

Foundations of Arrogance: A Broad Survey and Framework for Research

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Abstract

We consider the topic of *arrogance* from a cross-disciplinary viewpoint. To stimulate further research, we suggest three types of arrogance (individual, comparative, and antagonistic) and six components contributing to them, each logically related to the next. The components progress from imperfect knowledge and abilities to an unrealistic assessment of them, an unwarranted attitude of superiority over other people, and related derisive behavior. Although each component presumably is present to some degree when the next one operates, causality might flow between components in either direction. The classification of components of arrogance should reduce miscommunication among researchers, as the relevant concepts and mechanisms span cognitive, motivational, social, and clinical domains and literatures. Arrogance is an important concept warranting further study for both theoretical and practical reasons, in both psychopathology and normal social interaction. Everyone seems to have qualities of arrogance to some degree, and we consider the importance of arrogance on a spectrum. We contend that humankind can benefit from a better understanding of the cognitive limitations and motivational biases that, operating together, appear to contribute to arrogance. We bring together information and questions that might lead to an invigorating increase in the rate and quality of cross-disciplinary research on arrogance.

Keywords

arrogance, narcissism, hubris, overconfidence, overplacement, humility

Here we report broadly on the literature on *arrogance*. As a starting point, we adopt the definition from the Oxford English Dictionary online (September 3, 2018) of arrogance as “a high or inflated opinion of one’s own abilities, importance, and so on, that gives rise to presumption or excessive self-confidence, or to a feeling or attitude of being superior to others.” Arrogance potentially may be at the root of many problems in interpersonal relationships on many levels: dyadic, family, group, neighborhood, city, state, national, and worldwide. Yet, there is relatively little research on the topic. We suggest a classificatory framework (see Figure 1) that is intended to help sharpen discussions of the topic, with the goal of promoting research to explore what aspects of arrogance are ubiquitous among humans, what aspects differ among people, and what aspects are situation dependent.

Ancient mythology includes stories related to arrogance, such as that of King Xerxes, described by Aeschylus in *Persians*. Xerxes’s fleet was ruined by his overconfident assessment of his force compared with the Greeks. Drawing on such stories, in Aristotle’s *Rhetoric*, the notion of hubris (or insolence) is to shame another for no reason except the pleasure of seeing them so shamed, to elevate oneself by comparison. In religious contexts, hubris or arrogance is often associated with challenging the authority or superiority of gods (Grenz, 2000). Arrogance is apparently despised across cultures (Native Languages of the Americas Online Resources, 2019).

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Historical Roots of Arrogance

The concept of arrogance has a long, cross-cultural history (Bollaert & Petit, 2010; Picone, Dagnino, & Miná, 2014).

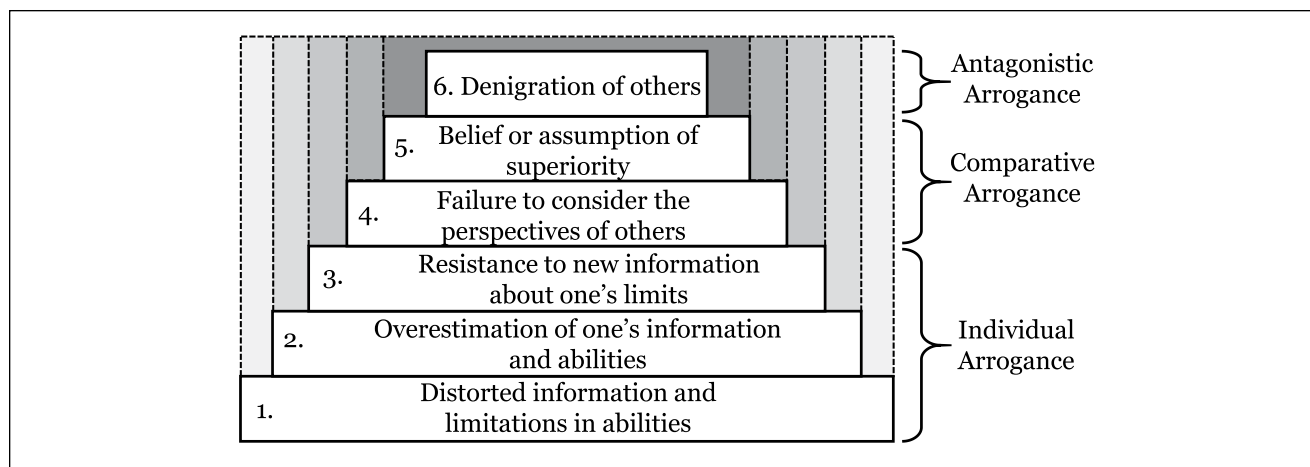


Figure 1. A depiction of hypothetical contributing components of arrogance (in stacked boxes) mapped onto types (to the right of brackets).

Arrogance as a Rarely Studied Cognitive, Motivational, and Social Phenomenon

Although some concept of arrogance seems common (perhaps ubiquitous) across cultures since ancient times, there is relatively little modern research on it. An examination of the database PsycINFO on November 1, 2018 using the general search term *arrogance* yielded only 421 results, and the related term *hubris* (excessive pride or self-confidence) yielded 285 results; *hubristic pride*, 109 results; and *overconfidence*, 1,162 results. These numbers seem small compared with the most often-studied individual traits (e.g., *antisocial behavior*, 97,830; *anger*, 33,636; *intelligence*, 159,164; and *depression*, 312,854). The related term *narcissism* has been studied somewhat more, with 9,829 entries (plus *narcissistic personality disorder* [NPD], 2,338). This brief characterization of the research landscape illustrates the opportunity for a new, broad survey of arrogance.

One reason why there is relatively little modern psychological research on arrogance may be because the field is rather divided into cognitive versus social aspects, whereas arrogance typically seems to combine cognitive flaws in the assessment of one's abilities or virtues with social aspirations for superiority. Relevant research occurs in many separate "silos," hampering interdisciplinary communication.

One recent study (Logg, Haran, & Moore, 2018) attempts to assess the combination of cognitive and motivational factors to examine overconfidence. It suggests that cognitive limitations, such as failures of perspective-taking, play a larger role than motivated self-bias. Thus, clarifying the criteria for success at a task reduces overestimation of oneself and self-overplacement relative to others. It is, however, somewhat difficult to distinguish clearly between cognitive and motivational factors in general, inasmuch as the cognitive

processes themselves can be influenced by motivated reasoning, the steering of one's own mental process to conform with one's social needs (e.g., Lodge & Taber, 2013).

A Proposed Classification of Types and Components of Arrogance

Three Types and Six Components of Arrogance

Given the extant research literature, it would be premature to attempt a definitive assessment of the mechanisms of arrogance. To inspire further research, our main contribution is to organize the literature related to arrogance into a working classificatory system, to identify factors in arrogance and to attempt to identify some aspects of the system that seem most promising for further research. We distinguish three types: *individual arrogance*, an inflated opinion of one's abilities, traits, or accomplishments compared to objective truths; *comparative arrogance*, an inflated ranking of one's abilities, traits, or accomplishments compared to other people; and *antagonistic arrogance*, the denigration or derision of others based on an assumption of superiority. These three types, expressing basic functions of arrogance, are further dissected in Figure 1 into six components of arrogance, potentially associated with different contributing mechanisms. The types and components are not meant as endpoints, but comprise an analytic perspective to help guide further psychological research.

Nature of Relation Between Arrogance Components

The types and components of arrogance depicted in Figure 1 are meaningful together because some of the concepts seem to implicate others. One cannot be overconfident about one's

knowledge in a domain (second largest box) without first having some relevant limitation in knowledge about that domain (largest box); if one disparages others unfairly (smallest box), one is likely to fail to take their perspective and, furthermore, one is likely to believe in one's superiority compared to them (third and second smallest boxes, respectively); and so on. Therefore, the position of each component in the figure reflects a close dependency. Yet, it is possible for causation to flow from smaller to larger boxes, as well. For example, if one hates an individual for any reason, one might be motivated to underrate their capabilities or motives. The directions of causation form one important topic for further research inspired by the scheme.

In Figure 1, notice that the more socially toxic components rest upon less toxic components. We believe that everyone has the first component (imperfect knowledge and abilities), most have the next component to some degree (misunderstanding of their own limits), and fewer and fewer people have extreme cases of the successively higher-numbered components. Overall, our view is that, to some extent, arrogance is part of the human condition, but that it differs among individuals in important ways, such as in motivated cognitions that can result in comparative arrogance and aversive emotions that can contribute to antagonistic arrogance.

Based on research we review, we can begin to articulate what the ideal treatment of an individual might look like. Component 1 (imperfect knowledge and abilities) cannot be eradicated, though it might be reduced in particular domains. We should tolerate or perhaps welcome some degree of overconfidence (Component 2) because it may assist an individual in functioning, for example, lending the courage to carry out a difficult mission or exert leadership. In contrast, we would try to keep in check the higher-numbered components, which tend to be socially maladaptive. One can see, then, the inherent potential for overconfidence to be inflated to the point that it spirals into maladaptive (comparative and antagonistic) types of arrogance.

Link to Other Concepts

Given a need for further research on arrogance, we will bootstrap the concept by adding in research on allied or contrasting concepts. For example, in his analysis of wisdom, Grossmann (2017) considers intellectual humility as a factor along with three others (compromise, recognition of uncertainty and change, and use of context including others' perspectives). These interlocking concepts appear to be learning-, situation-, and context-dependent states rather than primarily innate traits, and their absence could describe arrogance. Wright et al. (2017) point out the great difficulty of defining the term humility but end up with a definition in which one essentially understands one's abilities and knowledge, and also understands that one is embedded in a

society of other people with valid abilities and knowledge (called epistemological and ethical components). Similarly, Krumrei-Mancuso, Haggard, LaBouff, and Rowatt (2019) state, "Simply put, learning requires the humility to realize one has something to learn" (p. 1).

Most work on arrogance has been indirect. Arrogance is included as one symptom of NPD according to the current edition of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013; Dhawan, Kunik, Oldham, & Coverdale, 2010). This last, ninth symptom is described as "arrogant, haughty behaviors or attitudes." Other listed symptoms of NPD also seem highly relevant, including the first ("Grandiose sense of self-importance," for example, "Exaggerates achievements and talents, expects to be recognized as superior without commensurate achievements"), the third ("Believes that he or she is 'special' and unique and can only be understood by, or should associate with, other special or high-status people (or institutions)"), the fourth ("Requires excessive admiration"), the fifth ("Sense of entitlement"), the sixth ("Personally exploitative"), and the seventh ("Lacks empathy") (online DSM Library, November 2, 2018). We have no way to know the proportion of people clinically diagnosed with NPD who have relatively high amounts of individual, comparative, and/or antagonistic arrogance; these are clearly areas in need of further research.

There has been very little work to examine arrogance per se or to separate it out for special attention within the research on narcissism. To begin to do so, we examined a large epidemiological sample of data from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Grant & Kaplan, 2005; Grant, Moore, Shepard, & Kaplan, 2003). The primary focus of NESARC was not on NPD or arrogance per se, but the concept of arrogance appeared to be represented by a single survey question within a broader assessment of NPD: "Have you found that there are very few people who are worth your time and attention?" Although not a direct measure of arrogance, it suggests at least the fifth component, a belief or assumption of superiority (although the survey does not compare this judgment to actual abilities). From a sample of 34,653 individuals, an estimated 9% answered affirmatively to this question.¹ An additional, follow-up question for those answering in the affirmative was: "Did this ever trouble you or cause problems at work/school or with family/other people?" Those who answered affirmatively to both questions comprised an estimated 1% of the sample. Thus, people who endorsed the arrogance item did not report a problem with that. Recipients of arrogant behavior, on the contrary, often do perceive a problem (Lamkin, Maples-Keller, & Miller, 2018). Answers to the arrogance questions were well correlated with other questions related to narcissism. Participants who endorsed the

number of criteria required for a diagnosis of NPD in a clinical setting (having five out of nine symptoms, which may or may not include arrogance, and having distress or impairment from at least one symptom) made up 6% of the population, and 0.39 of those 6% positively answered the question we relate to arrogance (i.e., a little more than 2% of the population). It is apparently not arrogance that most of these participants found to cause distress or impairment, but rather one or more other, co-occurring narcissistic traits.

At subclinical and normal levels, we still deem the types of arrogance to be important. We contend that most people might be helped by becoming more aware of the processes involved in arrogance of the three types we have proposed.

Organization of the Remainder of the Article

We explain further the need to pursue the topic of arrogance (our research stance) and then suggest a decomposition of the three types of arrogance that we have suggested into six component processes that might contribute to them (see Figure 1). Within the description of each component process, we indicate how components of arrogance play out in various substantive domains of psychology. Then we examine how individuals may differ in the components of arrogance. We examine what the origins of the components of arrogance may be, along with their possible purposes that result in their continued existence in the population. We conclude with recommendations for a research program on arrogance.

Our interest is not only in varieties and degrees of arrogance that help characterize distress or psychopathology of the especially arrogant individual (notably, in the case of NPD), but also varieties that are toxic to those who interact with people displaying arrogance. We consider the origins of arrogance and its role in society more generally and strive to inspire improved research on the causes and consequences of different types of arrogance. For the eventual practical outcome of theoretically-driven research on arrogance, we hope that (a) people generally can learn to recognize how reducing different types of our own arrogance in daily life could improve many of our interpersonal interactions and (b) the field could develop insight into concepts regarding arrogance that could be of some use in practical training and clinical classification and intervention.

Decomposition of Arrogance

Individual Arrogance

Component 1: Distorted information and abilities. People have imperfect and distorted information on many levels, as documented below. These gaps and distortions of knowledge are universal, although with variation in the severity across

individuals and domains. We wish to underscore that imperfect information plays a role in many aspects of mental life and, when paired with unawareness of the limits (Component 2), produces overconfidence. Component 1 includes sensory and perceptual illusions, memory failures and distortions, attention limitations, incorrect facts, imperfect though usually good enough simplifications or heuristics for solving problems, assumptions about one's own motivations that are often demonstrably mistaken, biases in evaluating arguments, slips of the tongue and of action, and motor response inaccuracies.

Cognition starts with sensation (the intake of stimulation from the world) and perception (identification of objects and events). In this regard, a sort of perceptual foundation of arrogance can be shown in almost anyone in the form of optical and acoustic illusions. These are not rare or contrived; they occur in daily life. For example, in the moon illusion (Kaufman & Kaufman, 2000), the moon at the horizon looks larger than it does when overhead. In the inverted-T illusion, the horizontal piece looks shorter than the vertical piece, though they are identical. People perceive information that is useful, but imperfect (for a review, see Coren & Girgus, 1978).

Motivations can affect what was perceived (e.g., was the traffic light red, or only yellow, when one drove through?). Conversely, perception can affect higher-level knowledge. For example, an abstract object can be perceived as causing another to move by allegedly bumping into it, which affects even moral judgments about a possible culprit (de Freitas & Alvarez, 2018).

Perception may seem to include the entire environment, but attention is limited to a few items or events at a time (Cowan, 2001). People therefore have what is termed inattention blindness, a phenomenon in which even dramatic, sudden changes in the environment are not reliably perceived, unless the key features are specifically in the focus of attention when they change. For example, if a video shows a person in one scene changing to a different person in the same role after a cut to the next scene, many viewers will not notice (Simons, 2000). This limitation occurs in many circumstances in daily life, for example, when walking while talking on a mobile phone, with participants unaware of what they are missing (Hyman, Boss, Wise, McKenzie, & Caggiano, 2010).

In long-term memory, the information held over a lifetime, it has been shown that many memories that humans espouse are false ones. For example, Loftus and Palmer (1974) questioned observers of a video of an automobile accident and found that they could change aspects of the reported memory (e.g., by asking about the speed of a car when it "collided" vs. "smashed" into another, or by mentioning a yield sign in place of a stop sign). Roediger and McDermott (1995) later showed that they could often elicit false recall of a word (e.g., *shirt*) by presenting lists that

contained many semantic relatives of this target item (e.g., *sleeve, blouse, button*, etc.) but not the thematically central item itself. Even well-established knowledge can be corrupted by subsequent misinformation (Fazio, Barber, Rajaram, Ornstein, & Marsh, 2013).

A wealth of research on rational thought, decision making, judgment, and biases sheds light on near-universal cognitive limitations (e.g., Tversky & Kahneman, 1974, 1981). For example, we are prone to using mental shortcuts, or heuristics, when making decisions even though these heuristics can be misleading. Heuristics may be used because they ease the amount of difficult information processing that a person must do. For example, in one heuristic, easily available information is used because it spares the participant the difficulty of searching memory carefully and systematically. Illustrating that heuristic, people typically believe that deaths in plane crashes are more common than, say, deaths from influenza because news reports of plane crashes are more common. In another heuristic, the way a question is framed influences the answer. Thus, people favor a medicine that will “save 600 of 1,000” people over a medicine that will “allow 400 of 1,000 people to die”; word connotations are apparently processed more easily than exact probabilities. Heuristics usually yield good enough answers, as attested by humans’ continuing survival. However, the implicit trust in heuristics can give an individual an unwarranted conviction in a wrong answer, leaving him or her at odds with someone who has overruled a heuristic in favor of factual evidence and careful reasoning.

In social cognition, failures of information can come from faulty or incomplete perspective-taking (Pronin, 2008). Relatedly, our language input is confined not only by the limit in what we can hear, but also the limit in what we interpret. Memory for verbatim speech appears limited to the last phrase that was heard, with previous input mostly converted to meaning (Sachs, 1967). When one finds that the meaning that was at first assigned was wrong, it is often impossible to go back and recover what was said previously to reinterpret it correctly, and this is likely the basis of many interpersonal misunderstandings. Distorted information and limited abilities comprise the common human condition from which arrogance can emerge.

Component 2: Overestimation of one’s information and abilities. People typically have some mistaken assessments about their own information, knowledge, and abilities; often, those mistaken assessments are self-favoring, and this component (or overconfidence) is a factor that differs among individuals (e.g., Dunning, 2011; Moore & Healy, 2008; Prims & Moore, 2017).

People’s insight into their own abilities seem relatively good for language and poor for nonverbal communication skills (see Table 1 of Zell & Krizan, 2014), presumably

because of clearer feedback within language. Overestimation of one’s abilities sometimes may provide a benefit to the individual, but with possible drawbacks to the society. For example, the successful applicants for a certain position sometimes may be the most confident, but not the most qualified (cf. Ehrlinger & Dunning, 2003).

Overestimation of information and abilities can be gleaned by examining various kinds of judgments that are accompanied by “meta-judgments,” questions about how correct one’s judgment was, or will be. Many times, participants overestimate how much they know. For example, overestimation of what one can hold in mind (i.e., working memory capacity) can lead to overconfidence that one is not forgetting something important, and thus to the illusion of using sound thinking (Cowan et al., 2016). Interpersonal conflicts easily can arise when, for example, a married couple argues about what was actually said in a past conversation. Differences between two people in the initial perception of the event might lead to differences in the memory of the event. For example, two individuals might be remembering similar but different events without realizing it, with each one thinking with some confidence that he or she is correct and the partner is wrong. False recognition or recall in long-term memory typically occurs at high confidence (e.g., Roediger & McDermott, 1995). There are many memory distortions of which the recaller is often unaware, and trusting his or her own memory above the memory of others may be a major factor in interpersonal conflict (e.g., Lacy & Stark, 2013).

A key example of self-overestimation is the Dunning–Kruger effect, in which most individuals are relatively inaccurate at estimating their own performance and abilities, generally overestimating these (for a review, see Dunning, 2011). Although this effect could be considered simply the misapplication of heuristics for self-evaluation, what makes it seem like a case of motivated reasoning is that the large predominance of errors occurs when people overestimate, rather than underestimate, their own abilities. (Dunning also suggests that those at the top of actual performance tend to underestimate themselves, although this effect is less replicated.)

The Dunning–Kruger effect is strongest for areas in which the knowledge needed to assess one’s performance is similar to the knowledge needed to perform. For example, if one is bad at reasoning, one does not have all of the knowledge needed to understand the shortcomings of one’s reasoning. It is weaker when the success criterion is objective, as, for example, in the ability to hit a baseball (Dunning, 2011). A closely related finding is that people are more prone to overestimating themselves on broad, socially desirable attributes (e.g., intelligence), but are somewhat better estimators when asked to judge their performance on more specific tasks (e.g., second-language verbal comprehension; Zell & Krizan, 2014).

Component 3: Resistance to new information about one's own limits. Resistance to new information about one's limits could occur for both cognitive and social-motivational reasons. Cognitively, it is costly to make up one's mind, and people may economize by not changing their impressions after forming a first impression (e.g., Willis & Todorov, 2006), in this case after making up one's mind about what one knows. Motivationally, it may be aversive to learn that one's knowledge is less than or different from what one thought, as it could lower one's self-opinion and makes one feel foolish for not knowing, or insecure about one's ability to have self-knowledge.

It has generally been argued that much of the difficulty in overcoming motivated reasoning is that some of the motivations are implicit, and sometimes at odds with conscious motives (Bosson et al., 2008). As an example of resisting new information in a perceptual illusion, Flanagan and Beltzner (2000) examined the size-weight illusion, which occurs when people are presented with two objects of equal weight but unequal size. Upon lifting the weights, they tend to rate the smaller object as being heavier. Force sensors in this study indicated that participants at first tended to produce too much force lifting the larger weight, and not enough force lifting the smaller weight, making the smaller weight feel heavier. After five to ten trials, however, participants tended to apply similar amounts of force to lift both weights. Despite this training of the neuromuscular system, the size-weight illusion measured through explicit weight judgments remained unchanged; the smaller weight was judged heavier by comparable amounts before and after training, unaffected by the training. Thus, although the presumably automatic motor system did learn, the presumably conscious verbal system was resistant to this learning and was captured instead by the initial interpretation of the task.

There is some evidence that the Dunning-Kruger effect discussed earlier dissipates somewhat when individuals become more skilled at a task (Kruger & Dunning, 1999). Yet, when poorly skilled individuals receive concrete feedback on their performance, they tend to be less likely to seek out self-improvement compared with individuals with better skills (Sheldon, Dunning, & Ames, 2014). Ironically, therefore, resistance is highest when the feedback is most necessary.

Comparative Arrogance

Component 4: Failure to consider the perspectives of other individuals. Davis (1983) and Pronin (2008) offer many examples indicating that people generally cannot take the perspective of others very effectively. However, there are also large individual differences in perspective-taking. People may fail to consider the perspective or viewpoint of another individual either because of insufficient cognitive ability to do so or because of insufficient motivation.

Suggesting that cognitive and motivational reasons are combined, Cameron et al. (2019) found that people chose not to empathize with a person represented by a facial picture when a less cognitively demanding alternative task was also available, and the finding changed when the cognitive demands of empathy were reduced.

Because people differ in their beliefs, one of the most problematic heuristics is a bias in which one prioritizes evidence favoring one's opinion over evidence against it, the pervasive confirmation bias (Wason, 1960). As applied to a situation in which there are two sides to an argument, it is termed "myside bias" (Stanovich, West, & Toplak, 2013), a failure to consider others' views. For example, someone who believes in capital punishment may readily accept a new logical argument in its favor while not really thinking about a logical counterargument that is offered, and may be unduly skeptical of such counterarguments.

The susceptibility to myside bias differs among individuals in a manner that does not correlate with intelligence test results or general cognitive ability, depending instead on some other basic difference in cognitive style (for a review, see Stanovich et al., 2013). One reason for this non-correlation could be a nonlinear relation between knowledge and judgment. On one hand, individuals who score higher in intelligence may know more and have better achievements, about which they could be arrogant. On the other hand, as Dunning (2011) showed, these individuals also know more about what there is to know, making them more aware of their limitations. We might consider, moreover, that intelligence tests could be incomplete and may exclude personal characteristics that actually are important for intellectual growth and personal relationships (Cowan, 2016).

People also predominantly see themselves as much less biased as they think other people are. This point is dramatized in one study (Trouche, Johansson, Hall, & Mercier, 2016) in which participants were presented with arguments that they had produced themselves in response to reasoning problems, under the false cover story that the arguments had been produced by someone else. When those arguments were not recognized as the participant's own, they were often rejected, especially the errant ones.

Component 5: Belief or assumption of superiority. One gets direct evidence of one's own perspective but must simulate another person's perspective through mental work. Failure of complex cognition in this regard can lead to an overly egocentric viewpoint. One may overestimate one's efforts, abilities, or challenges relative to what another person experiences. Whether from motivated reasoning or failure of perspective-taking, there often appears to be overestimation of one's own abilities and accomplishments relative to those of other people, as we document below.

Explicit statements of superiority, as in our Component 5, tend to make an individual disliked (e.g., Van Damme, Hoorens, & Sedikides, 2016). Some research explores complex or difficult language by professional groups, sometimes perceived by laypeople as arrogant (Janicki, 2002). Work on natural language processing has found apparent misperceptions of arrogance of CEOs by shareholders (Craig & Amernic, 2016).

A feeling of superiority has been linked to hubris syndrome. Garrard, Rentoumi, Lambert, and Owen (2014) examined hubris among people in positions of power, namely, British prime ministers, and identified 14 criteria of this syndrome via analysis of their spoken discourse (cf. Carey et al., 2015). Specifically, Garrard et al. found evidence of seeking power and glory, concern with one's public image, talking like a messiah (e.g., Tony Blair talking about the September 11, 2001 terrorist attacks and the Iraq war in religious terms), identification with organizations and nations matching one's views, speaking in the third person and royal "we," excessive confidence and contempt for others' advice and criticism, exaggerated self-belief, not being accountable to the judgment of colleagues or public, unshakeable belief that they will be vindicated, loss of contact with aspects of reality, restlessness and reckless impulsivity, adherence to a broad vision while ignoring the cost or practical outcomes, and mishaps caused by ignoring details because of too much self-confidence (exemplifying especially the first five components of arrogance).

Antagonistic Arrogance: Component 6 (Denigration or Belittling of Others)

Finally, but importantly, a belief or assumption of superiority can be accompanied by the unwarranted denigration or belittling of other people. This component has been less commonly studied (and probably is less common) than the others, but is included in some wide-ranging research on arrogance.

The Workplace Arrogance Scale (WARS; Johnson et al., 2010) included questions asked to coworkers and supervisors, cross-tabulated with self-ratings. The questions seem to touch on Components 3 through 6. Specifically, there are questions regarding Component 3, resistance to feedback ("Welcomes constructive feedback" and "Avoids getting angry when his or her ideas are criticized"); Component 4, failure to consider the perspectives of others (e.g., "Makes decisions that impact others without listening to their input" and "Makes unrealistic time demands on others"); Component 5, feeling superior to others (e.g., "Believes that s/he knows better than everyone else in any given situation"); and Component 6, belittling others (e.g., "Uses nonverbal behaviors like glaring or staring to make people uncomfortable," "Belittles his or her employees publicly," and "Discredits others' ideas during meetings and often makes those individuals look bad").

We could find little additional work on this component but, providing one type of lead, it may prove to be especially related to several of the criteria for NPD other than the one called arrogance (DSM Library, 2018): the sixth, being interpersonally exploitative; the seventh, lacking empathy; and the eighth, being envious or afraid others are envious. Our expectation is that such qualities, along with our earlier components combined, would often lead to denigration of others.

Relationships Between the Components

Here we consider correlations between the components, correlations between each component and other survey questions, and differential effects or origins of the components.

Suggesting that many of the six components are related, items from the Johnson et al. (2010) WARS that we have taken to measure Components 3 through 6 all loaded at least .6 on a common workplace arrogance factor. This common loading suggests that these components share some individual subject variance. The first two components, having to do with misinformation or inadequate information and unawareness of that situation, have not been shown to be related and may come from different causes, but still presumably would serve as logically necessary in the creation of arrogance (just as losing a race could occur not only because of being incapable of moving muscles quickly enough, but also from having a foot injury, that is, a flawed foundation).

Some research does suggest that there may be multiple factors of arrogance that might not all load on a common factor. Gregg, Mahadevan, and Sedikides (2017) examined indices of intellectual arrogance versus humility based on various statements that people assessed (e.g., "I would like to see my own opinions becoming widely shared") and found that two closely related factors (which, taken together, cast one's own ideas as valuable possessions that one must fight to keep) were unrelated to egotistical bias (r 's = $-.01$). A final factor termed rational objectivity had modest negative correlations with all the others ($-.13$, $-.14$, and $-.26$, respectively). Samuelson et al. (2015) used a cluster analysis on many adjectives that participants rated to arrive at a three-cluster description of an intellectual arrogance concept. Two clusters (*Arrogant/Know-it-all* and *Opinionated/Jerk*) mirrored the opposite traits found in intellectual humility. A third cluster, *Educated/Proud*, interestingly cast aspersions on education by grouping it with elitism, whereas the intellectual humility concept grouped education in with positive qualities. The more complex results of this study compared with Johnson et al. (2010) might occur because it seems to reflect Components 1 and 2, not only 3 through 6.

We suspect that Components 1 and 2 come from cognitive issues, which limit what one knows and how little one realizes the limitations in what one knows. Components 3 through 6

are increasingly driven by motivational factors as well. In Component 3, resistance to new information could occur through the motivation to preserve cognitive energy and the motivation to avoid a lowered self-concept. Component 4, failure in perspective-taking, would have similar motivations, amplified because the information typically has to be acquired through one's own initiative rather than being offered by someone else as in the third component. In Component 5, a feeling of superiority must depend on a failure of perspective-taking whenever the individual is not actually demonstrably superior, an attitude presumably often supported by the motivation to have high self-esteem.

The fourth through sixth components, when sufficiently present, seem most likely to be experienced by other individuals as unpleasant, as they indicate comparative and antagonistic arrogance. The motivation for Component 6, denigration of others, is debatable, but seems most closely related to the classical concept put forward by Aristotle of shaming another for the pleasure of feeling superior. It is consistent with the notion of comparing oneself with those of lower status while associating with those of higher status (Taylor & Lobel, 1989). More work on this topic is needed because a series of beliefs or conditions would need to be in place for denigration of others to serve the purpose of raising one's self-esteem. For example, one might have to believe that self-esteem is comparative rather than absolute. It is possible that belittling others is done out of anger by the belittler at his or her poor self-concept, perhaps without it actually benefiting the belittler even momentarily. This is a key area for further research.

Individual Differences in the Components of Arrogance

Several recent studies assess individual differences in arrogance or closely aligned constructs (e.g., Haggard et al., 2018). Here we consider what evidence is available regarding several types of individual differences in the components. Note that most of the data do not allow us to distinguish between a momentary state of arrogance and a stable trait of arrogance, but they do allow us to point out particular patterns of variables that differ among respondents at a particular time.

Individual Differences in Unawareness of Intellectual Limits

This kind of individual difference spans Components 2 through 5 in Figure 1. An overconfidence in one's own knowledge and ability (Component 2) is tied together with an underconfidence in the knowledge or ability of others, producing a feeling of intellectual superiority (Component 5). The two are especially likely to be combined, we believe,

when there is a zero-sum game in that, if you are right, your opponent in a discussion (or competition) has to be wrong, and vice versa.

The intermediate components (Component 3, resisting new information about oneself, and Component 4, not taking the perspectives of others) appear to be bridges between Components 2 and 5. For example, individuals low in honesty-humility (presumably high in arrogance) are also less likely than others to make cooperative decisions (Zettler, Hilbig, & Heydasch, 2013).

One effect of being unaware of one's own limits is thinking that one's conclusions must be correct. Toner, Leary, Asher, and Jongman-Sereno (2013) found that people with more extreme political views had a stronger feeling of superiority in their views (our Component 5). The issues for which this effect was biggest differed for the political right and left. One can probably infer that the extremity of opinions in many cases comes in part from a dearth of perspective-taking, resulting in a poor insight into the counterarguments to one's view (Component 4). People who view their beliefs as valuable possessions feel attached to these beliefs (mental materialism) and combative to contrasting beliefs (ideological territoriality; see Gregg & Mahadevan, 2014), in keeping with Components 3 and 4, and arguably 5 and 6.

There is some evidence also that unawareness of one's intellectual limits and feeling of superiority could, in fact, come from a resistance to new information and failure to consider the perspectives of others (Components 3 and 4). Individuals low in a self-report measure of humility are less flexible in their beliefs (Leary et al., 2017), and individuals high on an arrogance scale, based on ratings of what should be done in various vignettes, are less accepting of expert advice (Milyavsky, Kruglanski, Chernikova, & Schori-Eyal, 2017). This study highlighted arrogance in the form of dismissive behavior (fitting Component 5, a feeling of superiority but also possibly Component 6, denigrating others) and tied it to related concepts including boasting, hubristic pride, contempt, overconfidence, stubbornness, and narcissism.

Kausel, Culbertson, Leiva, Slaughter, and Jackson (2015) similarly showed that narcissists dismiss the advice of others.

Individual Differences in Personality Related to Arrogance

Personality measurements include aspects of both cognitive function and motivation and theoretically could affect all components of arrogance shown in Figure 1. We can illustrate potential relations between personality variables and Components 2 (unawareness of knowledge limitations), 4 (failure to consider the perspectives of others), and 5 (a feeling of superiority).

Related to Component 2, Schaefer, Williams, Goodie, and Campbell (2004) examined how the Big Five can predict overconfidence in one's performance. Only the trait of extraversion correlated with overconfidence (the difference between accuracy and confidence). The extraversion factor may be most related to the aspect of arrogance involving inflated self-appraisal relative to objective reality (Lee & Ashton, 2018). There also have been occasional findings of relations between overconfidence and other Big Five traits like openness to experience and agreeableness (e.g., Sukenik, Reizer, & Koslovsky, 2018).

When the component of arrogance is unspecified in a test battery, it tends to conform most closely to our Component 5. This appears to be the case for one salient personality construct, narcissism, that includes arrogance as a trait. For instance, the most widely used measure of narcissism in social and personality research, the Narcissistic Personality Inventory (Raskin & Hall, 1979), includes considerable content related to superiority and arrogance (cf. Glover, Miller, Lynam, Crego, & Widiger, 2012; Grijalva & Zhang, 2016). Arrogance has been conceptualized as a personality trait within dimensional trait models, such as the well-known Five-Factor Model (FFM) that includes the Big Five factors of agreeableness, extraversion, conscientiousness, openness, and neuroticism. For example, arrogance has sometimes been conceptualized in terms of one facet of agreeableness, which is modesty (or lack thereof). Specifically, low scores of the modesty facet on the NEO Personality Inventory—Revised (NEO PI-R; Costa & McCrae, 1992) may represent people who can be described as arrogant or conceited. In addition, maladaptive variants of these traits are represented in FFM personality disorder measures, specifically the Five-Factor Narcissism Inventory (FFNI; Glover et al., 2012) and Elemental Psychopathy Assessment (EPA; Lynam et al., 2011), both of which have arrogance subscales specific to the respective construct being assessed.

The HEXACO model (Lee & Ashton, 2018), a model of general personality closely related to the FFM, may in effect consider arrogance more broadly, that is, in a manner related to more of our components. It comprises six broad personality dimensions: honesty–humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience. The first of these factors, honesty–humility (which is not one of the Big Five factors), approximates a construct opposite to the aspect of arrogance involving superiority to others. It is a composite of four personality facets: sincerity, fairness, greed avoidance, and modesty. We would predict that if one had measured our hypothesized components, one would find that sincerity and fairness are negatively correlated with our Component 4, not using the perspectives of others, that modesty negatively correlated with Component 5, a feeling of superiority, and that greed avoidance is negatively

correlated with Component 6, denigration of others. We would further predict some specificity in the strengths of these particular correlations as compared with the other correlations that could be reported between these variables.

Group and Cultural Differences

Cultural differences are important because they can provide information about the extent to which components of arrogance can be altered through experience. There is a large literature that we do not review here in detail (e.g., Jackson, 2011) on how people favor other members of their group over members of other groups and discriminate against those other groups, related to all six components in a manner favoring one's group compared with outgroups.

To what extent do cultural differences affect traits related to types of arrogance? The most common distinction between cultures is that between individualism and collectivism. People from individualistic cultures value their personal identities more and are more likely to emphasize independence. By contrast, in collectivist cultures, people are more interdependent and view their group memberships as more central to self-identity (Kurman, 2003). Interdependence should help reduce all of the components that involve considering the views of others within the society, that is, Components 3 through 6. Previous studies do suggest that cultural restrictions on the self in collectivist cultures lead to an avoidance of self-enhancing behaviors, which are considered immodest (Stankov & Lee, 2014).

Research still consistently shows that Asians from collectivist cultures nevertheless tend to be overconfident in their judgments and decisions (Burns & Luo, 2014) and in general knowledge (Li, Bi, & Rao, 2011), suggesting that avoidance of behaviors that appear self-enhancing for social reasons cannot protect against the cognitive mistake of overconfidence (related to our Component 2).

Further exemplifying the study of cultural differences related to our first two components of arrogance, Stankov and Lee (2014) examined whether the level of confidence varies across different cultural groups, based on survey data from 33 countries in nine world regions. Participants took a number memory test and then rated how confident they were about the answers. There were large differences across the world regions on the actual accuracy rates of the task, but not large differences across cultures in the confidence ratings. Bias scores measuring overconfidence thus ranged markedly. Overall, the results showed that cross-cultural differences in confidence do exist, with overconfidence being higher when performance is lower, in keeping with differences between individuals within a culture described by Dunning (2011).

There could also be group differences in the way in which arrogance is evaluated or valued, a topic in need of further

investigation. In sum, the information we do have suggests that cultural effects influence Components 3 through 6, but possibly not Components 1 and 2, of arrogance.

Individual and Group Differences in Neural Function

Brain imaging and studies of neuropsychological impairment can shed light on the basis of the components of arrogance, although the current evidence is still scant.

The rapid and unique growth of the human brain compared with other species may have occurred, at least in part, as a means to accommodate increases in the complexity of social relations (Adolphs, 2009). Areas such as the prefrontal cortex, cingulate cortex, and superior temporal regions are commonly recruited to facilitate social interactions (Blakemore, 2008). It may be that behaviors that characterize extreme arrogance (e.g., with high antagonistic arrogance) are linked to atypical activity in, or connections between, some of these brain structures, which have been collectively labeled the social brain. That is not yet clear, but Chow (2000) summarizes considerable research on changed personality following frontal lobe damage, including possibly relevant symptoms of antisocial, impulsive, agitated behavior.

Two caveats should be noted. First, there are controversies regarding whether the social areas are specialized structures or just applications of a more general apparatus whereby an individual solves problems, formulates thoughts and actions, and inhibits inappropriate behaviors (e.g., Hamilton, 2013). Second, observed brain differences between individuals theoretically could be affected by both physiological factors (e.g., the balance of various neurotransmitters) and psychological factors (e.g., external stress factors).

In one study showing individual differences in brain function, related to our Component 2, Beer, Lombardo, and Bhanji (2010) examined regions involved with overconfident self-evaluations of performance. Participants underwent functional magnetic resonance imaging while reasoning through several forced-choice type questions, also providing confidence ratings for each response. Activity in the medial prefrontal cortex (mPFC) was related to confidence on accurate or correct trials. Importantly, orbitofrontal cortex (OFC) activity was negatively related to overconfidence (i.e., high levels of confidence accompanying incorrect responses). Thus, activity in the OFC may act to keep overconfidence in check.

Although patients with neuropathology probably are not particularly arrogant in conventional terms, examining their brain function may provide clues to the mechanisms involved in arrogance among normal individuals. Relative to healthy controls, patients with OFC damage show differential self-perceptions, lack self-consciousness, and lack

insight into their deficits or behaviors (Blumer & Benson, 1975), again related to our Component 2. There also may be a special role of dopamine pathways related to some cognitive deficits relevant to arrogance. Patients with Parkinson's disease, which involves dopaminergic nerve cell degradation, are less accurate than control participants in their assessment of their own performance in recall and recognition (Souhay, Inisgrini, & Gil, 2006) with a feeling of knowing (intuitive knowledge of what they know) that can be unreliable, and lower than in controls (Baran, Tekcan, Gürvit, & Boduroglu, 2009). Anosognosia (absence of insight into their pathological condition) is found in cases of dementia (e.g., Maki, Yamaguchi, & Yamaguchi, 2013) and could provide a model for the absence of insight into one's own poor performance. In sum, given the involvement of the social brain in producing some components of arrogance we have discussed, one way to investigate mechanisms of arrogance may be to consider typical brain function and neuropathology.

How Do the Components Relate to the Origins and Purposes of Arrogance?

Next, we examine arrogance with an eye toward the purposes it may serve for the individual and the group, which may help explain why varieties of arrogance seem so prevalent. In evolution, some traits that serve no apparent or useful function (referred to as byproducts) can be inextricably linked to other adaptations (Lewis, Shawaf, Conroy-Beam, Asao, & Buss, 2017). It is an open question whether extreme arrogance in some people is a byproduct of certain adaptive traits, which might include self-enhancing optimism and overconfidence, or whether extreme arrogance is, in itself, a useful adaptation that promotes survival and reproduction in some contexts. Possible benefits of different types of arrogance that we consider are the personal value of an illusion of control, the personal value of high self-esteem, and society's need for leaders; for this last category, we consider associated costs also. Moreover, benefits and costs depend on the type of arrogance, with Component 2 sometimes being helpful to all, but later components rarely helpful, at least to society. (It is not known whether the later components of arrogance sometimes assist in personal gains, which seems possible, for example, in the case of intrasexual competition for mates; see Buss, 1988).

Personal Value of an Illusion of Control

The imperfect knowledge of the environment (Component 1) could emerge simply because perfect knowledge (e.g., with no perceptual illusions or false memories) would be computationally too costly for the brain. It is therefore not surprising that our brains are designed to operate often with

efficient heuristics (Gigerenzer & Gaissmaier, 2011) in place of complete information. That incomplete information does mean, however, that our control of the environment is not always what we believe it is (Component 2). An illusion of greater control of the environment would be one outcome that could be of use.

Individual and comparative arrogance might originate because the feeling of controlling the environment and being competent energizes the individual, protecting and furthering that individual more than a feeling of being out of control or incompetent. People therefore sometimes believe that good things will happen to them and bad things will only happen to those who deserve it (Lerner & Miller, 1978). Exemplifying the illusion of control, Langer (1975) conducted a series of studies showing that when elements usually associated with control were introduced into games of chance, participants responded as if they had some control over the outcome. They bet more on their own hand when competing against what appeared to be a less confident opponent, when given a choice as compared with no choice, when the choice they were given was familiar, and when their involvement in the game was personal rather than by proxy. All of these influences occurred even though none of them had any effect on the chances of winning.

Weinstein (1982) found that students thought positive events were more likely to happen to them compared with peers, and negative events, less likely. These views proved to be modifiable by exposing participants to information about other individuals' risk-avoiding behaviors. Thus, as the authors suggested, such views could occur because of an initial dearth of perspective-taking, our Component 4 (Chambers, Windschitl, & Suls, 2003).

A sense of control, whether warranted or illusory, may be important for health. Lachman and Weaver (1998) found that more control was felt in people of higher social class, who also lived longer; but the sense of control had an important effect, and individuals from the lowest income group who had a high sense of control had commensurate health and well-being, like people in higher-income groups. Whether illusions of control per se foster health, however, may remain controversial (Randall & Block, 1994) and in need of further study. It is possible that some degree of the illusion of control is healthy, whereas too great an illusion places a person in a range in which the accompanying components of comparative and antagonistic arrogance exceed what is optimal.

Personal Value of High Self-Esteem

An individual might become arrogant in individual and comparative senses to produce positive self-esteem based on Components 2 through 5. To our knowledge, there has been little work on this topic per se but there has been some related work on narcissism, for which the conclusion is still

unclear. One can imagine that self-esteem might be low but may be supported by thoughts and actions that at least attempt to counteract low self-esteem (e.g., in the use of social media; see Andreassen, Pallesen, & Griffiths, 2017). This kind of thinking has led to suggestions of a *mask model*, in which low self-esteem at an implicit, unconscious level is overridden (or masked) by a high level of self-esteem at an explicit level, together producing arrogant behavior. It is difficult to evaluate the mask model, however, because it is unfortunately difficult to measure self-esteem at an implicit level, so this field is still in the process of growth and change (e.g., Brummelman, Thomaes, & Sedikides, 2016), without unambiguous support for the mask model (Brown & Brunell, 2017). It is far from clear whether arrogance indicates that the individual hates himself or herself "deep down," loves himself or herself, some combination of these, or neither; it is an important topic for future research.

Higgins (1987) took a different approach to self-esteem, showing that there are physiological effects and feelings resulting from discrepancies between a person's self-concept and how the person ideally would like to be, and ought to be. Discrepancy with the former tended to produce depression, whereas discrepancy with the latter tended to lead to agitation and anxiety. In our tentative appraisal, the difference could be that how one would like to be is a personal concept that interacts with Component 2, whereas how one ought to be is a social comparison on which one hopes for superiority (Component 5).

One possibility for further study is that especially arrogant people of any variety may have a large discrepancy between how they would like to be and how they ought to be, perhaps tending to act as they like (reducing one discrepancy) and inventing rationalizations to stave off the feeling of agitation arising from how they ought to be. Alternatively, the arrogant people may do less comparison than most people of the actual, ideal, and ought-to self-concepts, or may not perceive much discrepancy (consistent with Components 2-4). However, NPD can be comorbid with depression (Dawood & Pincus, 2018), suggesting that a grandiose stance that includes arrogance might occur along with comparison of the actual and ideal. Note that what is called ideal in this case could be a selfish motive (e.g., becoming ultra-rich or acknowledged as superior to others). The relation between self-esteem and components of arrogance certainly requires further study.

Society's Need for Leaders

Types of arrogance may have evolved as a mechanism to fulfill society's need for leaders, at least in some types of societies. It could be that finding a good leader is like walking a fine line; one wants a person with enough confidence (related to Component 2) to be highly motivated and

motivating, but without the later levels of arrogance (Components 3-6) that can demotivate everyone who is not included in the favored group. Authoritative leaders can help create ties between people, settle disagreements, and make decisions for the group (King, Johnson, & van Vugt, 2009). Research suggests that people tend to favor overconfident leaders over their lesser confident counterparts (Reuben, Rey-Biel, Sapienza, & Zingales, 2012). An overconfident individual may envision success in the future, and this may prompt the individual to expend more effort toward achievement (Lockhart, Goddu, & Keil, 2017). Overconfidence may also help individuals reach leadership status (Reuben et al., 2012) and feel inspired to take on opportunities that are presented to them (Ehrlinger & Dunning, 2003). Reuben et al. examined how group members identified leaders while completing a task. They found that overconfidence was beneficial for those interested in becoming group leaders (who tended to be men). Research on characteristics of CEOs shows that they often possess a high level of overconfidence (Malmendier & Tate, 2008).

The drawbacks of some varieties of arrogant leadership, however, are clear. Hiller and Hambrick (2005) reviewed the concept of core self-evaluations (CSEs), an amalgam of self-esteem, self-efficacy, locus of control, and emotional stability. They posited that excessive levels of the CSE traits may lead to arrogant behaviors and decisions from executives and other high-ranking businessmen and businesswomen. It is believed that these hyper-CSE executives typically have extreme performance records (e.g., great successes or terrible failures) due in part to their arrogant behaviors, such as risky initiatives and hasty, centralized decision making (Component 4, ignoring the perspectives of others). Resick, Whitman, Weingarden, and Hiller (2009) also examined the high end of CSE and found that such high levels of self-confidence are necessary to lead high-stakes endeavors. According to Resick et al. (2009), though, some of these leaders have these views due to high self-confidence, whereas others have a more fragile self-view that they attempt to mask with arrogance. They found that CEOs who displayed the positive traits associated with CSE were more comfortable sharing the success with others; CEOs who displayed the negative traits associated with hyper-CSE were less likely to provide special recognition for other members of the organization (with Component 5 sometimes at least implicitly leading into Component 6, denigrating others). Arrogance thus can result in positive group benefits, but some varieties of it can produce risk for the group or a cost for some people in the group.

Johnson et al. (2010) provided some of the first empirical data confirming a negative relationship between workplace arrogance in self-rating and other ratings and job performance. Their first two studies involved developing the WARS. The scale was based on coworkers' judgment of the degree to which 26 generalizations fit the individual in

question (e.g., "Believes that s/he knows better than everyone else in any given situation"; "Makes decisions that impact others without listening to their input"). Their third and fourth studies used the scale to explore the relationship between arrogance and task performance. There was a significant, negative relationship between arrogance and task performance and cognitive ability. Because the arrogance of these employees did not result in heightened ability at work or positive perception by others, it seems unlikely that arrogance was of instrumental use. Other studies also support the conclusion that arrogance has overall negative effects, rather than beneficial uses. Arrogant people often suffer socially as a result of being disliked by others (Hareli & Weiner, 2000) and are more likely to induce harm and loss for their businesses as a result of risk-taking behaviors, jeopardizing their health through overconfidence and unrealistic optimism (Dunning, Heath, & Suls, 2004). They perform poorly on exams while being overly confident (Hacker, Bol, Horgan, & Rakow, 2000). There are relevant studies also on harm caused by counterproductive workplace behavior (e.g., Sackett, Berry, Wiemann, & Laczko, 2006) and the "dark triad" of narcissism, Machiavellianism, and psychopathy (e.g., Paulhus & Williams, 2002), consistent with our Components 4 through 6.

Relevant evidence may also come from investigations of grandiose narcissism which, like our fourth through sixth components of arrogance, can include behaviors of self-inflation at the expense of others. Using multiple sources of evidence regarding the level of grandiose narcissism of all past presidents of the United States, Watts et al. (2012) found that those who had more of this quality were more effective politically, but at the cost of being more unethical, much more likely to provoke reactions such as impeachment, and less likely to win a second term. Their arrogance may also have a negative effect on the group. For example, Matthews, Reinerman-Jones, Burke, Teo, and Scribner (2018) stated on the basis of several studies that "Nationalism is socially harmful when associated with chauvinistic arrogance, bellicosity, and prejudice towards foreigners and other out-groups" (p. 91).

Individual Differences: Summary

Kwan, John, Kenny, Bond, and Robins (2004) suggested that the perception of oneself as better than one really is (our Component 2) must be distinguished from the perception of oneself as better than others (our Component 5), and these two aspects of what we are calling arrogance could have different effects. As they noted,

Self-enhancement bias may have positive consequences for intrapsychic adjustment, allowing self-enhancers to feel good about themselves (e.g., self-esteem, subjective wellbeing), but not for task performance and interpersonal adjustment (e.g.,

being liked), especially in longer term relationships when initially positive impressions may fade over time. Moreover, there may be domain-specific effects; for example, positively biased expectations and beliefs in the health domain . . . might prove more beneficial than biased self-perceptions in the domains of personality and achievement. (p. 106)

In sum, we suspect that Component 2 of arrogance can be helpful to a point, whereas the latter components are typically harmful. It is therefore crucial to learn the correlation of Components 1 and 2 with the other components, but to our knowledge this information does not yet exist.

Conclusions and Suggestions for Research

Arrogance is a salient issue that is sometimes a factor in the mental health issues of the especially arrogant person and/or those in contact with them. It often is a factor in inefficient and suboptimal interactions among individuals in every setting, ranging from dyadic interactions to workplace transactions to world politics. We have described an arsenal ready for further research, and we focus the discussion on mapping some directions for it.

By dissecting arrogance into a set of components, we hope to have sharpened the issue regarding just what processes are being investigated and might contribute to our general understanding of what feeds the behavior of disregarding or denigrating others (Components 5 and 6). Our suggestions for research fall into three categories: grappling with basic methodological and theoretical issues, building bridges between disciplines, and potential practical applications of the research.

Methodological and Theoretical Issues

The most fundamental issues to be addressed in the field of arrogance may be its definition and description, and this article puts forward a theoretical framework that could help augment the cursory definition found in the dictionary (shown earlier), with three types of arrogance (individual, comparative, and antagonistic) and six component processes that might contribute to them. Part of the difficulty is ensuring that, when the term arrogance is used, its assumed meaning is made clear and, when different terms are used, their commonalities as well as differences are recognized. Failing to use terms correctly creates what has been termed the “jingle fallacy” that two things labeled the same must be the same, or the “jangle fallacy” that two things labeled differently must be different (Kelley, 1927). In another field, working memory, Cowan (2017) found evidence of nine substantially different definitions of the term in the literature. The present taxonomy of arrogance (see Figure 1) is meant to prevent such confusion, but future work still may

raise questions about what traits are necessary or sufficient to be included under the term arrogance.

A fundamental uncertainty in this field is that one cannot be sure that an arrogant person will report his or her arrogance faithfully, or that a nonarrogant or humble person will report that faithfully, either. One can try to corroborate self-reports by devising valid self-questions that do not have an obvious purpose, but that is difficult. Further progress might be made based on foundations of neural and physiological reactions that might be characteristic of some component of arrogance (e.g., Joyce, Averbeck, Frith, & Shergill, 2013) or careful comparison of self-rating and other ratings (e.g., Johnson et al., 2010; Kwan et al., 2004).

One possible tool would be to hone, refine, and improve implicit attitude tests to find implicit measures of arrogance and humility, but so far this area has proven to be problematic (e.g., Brown & Brunell, 2017). One limitation of implicit attitudes tests is that they examine very general attitudes, given that they depend on a binary mapping between two identity categories (e.g., self–other) and two evaluative categories (e.g., good–bad), with many trials being needed to produce a stable result. This method may not be helpful enough if arrogance turns out to be situation specific. For example, an athlete may have considerable arrogance in sports, and a salesman may have considerable arrogance in sales, with each person having less arrogance in areas they deem to be relatively unimportant. At least the perception of arrogance seems situation specific (Tenney, Meikle, Hunsaker, Moore, & Anderson, 2019). Perhaps, what is needed is an inventory in which reports are obtained from peers in several settings in a person’s life, to determine the degree to which arrogance functions as a state or a trait, and to learn how it functions as a benefit or a drawback at a particular time.

One potentially useful, more specific variable to examine is the degree of inappropriateness of a person’s potentially arrogant behavior. For example, it is appropriate to brag to some degree on a job interview, but typically inappropriate to brag to coworkers. The behavior that is deemed appropriate could be partly a matter of the practical function of the social interaction and partly a matter of established or perceived norms. Regarding Component 5, the field also needs to examine the use of arrogance to establish personal distance (e.g., *I am better than you are*) and the use of arrogance at a group level to establish social cohesion (e.g., *we are better than they are*).

Arrogance may be a difficult concept, inasmuch as one can quibble with its definition on either a priori or empirical grounds. Concepts that theoretically seem like they should correlate well sometimes do not. The reason can be problems with either the preconceived notions or the measures. One can see the young field struggling with such issues. For example, in one recent study of humility and arrogance (Meagher, Leman, Bias, Latendresse, & Rowatt, 2015), one

can see how difficult it was to bring real-world issues into the laboratory. In their results, there was initially (in Study 1) little consistency in ratings by others, so convergence between self-report and other report was not calculated. In Study 2, however, after the participants had engaged in months of cooperative course work and therefore knew each other better, ratings by others were highly consistent, and the rating of arrogance by others now correlated with the self-rating at $r_{\text{disattenuated}} = .39$.

More work is needed to examine whether arrogant attitudes can be inhibited when the individual learns that arrogant behaviors are not helpful or whether, alternatively, a reduction of arrogant behavior comes only through a new understanding of social interactions that help prevent an attitude of arrogance. For that matter, we need to know more about arrogant individuals' explicit knowledge of their own arrogance. An arrogant but oblivious person might answer affirmatively to the statement, "Have you found that there are very few people who are worth your time and attention?" (from the NESARC data reported earlier), yet not realize that an affirmative response implies arrogance. There could be different profiles of arrogance in individuals with different levels of metaknowledge. In particular, there may be those who do not realize that they are perceived as arrogant (like Component 4, failure of perspective-taking), those who do know but have a hard time inhibiting the behaviors (like Component 1), those who are aware of it but do not care (like Component 6, denigrating others), and those who are told they are arrogant but do not believe it (like Component 3, resisting new information). It is also worth trying to distinguish between arrogant people who welcome arrogance in others and other arrogant people who may find the competing arrogance to be threatening or unpleasant.

Bridging Cognitive, Social, and Clinical Fields

It now is clear that the divisions between subareas of psychological research should not be taken as barriers to a cross-disciplinary approach. Among the topics converging on our conception of arrogance are the heuristics and biases of Tversky and Kahneman (1974), the social comparisons in abilities and accomplishments that people make (Dunning, 2011), the tendency to apply confirmation bias to one's own side of an argument or myside bias (Stanovich et al., 2013), personality factors channeling arrogance (Lee & Ashton, 2018), potential implicit biases (Greenwald & Banaji, 1995), clinical diagnoses (*DSM-5*, APA, 2013), and cross-cultural style differences (Stankov & Lee, 2014). Our specification earlier of six different components of arrogance can help generate hypotheses about how these programs of research may be related to the topic of arrogance. One attractive conception is that inducing confidence in a person enhances Component 2, which can be helpful, but

that it may encourage increases in Components 3 through 6, which tend to cause social harm to the individual or to others. If so, perhaps there is a way to raise self-confidence without raising components of arrogance (by raising only realistic self-confidence).

Cross-fertilization from one subfield to another can lead to new paradigms, and sometimes ideas practically suggest themselves. Speaking very generally, cognitive psychologists ask people to make judgments about the external world, ideas, and their own thinking; social psychologists ask people to make judgments about other people; and clinical psychologists ask people to make judgments about themselves and their social relationships. We have seen that some of the best recent research on arrogance combines two or more of these approaches. We also believe that, in discovering the causes of arrogance, it will be impossible to settle on cognitive or motivational causes, inasmuch as one motivation is to keep in check the allocation of cognitive resources.

Potential Applications

Arrogance in education, training, and therapy. In the education system, we need to be more aware that intelligence tests are incomplete and exclude personality qualities that should be considered, such as arrogance Components 2 through 6, if they affect the criterion outcomes of interest, primarily school and work performance. Originally, intelligence tests were evaluated against these criteria. Eventually, though, test construction for profit led to shortcuts in which new subtests are considered valid if they correlate well with existing subtests. This policy tends to exclude qualities that are important but separate from the other measures, or that are difficult to measure with brief questions (Cowan, 2016). Yet, personality differences such as the level of arrogance are likely to matter in school performance and in the workplace, inasmuch as those are social venues.

Given natural differences between individuals in arrogance (and in other personality traits), these differences should be used more often in providing guidance to students searching for the most suitable careers. It may be that the level of arrogance that is optimal is different for different careers. For example, humility may be needed in a counselor, whereas, for a trial lawyer, some degree of arrogance might be useful, or might be an unavoidable side effect of something useful (e.g., a useful Component 2 leading to unavoidably increased higher-level components). Moreover, to the extent that arrogance could be a result of professional experiences, some individuals may want to concern themselves with arrogance as an occupational hazard.

The potential issues with arrogance should be disseminated beyond the classroom. They are relevant to attempts in law enforcement and other agencies to test training programs with the hope of reducing implicit biases (e.g., Burns,

Monteith, & Parker, 2017) that seem related to our Components 3 through 6. One benefit of a college education is that it tends to decrease myside bias and therefore possibly reduces comparative arrogance (Stanovich et al., 2013), which could reduce workplace inefficiency (cf. Johnson et al., 2010). Similarly, there might be economic benefits of reducing arrogance among leaders and politicians. We need to know what the consequences are for work team or social group interactions that narcissists, and therefore most likely people with relatively high levels of arrogance, tend to like other people with those same characteristics (Maaß, Lämmle, Bensch, & Ziegler, 2016).

How can a person's arrogant beliefs be changed? Can the basic traits of arrogance change, or only the arrogant behaviors in certain situations? One approach might be to provoke further thought in a way that does not make the person defensive. For example, one study examines how a person might be dissuaded from a poorly thought-out view held with some confidence (Fernbach, Sloman, St Louis, & Shube, 2013), Components 2 and 3. It suggests that, if a person is low in cognitive reflection, that person's ideas can best be changed, not by arguing against the ideas, but by asking the person to reflect on and explain how those ideas work. Doing so exposes the shallowness of thought and typically makes the person less confident in those ideas. If such a method were used within various types of public debates, an added benefit would be that all sides would get to hear more about others' perspectives (see Component 4).

Training, counseling, or clinical therapy (as in the case of NPD) may need to address arrogance even if the individual is not particularly concerned with arrogance. If the arrogance is harming relationships and the person being counseled is distressed by the relationships, the arrogance presumably must be addressed for a successful outcome even if the trainee or client does not realize that arrogance is contributing to poor results. Not only are there few extant treatments, but there are potential unintended side-effects of trying to change views and attitudes. For example, it has been demonstrated that some kinds of perspective-taking lead to poorer, rather than better, outcomes, when individuals take the perspective of a competitor (Sassenrath, Hodges, & Pfattheicher, 2016). Perspective-taking is likely to be helpful only if it goes beyond facts, which can be weaponized, to motives and comprehensive understanding.

Processes of societal change. Last, there is room for societal changes that could keep in check the costs of arrogance. Blankenhorn (2018) listed 14 causes of polarization in the United States, several related to various changes in the media and society. Most people are increasingly likely to encounter views that agree with their own, and less likely to encounter contrasting views except as objects of derision. This situation unfortunately could normalize not only Component 2 of arrogance; ominously, with most people

acquiring stronger illusions of knowing about the world (Tenney et al., 2019), it could lead to a sense of superiority and hostility to opponents (Components 5 and 6). We do not know the full solution but, surely, focusing more attention and research on arrogance, of multiple types, should be a helpful step.

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1. Prevalence statistics weighted to adjust for sampling probabilities, after Trull, Jahng, Tomko, Wood, and Sher (2010).

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