that represent two different constructs. Affiliative humor style, measured with the HSQ, reflects a preference for a certain humor style (Martin & Ford, 2018). Additionally, since it is a self-report measure, less is known about actual abilities or impact in social interactions (Heinz, 2017; Klein & Kuiper, 2007). In contrast, humor production ability measured with the CCT, reflects an perceived ability to generate general humor (Nusbaum & Silvia, 2017), without a specific focus on an affiliative style. This suggests that power-motivated individuals prefer affiliative humor and use it more often, but are not necessarily perceived as funnier or as using it more effective. This issue could be further studied by including implicit measures of affiliative humor style in addition to the HSQ. For instance, through observations of how individuals display affiliative humor and employing experts ratings or by including humor appreciation through the judgement of peers (Carretero-Dios et al., 2009; Heinz & Ruch, 2017). This might reduce possible limitations of introspection and accessibility, that are often found in self-report

measures for cognitive processes (Nisbett & Wilson, 1977). Moreover, it could validate predictive conclusions that cannot be drawn from the present study, such as the likelihood of behavioral humor output, and how it is exerted.

Conclusion

While the power motive had been found to predict a variety of behavioral development and context-specific strategies (Schultheiss, 2008), no study to date had examined the relation with humor production ability and the use of affiliative humor as a means of exerting influence. Integrating two formerly distinct research fields, implicit motives and humor, led to two important contributions. First, the present study shed some light on the relatively unexplored gap between humor production ability and its predictors. Although the results did not confirm all expectations, the absence of a relation between humor production ability and *n*Power might be due to several limitations of the present study. Regardless, future research could continue to explore this issue further, by including other cognitive predictors and additional measures for humor production ability. Second, the present study explored new forms of expressions of implicit motives. It provides a good starting point for further research on the use of affiliative humor as a strategic tool to gain motive-related rewards.

Future investigations are necessary to thoroughly investigate humor ability and its manifestations as a means of exerting influence, as many other predictors and parameters remain unexplored. By integrating two formerly distinct fields of research, a greater understanding may be gained.

References

- Bernecker, K., & Job, V. (2011). Assessing implicit motives with an online version of the picture story exercise. *Motivation and Emotion, 35*(3), 251-266.
<https://doi.org/10.1007/s11031-010-9175-8>
- Bressler, E. R., Martin, R. A., & Balshine, S. (2006). Production and appreciation of humor as sexually selected traits. *Evolution and Human Behavior, 27*(2), 121-130.
<https://doi.org/10.1016/j.evolhumbehav.2005.09.001>
- Brunstein, J. C., & Maier, G. W. (2005). Implicit and self-attributed motives to achieve: Two separate but interacting needs. *Journal of personality and social psychology, 89*(2), 205.
- Brunstein, J. C., Schultheiss, O. C., & Grässman, R. (1998). Personal goals and emotional well-being: The moderating role of motive dispositions. *Journal of personality and social psychology, 75*(2), 494. <https://doi.org/10.1037/0022-3514.75.2.494>
- Cann, A., & Calhoun, L. G. (2001). Perceived personality associations with differences in sense of humor: Stereotypes of hypothetical others with high or low senses of humor. *Humor, 14*(2), 117-130. <https://doi.org/10.1515/humr.14.2.117>
- Carretero-Dios, H., Pérez, C., & Buela-Casal, G. (2009). Content validity and metric properties of a pool of items developed to assess humor appreciation. *The Spanish Journal of Psychology, 12*(2), 773-787. <https://doi.org/10.5167/uzh-64551>
- Christensen, A. P., Silvia, P. J., Nusbaum, E. C., & Beaty, R. E. (2018). Clever people: Intelligence and humor production ability. *Psychology of Aesthetics, Creativity, and the Arts, 12*(2), 136. <https://doi.org/10.1037/aca0000109>
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Academic press.

- Costolo, D. [DickCostolo]. (2009, Sept 13). *First full day as Twitter COO tomorrow. Task #1: undermine CEO, consolidate power* [Tweet]. Retrieved from <https://twitter.com/dickc/status/3962807808>
- Craik, K. H., Lampert, M. D., & Nelson, A. J. (1996). Sense of humor and styles of everyday humorous conduct. *Humor: International Journal of Humor Research*. <https://doi.org/10.1515/humr.1996.9.3-4.273>
- Cronbach, L. J. (1975). Beyond the two disciplines of scientific psychology. *American psychologist*, 30(2), 116. <https://doi.org/10.1037/h0076829>
- Deci, E. L., & Ryan, R. M. (2010). Intrinsic motivation. *The corsini encyclopedia of psychology*, 1-2. <https://doi.org/10.1002/9780470479216.corpsy0467>
- Ditlmann, R. K., Purdie-Vaughns, V., Dovidio, J. F., & Naft, M. J. (2017). The implicit power motive in intergroup dialogues about the history of slavery. *Journal of personality and social psychology*, 112(1), 116. <https://doi.org/10.1037/pspp0000118>
- Donhauser, P. W., Rösch, A. G., & Schultheiss, O. C. (2015). The implicit need for power predicts recognition speed for dynamic changes in facial expressions of emotion. *Motivation and Emotion*, 39(5), 714-721. <https://doi.org/10.1007/s11031-015-9484-z>
- Dufner, M., Arslan, R. C., Hagemeyer, B., Schönbrodt, F. D., & Denissen, J. J. (2015). Affective contingencies in the affiliative domain: Physiological assessment, associations with the affiliation motive, and prediction of behavior. *Journal of Personality and Social Psychology*, 109(4), 662.

- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Feingold, A., & Mazzella, R. (1993). Preliminary validation of a multidimensional model of wittiness. *Journal of Personality*, 61(3), 439-456. <https://doi.org/10.1111/j.1467-6494.1993.tb00288.x>
- Fodor, E. M. (2009). Power motivation. *Handbook of individual differences in social behavior*, 426-440.
- Fraley, B., & Aron, A. (2004). The effect of a shared humorous experience on closeness in initial encounters. *Personal Relationships*, 11(1), 61-78. <https://doi.org/10.1111/j.1475-6811.2004.00071.x>
- Greengross, G., Martin, R. A., & Miller, G. (2012). Personality traits, intelligence, humor styles, and humor production ability of professional stand-up comedians compared to college students. *Psychology of Aesthetics, Creativity, and the Arts*, 6(1), 74. <https://doi.org/10.1037/a0025774>
- Greengross, G., & Miller, G. (2011). Humor ability reveals intelligence, predicts mating success, and is higher in males. *Intelligence*, 39(4), 188-192. <https://doi.org/10.1016/j.intell.2011.03.006>
- Greengross, G., & Miller, G. F. (2008). Dissing oneself versus dissing rivals: Effects of status, personality, and sex on the short-term and long-term attractiveness of self-deprecating and other-deprecating humor. *Evolutionary psychology*, 6(3), 147470490800600303. <https://doi.org/10.1177/147470490800600303>

- Heintz, S. (2017). Putting a spotlight on daily humor behaviors: Dimensionality and relationships with personality, subjective well-being, and humor styles. *Personality and Individual Differences, 104*, 407-412. <https://doi.org/10.1016/j.paid.2016.08.042>
- Heyns, R. W., Veroff, J., & Atkinson, J. W. (1958). A scoring manual for the affiliation motive. *Motives in fantasy, action, and society*, 205-218.
- Hofer, J., Busch, H., Bond, M. H., Campos, D., Li, M., & Law, R. (2010). The implicit power motive and sociosexuality in men and women: Pancultural effects of responsibility. *Journal of Personality and Social Psychology, 99*(2), 380. <https://doi.org/10.1037/a0020053>
- Hogan, R. (1978). Review of the personality research form. In *The eighth mental measurements yearbook* (Vol. 1, pp. 1007-1008). The Gryphon Press Highland Park, NJ.
- Holmes, J., & Marra, M. (2006). Humor and leadership style. *Humor, 19*(2), 119-138. <https://doi.org/10.1515/HUMOR.2006.006>
- Howrigan, D. P., & MacDonald, K. B. (2008). Humor as a mental fitness indicator. *Evolutionary Psychology, 6*(4), 147470490800600411. <https://doi.org/10.1177%2F147470490800600411>
- Jackson, D. N. (1984). *Personality Research Form*. Port Huron, MI: Sigma Assessment Systems.
- Jenkins, S. R. (1994). Need for power and women's careers over 14 years: Structural power, job satisfaction, and motive change. *Journal of Personality and Social Psychology, 66*(1), 155. <https://psycnet.apa.org/doi/10.1037/0022-3514.66.1.155>

Kaufman, S. B., Kozbelt, A., Bromley, M. L., & Miller, G. R. (2008). The role of creativity and humor in human mate selection.

Keltner, D., Young, R. C., Heerey, E. A., Oemig, C., & Monarch, N. D. (1998). Teasing in hierarchical and intimate relations. *Journal of personality and social psychology*, 75(5), 1231. <https://psycnet.apa.org/doi/10.1037/0022-3514.75.5.1231>

Klein, D. N., & Kuiper, N. A. (2006). Humor styles, peer relationships, and bullying in middle childhood. *Humor*, 19(4), 383-404. <https://doi.org/10.1515/HUMOR.2006.019>

Koestner, R., & McClelland, D. C. (1992). The affiliation motive.
<https://doi.org/10.1017/CBO9780511527937.014>

Koestner, R., Weinberger, J., & McClelland, D. C. (1991). Task-intrinsic and social-extrinsic sources of arousal for motives assessed in fantasy and self-report. *Journal of Personality*, 59(1), 57-82. <https://doi.org/10.1111/j.1467-6494.1991.tb00768.x>

Köllner, M. G., & Schultheiss, O. C. (2014). Meta-analytic evidence of low convergence between implicit and explicit measures of the needs for achievement, affiliation, and power. *Frontiers in psychology*, 5, 826. <https://doi.org/10.3389/fpsyg.2014.00826>

Kozbelt, A., & Nishioka, K. (2010). Humor comprehension, humor production, and insight: An exploratory study. *Humor*, 23(3), 375-401. <https://doi.org/10.1515/humr.2010.017>

Kuiper, N. A. (2012). Humor and resiliency: Towards a process model of coping and growth.
<http://dx.doi.org/10.23668/psycharchives.1337>

Kuiper, N. A., Grimshaw, M., Leite, C., & Kirsh, G. (2004). Humor is not always the best medicine: Specific components of sense of humor and psychological well-being. *Humor: International Journal of Humor Research*.
<https://doi.org/10.1515/humr.2004.002>

- Kuiper, N. A., Kirsh, G. A., & Leite, C. (2010). Reactions to humorous comments and implicit theories of humor styles. *Europe's Journal of Psychology*, 6(3), 236-266.
<https://doi.org/10.5964/ejop.v6i3.215>
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *biometrics*, 159-174. <https://doi:10.2307/2529310>
- Lefcourt, H. M. (2001). *Humor: The psychology of living buoyantly*. Springer Science & Business Media.
- Martin, R. A., & Ford, T. (2018). *The psychology of humor: An integrative approach*. Academic press.
- Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of research in personality*, 37(1), 48-75. [https://doi.org/10.1016/S0092-6566\(02\)00534-2](https://doi.org/10.1016/S0092-6566(02)00534-2)
- McClelland, D. C. (1975). *Power: The inner experience*. Irvington.
- McClelland, D. C. (1980). Motive dispositions: The merits of operant and respondent measures. *Review of personality and social psychology*, 1, 10-41.
- McClelland, D. C. (1987). *Human motivation*. CUP Archive.
- McClelland, D. C. (1995). Scientific psychology as a social enterprise. *Unpublished manuscript, University of Boston*.
- McClelland, D. C., & Burnham, D. H. (2003). Power is the great motivator. 1976. *Harvard business review*, 81(1), 117.

- McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ?. *Psychological review*, 96(4), 690. <https://doi.org/10.1037/0033-295X.96.4.690>
- New York Times. (2012, Oct 6). *A master of improv, writing Twitter's script*.
http://www.nytimes.com/2012/10/07/technology/dick-costolo-of-twitter-an-improv-master-writing-its-script.html?pagewanted=all&_r0
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: verbal reports on mental processes. *Psychological review*, 84(3), 231. <https://doi.org/10.1037/0033-295X.84.3.231>
- Nusbaum, E. C., Silvia, P. J., & Beaty, R. E. (2017). Ha ha? Assessing individual differences in humor production ability. *Psychology of Aesthetics, Creativity, and the Arts*, 11(2), 231. <https://doi.org/10.1037/aca0000086>
- O'Quin, K., & Derks, P. (1997). Humor and creativity: A review of the empirical literature. *Creativity research handbook*, 1, 223-252.
- Pang, J. S. (2010). Content coding methods in implicit motive assessment: Standards of measurement and best practices for the picture story exercise. *Implicit motives*, 1, 119-151.
- Rawolle, M., Schultheiss, O. C., Strasser, A., & Kehr, H. M. (2017). The motivating power of visionary images: effects on motivation, affect, and behavior. *Journal of Personality*, 85(6), 769-781. <https://doi.org/10.1111/jopy.12285>
- Ruch, W. (Ed.). (2010). *The sense of humor: Explorations of a personality characteristic* (Vol. 3). Walter de Gruyter.

- Schüler, J. (2010). Achievement incentives determine the effects of achievement-motive incongruence on flow experience. *Motivation and Emotion, 34*(1), 2-14.
<https://doi.org/10.1007/s11031-009-9150-4>
- Schultheiss, O. C. (2008). *Implicit motives*. The Guilford Press.
- Schultheiss, O. C., & Brunstein, J. C. (2002). Inhibited power motivation and persuasive communication: A lens model analysis. *Journal of personality, 70*(4), 553-582.
<https://doi.org/10.1111/1467-6494.05014>
- Schultheiss, O. C., & Pang, J. S. (2007). Measuring implicit motives. *Handbook of research methods in personality psychology, 322-344*.
- Schultheiss, O. C., Pang, J. S., Torges, C. M., Wirth, M. M., & Treynor, W. (2005). Perceived facial expressions of emotion as motivational incentives: evidence from a differential implicit learning paradigm. *Emotion, 5*(1), 41. <https://doi.org/10.1037/1528-3542.5.1.41>
- Schultheiss, O. C., & Schiepe-Tiska, A. (2013). The role of the dorsoanterior striatum in implicit motivation: the case of the need for power. *Frontiers in Human Neuroscience, 7*, 141. <https://doi.org/10.3389/fnhum.2013.00141>
- Schultheiss, O. C., & Schultheiss, M. (2014). Implicit motive profile analysis: An if-then contingency approach to the picture-story exercise. *Social and Personality Psychology Compass, 8*(1), 1-16. <https://doi.org/10.1111/spc3.12082>
- Schultheiss, O. C., Wirth, M. M., Torges, C. M., Pang, J. S., Villacorta, M. A., & Welsh, K. M. (2005). Effects of implicit power motivation on men's and women's implicit learning and testosterone changes after social victory or defeat. *Journal of personality and social psychology, 88*(1), 174. <https://doi.org/10.1037/0022-3514.88.1.174>

- Schultheiss, O. C., Yankova, D., Dirlikov, B., & Schad, D. J. (2009). Are implicit and explicit motive measures statistically independent? A fair and balanced test using the picture story exercise and a cue-and response-matched questionnaire measure. *Journal of personality assessment, 91*(1), 72-81. <https://doi.org/10.1080/00223890802484456>
- Shiota, M. N., Campos, B., Keltner, D., & Hertenstein, M. J. (2004). Positive emotion and the regulation of interpersonal relationships. *The regulation of emotion, 68*.
- Smith, C. P., Atkinson, J. W., McClelland, D. C., & Veroff, J. (Eds.). (1992). *Motivation and personality: Handbook of thematic content analysis*. Cambridge University Press.
- Spangler, W. D. (1992). Validity of questionnaire and TAT measures of need for achievement: Two meta-analyses. *Psychological bulletin, 112*(1), 140.
- Stanton, S. J., Hall, J. L., & Schultheiss, O. C. (2010). Properties of motive-specific incentives. *Implicit motives, 245-278*.
- Stoeckart, P. F., Strick, M., Bijleveld, E., & Aarts, H. (2018). The implicit power motive predicts decisions in line with perceived instrumentality. *Motivation and emotion, 42*(3), 309-320. <https://doi.org/10.1007/s11031-018-9687-1>
- TIME. (2013, May 01). *TIME Tech 40: The Most Influential Minds in Tech*. <https://business.time.com/2013/05/01/time-tech-40-the-ten-most-influential-tech-ceos/slide/dick-costolo-twitter/>
- Vongas, J. G., & Al Hajj, R. (2017). The effects of competition and implicit power motive on men's testosterone, emotion recognition, and aggression. *Hormones and Behavior, 92*, 57-71. <https://doi.org/10.1016/j.yhbeh.2017.04.005>

Wang, J., Liu, L., & Yan, J. H. (2014). Implicit power motive effects on the ERP processing of emotional intensity in anger faces. *Journal of Research in Personality, 50*, 90-97.
<https://doi.org/10.1016/j.jrp.2014.03.005>

Weinberger, J., Cotler, T., & Fishman, D. (2010). The duality of affiliative motivation. *Implicit motives, 1*, 71-89.

Winter, D. G. (2002). The motivational dimensions of leadership: Power, achievement, and affiliation. In *Kravis-de Roulet Leadership Conference, 9th, Apr, 1999, Claremont McKenna Coll, Claremont, CA, US*. Lawrence Erlbaum Associates Publishers.

Wirth, M. M., Welsh, K. M., & Schultheiss, O. C. (2006). Salivary cortisol changes in humans after winning or losing a dominance contest depend on implicit power motivation. *Hormones and behavior, 49*(3), 346-352.

<https://doi.org/10.1016/j.yhbeh.2005.08.013>

Appendices

Appendix A

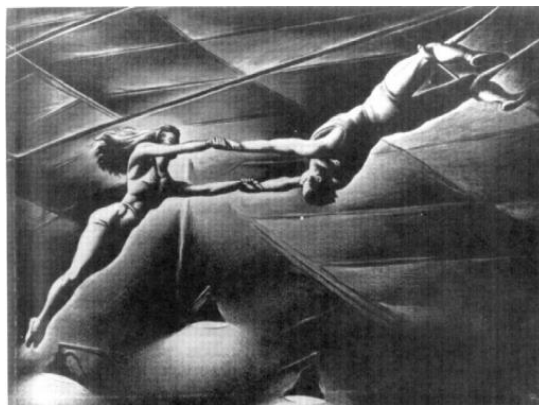
Picture Story Exercise



Nightclub Scene



Boxer



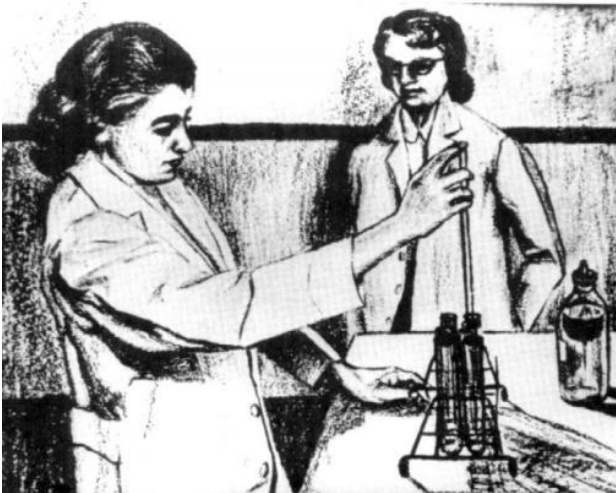
Trapeze artists



Couple by river



Ship Captain



Women in laboratory

Appendix B

A shortened version of the 'Personality Research Form' (Jackson, 1984)

The following statements were presented one-by-one in random order, with a 7-point Likert scale below them. Statements 1 through 12 measure the explicit achievement motive, statements 13 through 24 measure the explicit affiliation motive, and statements 25 through 36 measure the explicit power motive. The ones indicated with an asterisk (*), are reverse-coded.

1. "I enjoy doing things which challenge me."
2. "I will keep working on a problem after others have given up."
3. "I prefer to be paid on the basis of how much work I have done rather than on how many hours I have worked."
4. "People have always said that I am a hard worker."
5. "Sometimes people say I neglect other important aspects of my life because I work so hard."
6. "I enjoy work more than play."*
7. "I try to work just hard enough to get by."*
8. "I would rather do an easy job than one involving obstacles which must be overcome."*
9. "I really don't enjoy hard work."*
10. "When people are not going to see what I do, I often do less than my very best."*
11. "It doesn't really matter to me whether I become one of the best in my field."*
12. "I am sure people think that I don't have a great deal of drive."*
13. "I pay little attention to the interests of people I know."*
14. "Usually I would rather go somewhere alone than go to a party."*
15. "I seldom go out of my way to do something just to make others happy."*
16. "When I see someone I know from a distance, I don't go out of my way to say 'Hello.'"*
17. "I want to remain unhampered by obligations to friends."*
18. "I am quite independent of the people I know."*
19. "I believe that a person who is incapable of enjoying the people around him

misses much in life."

20. "Loyalty to my friends is quite important to me."

21. "I am considered friendly."

22. "I try to be in the company of friends as much as possible."

23. "To love and be loved is of greatest importance to me."

24. "Most people think I am warm-hearted and sociable."

25. "I try to control others rather than permit them to control me."

26. "I feel confident when directing the activities of others."

27. "I am quite good in keeping others in line."

28. "I seek out positions of authority."

29. "When I am with someone else I do most of the decision-making."

30. "I try to convince others to accept my principles."

31. "I am not very insistent in an argument."*

32. "I have little interest in leading others."*

33. "I would make a poor judge because I dislike telling others what to do."*

34. "I think it is better to be quiet than assertive."*

35. "I would not do well as a salesman because I am not very persuasive."*

36. "I don't have a forceful or dominating personality."*

Appendix C

Cartoons used in the Cartoon Caption Task





JON ADAMS



Ruthless



SCHAPP

Appendix D

Affiliative Humor dimension of the Humor Styles Questionnaire (Martin et al., 2003)

The ones indicated with an asterisk (*), are reverse-coded.

Affiliative Humor Dimension

- 1 I usually don't laugh or joke around much with other people *
- 2 I don't have to work very hard at making other people laugh—I seem to be a naturally humorous person.
- 3 I laugh and joke a lot with my closest friends
- 4 I rarely make other people laugh by telling funny stories about myself.*
- 5 I usually don't like to tell jokes or amuse people.*
- 6 I enjoy making people laugh.
- 7 I don't often joke around with my friends.*
- 8 I usually can't think of witty things to say when I'm with other people.*