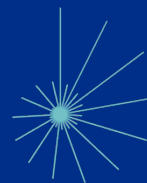




Intellectual Humility

A review of scientific research

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**JOHN
TEMPLETON**
FOUNDATION

Inspiring Awe & Wonder

Editor's Note

A survey of six decades of research into the features and benefits of intellectual humility

As part of our ongoing interest in increasing understanding of character and virtue, the John Templeton Foundation commissioned a review of the literature on the topic of human open-mindedness, a trait many scholars call “intellectual humility.” Covering more than 40 publications dating back to a post-World World II study of the “authoritarian personality” by philosopher Theodor Adorno, the review examines the key characteristics of intellectual humility, its features, factors that influence it, and the potential benefits or drawbacks of this trait. The research contained here includes many studies that resulted from projects supported by the John Templeton Foundation, a \$3 billion philanthropy that has funded projects in 58 countries and helped to launch the field of positive psychology.

Modern scientific research on intellectual humility focuses on how people learn to recognize their own intellectual limitations in the service of pursuing deeper knowledge, truth, and understanding. Particularly today, in a world awash in misinformation, such a mindset appears to be valuable in many domains of life—from education to media, entertainment, and public discourse. It promises to help us avoid headstrong decisions and erroneous opinions, and allows us to engage more constructively with our fellow citizens.

Our Foundation’s aim is to enable people to create lives of purpose and meaning, by funding research and catalyzing conversations that inspire awe and wonder. We hope this book is a thought-provoking resource for today’s “unreasonable” conversations.

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I. INTRODUCTION

Psychologists have been interested for many years in people's tendency to be unjustifiably certain of their beliefs. Early work on this topic began in the aftermath of World War II with research on the authoritarian personality, a constellation of characteristics that includes the conviction that one's own beliefs and attitudes are absolutely correct and that those who disagree are misguided, if not evil (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950). Because authoritarianism was associated specifically with right-wing political views, Rokeach (1960) developed a measure of closed-mindedness that was independent of particular beliefs, initiating work on the construct of dogmatism (see Duckitt, 2009).

Later, research on this topic was complemented by work on the personality trait of openness, which includes, among other things, the willingness to consider new ideas, values, and actions (Macrae & Sutin, 2009). Other characteristics associated with open- and closed-mindedness that have attracted attention include need for cognitive closure (Kruglanski & Webster, 1996), the "quest" religious orientation (Batson & Schoenrade, 1991), attitude correctness (Petrocelli, Tormala, & Rucker, 2007), belief superiority (Toner, Leary, Asher, & Jongman-Sereno, 2013), and social vigilantism (Saucier & Webster, 2010). The recent emergence of scholarly interest in intellectual humility falls squarely in this family of psychological constructs.

To understand a construct, psychologists generally want to know, at minimum, three things: (1) the nature of the core or defining phenomenon; (2) cognitive, motivational, emotional, and behavioral features of the phenomenon, and how they relate; and (3) the factors that influence the phenomenon—both situational factors that cause the phenomenon to occur in particular situations and personality characteristics that reflect differences in the degree to which people manifest the phenomenon. This review examines each of these topics.

II. THE CORE CHARACTERISTICS OF INTELLECTUAL HUMILITY

The term, intellectual humility (IH), has been defined in several ways, but most definitions converge on the notion that IH involves recognizing that one's beliefs and opinions might be incorrect (Church & Barrett, 2017; Hopkin, Hoyle, & Toner, 2014; Krumrei-Mascuso & Rouse, 2016; Leary, Diebels, Davisson, Jongman-Sereno, Isherwood, Raimi, Deffler, & Hoyle, 2017; Porter & Schumann, 2017; Samuelson, Church, Jarvinen, & Paulus, 2012; Whitcomb, Battaly, Baehr, & Howard-Snyder, 2015). Some definitions of IH include other features or characteristics—such as low defensiveness, appreciating other people's intellectual strengths, or a prosocial orientation—but, as will be explained, these are better viewed as associated features of IH rather than as its defining characteristic.

One conceptualization defines intellectual humility as *recognizing that a particular personal belief may be fallible, accompanied by an appropriate attentiveness to limitations in the evidentiary basis of that belief and to one's own limitations in obtaining and evaluating relevant information.*¹ This definition qualifies the core characteristic (recognizing that one's belief may be wrong) with considerations that distinguish IH from mere lack of confidence in one's knowledge or understanding (see also Church & Barrett, 2017). IH can be distinguished from uncertainty or low self-confidence by the degree to which people hold their beliefs tentatively specifically because they are aware that the evidence on which those beliefs are based could be limited or flawed, that they might lack relevant information, or that they may not have the expertise or ability to understand and evaluate the evidence.

Although some writers refer to IH as a subtype of humility, others dispute that this is the case. As usually defined, general humility does not simply involve recognizing that one is fallible or has shortcomings but rather involves how people think about their accomplishments and positive characteristics (see Leary & Banker, 2018). Although a few conceptualizations of IH may reflect a subtype of humility (Roberts & Wood, 2003), most approaches focus on the degree to which people recognize that their beliefs and attitudes might be wrong. Given this, we should not automatically apply findings from research on general humility to understanding IH or vice versa.

IH is fundamentally a cognitive phenomenon, meaning that it involves how people think and process information about themselves and their worlds. Along these lines, Church and Barrett (2017) characterized IH as “doxastic” (pertaining to beliefs), and other writers regard IH as “meta-cognitive” (involving people's thoughts about their thoughts). The ways of thinking that reflect low and high IH are associated with particular motives, emotions, and behaviors, but at its core, IH is a cognitive phenomenon.

Although IH is fundamentally cognitive, some theorists have included motivational, emotional, or behavioral features in their definitions of IH. For example, some definitions indicate that IH involves appreciating other people's strengths, responding less defensively to disagreements and intellectual threats, or enjoying learning. Although IH may be associated with these reactions, including them in the definition of IH is problematic for three reasons. First, doing so obscures the central, defining feature of IH (which virtually all researchers agree involves how people think about the accuracy of their beliefs and attitudes). Definitions that include psychological concomitants that are not fundamental to the phenomenon muddy the conceptual water.

Second, encumbering the conceptualization of IH with correlated motives, emotions, and behaviors makes measuring the phenomenon difficult. When associated features are included in the conceptualization of a construct, measures of the construct must include those features. But, if those

¹ This definition was developed by members of an interdisciplinary group that involved philosophers with expertise in intellectual virtues (Jason Baehr, Heather Battaly, Dan Howard-Snyder, Dennis Whitcomb) and social, personality, clinical, counseling, and organizational psychologists with expertise in egotism and humility (Don Davis, Julie Exline, Peter Hill, Joshua Hook, Rick Hoyle, Mark Leary, Bradley Owens, Wade Rowatt, Steven Sandage).

features are not necessary to identify the construct or, worse, are not always associated with it, then our measures assess something other than, or in addition to, the core construct. For example, including behavioral features in the conceptualization and measurement of IH implies that a person must display these features to be regarded as intellectually humble. Yet, these associated features are typically not correlated strongly enough with the core of IH to regard them as defining characteristics.

Furthermore, when a measure assesses multiple features of a construct, respondents may obtain identical scores on the measure even though they differ markedly in their psychological characteristics. Suppose that respondent A is high in recognizing his intellectual fallibility but low in appreciating others' intellectual strengths, whereas respondent B is low in recognizing her fallibility but high in appreciating other people's strengths. These two respondents might obtain identical scores on a measure of IH even though they are psychologically quite different kinds of people. Measures of IH that assess multiple features with separate subscales show that the associated features correlate only weakly to moderately with the total IH score and that the separate dimensions correlate differently with overall IH (Hopkin et al., 2014; Krumrei-Mascuso & Rouse, 2016; Haggard et al., 2018). Failure to distinguish central versus peripheral features of IH raises questions about the comparability of scores across respondents.

Third, including motives, emotions, or behaviors in conceptualizations and measures of IH makes studying relationships between the core characteristic of IH—recognizing that one's beliefs are fallible—and the psychological and behavioral outcomes of IH difficult. If certain motives, emotions, or behaviors are regarded as an inherent part of IH, it becomes uninformative, if not tautological, to study the relationship between IH and those features because, according to the conceptualization, those features *are* IH, and items that assess those features are included in the measure. Several research findings regarding IH reflect the fact that the measure of IH included items that assessed the same behavior that was then assessed in another manner. For these three reasons, various associated features of IH should be distinguished from the core, defining characteristic.

The construct of IH is relevant to understanding specific instances in which people do or do not recognize that a particular belief may be fallible (regarding IH as a momentary, context-specific reaction or state) and understanding differences in the degree to which people tend to display IH (regarding IH as a disposition or trait). There is no contradiction or conflict in viewing IH both as a state (how intellectually humble a person is in a particular situation at a particular time) and a trait (how intellectually humble a person is in general, across situations).

Although IH may be conceptualized and studied as both a state and a trait, almost all research to date has approached IH as a personality characteristic or trait that reflects a person's general level of IH. Referring to IH as a "personality characteristic" or "trait" merely implies that people show a certain degree of consistency in how they respond with respect to IH across different situations. Although most people display a certain degree of variability in how intellectually humble they are in different situations—sometimes acknowledging that they might be wrong and sometimes rigidly defending their

position—each of us shows a certain degree of consistency in the degree to which we are intellectually humble across situations.

Some people tend to respond in a more intellectually humble fashion than other people do, and this cross-situational consistency qualifies IH as a trait. Importantly, nothing in the concept of trait or disposition implies that people act the same way all the time, that their reactions are genetically determined, or that their behaviors can't change. It simply conveys that people show some degree of consistency in how they respond across different situations.

People differ not only in their general, dispositional level of IH but also in the degree to which they manifest IH with respect to particular beliefs and attitudes (Hoyle, Davisson, Diebels, & Leary, 2016). People may be intellectually humble with regard to some of their beliefs while being arrogant about others. This domain specificity is seen in most personality characteristics as people often differ from one another on average while also displaying substantial within-person variability across situations (Fleeson, 2004). (For example, a person may score high on the trait of anxiety overall, yet be anxious in some situations but not in others.) People's reactions in any particular situation reflect both their general tendency to be intellectually humble as well as the degree to which they are intellectually humble with respect to a specific belief.

III. MEASURING INTELLECTUAL HUMILITY

Psychologists often prefer to measure constructs with self-report measures because self-reports are efficient and economical to administer and may be completed by many respondents simultaneously via computer. Self-report measures are highly valid for many constructs, but they are useful only when people can accurately assess the characteristic in question and are not motivated to misrepresent their answers.

Some researchers have questioned whether these conditions are met in the case of IH. If respondents are asked to rate themselves on items such as “I am an intellectually humble person,” such concerns are probably justified. People may have difficulty assessing how intellectually humble they are and may also wish to appear humble by either rating their humility highly or, ironically, by modestly rating themselves low in IH, thereby demonstrating humility about how humble they are.

However, when self-report items refer to beliefs, attitudes, or reactions that reflect differences in IH, people may be able to rate themselves reasonably accurately, and such items may be less susceptible to a social desirability bias. (In fact, some people view features of low IH as desirable because they connote certainty, decisiveness, and strength.) The usefulness of any psychological measure lies in its demonstrated validity, so the question is whether scores on self-report measures of IH reflect true differences between people's levels of IH. Research evidence shows that at least some self-report measures of IH are acceptably reliable and valid and are not unduly contaminated by social desirability

biases (Haggard et al., 2018; Krumrei-Mascuso & Rouse, 2016; Leary et al., 2017; Porter & Schumann, 2017). Even so, these measures differ in important ways, and researchers should consider the precise content of the items on these measures to determine whether they assess the desired conceptualization of IH.

The primary alternative to self-report measures of IH are ratings by other people, typically called “other-reports.” Although less efficient and economical than self-report measures, other-reports work well for characteristics that are easily observed by other people. However, as a cognitive characteristic, IH cannot be observed directly. As a result, observers have difficulty agreeing about how intellectually humble people are even after several months of regular contact, and other-reports of IH do not correlate highly with people’s scores on self-report measures of IH (Meagher, Leman, Bias, Latendresse, & Rowatt, 2015).

Of course, behavioral indicators of low and high IH can sometimes be seen by others, for example, by observing how people respond when others disagree with them. So, it might be possible to develop valid behavioral assessments of IH. Yet, many behavioral manifestations of low and high IH reflect not only people’s level of IH but also other aspects of their personalities. For example, good-natured reactions to disagreements can reflect not only high IH but also the degree to which people are averse to conflict, generally agreeable, or submissive, and they are also affected by the social context, their relationship with others who are present, the topic under discussion, and so on. People’s behaviors are so multiply determined that observers have difficulty judging IH separately from other influences, and, thus far, other-reports have not been found to be sufficiently reliable or valid as indicators of IH.

Even so, others’ perceptions of people’s IH is an important topic in its own right (McElroy et al., 2014). People’s inferences about another’s level of IH may influence how they respond to him or her, particularly during disagreements or negotiations. And, people respond differently to others’ transgressions depending on how intellectually humble they perceive them to be (Hook et al., 2015). Such inferences may have important implications whether or not they accurately reflect the person’s level of IH.

IV. FEATURES OF INTELLECTUAL HUMILITY

Almost all research on IH has focused on individual differences in IH—the degree to which people tend to display IH overall. When considering the features of a psychological characteristic, it is often difficult to ascertain whether those features are inherent aspects of the characteristic, attributes that predispose people to possess the characteristic, or psychological and social implications of the person’s standing on the characteristic. Because researchers cannot infer causal direction from variables that are not experimentally manipulated, often the best they can do is to catalogue the characteristics that are associated with the trait and speculate regarding how and why those features relate to the trait and to each other.

Cognitive Features

As noted, IH is fundamentally a cognitive characteristic. People who score higher in IH are more likely to believe that their beliefs might be incorrect than people who score lower in IH. For example, they agree more strongly with statements such as “I accept that my beliefs and attitudes may be wrong,” “I reconsider my opinions when presented with new evidence,” and “I am willing to admit it if I don’t know something.”

People higher in IH are also more attentive to the strength of evidence regarding factual claims (Leary et al., 2017) and more interested in understanding the reasons that people disagree with them (Porter & Schumann, 2017). When instructed to read sentences about controversial topics, intellectually humble participants spent more time reading sentences that expressed views counter to their own opinions than participants low in IH, but low and high IH participants did not differ in the time they spent reading sentences congruent with their attitudes (Deffler, Leary, & Hoyle, 2016). Furthermore, when later asked to identify the sentences they had read from a longer set of possible sentences, high IH participants more successfully distinguished sentences they had read previously from those they had not read.

These findings suggest that people high in IH pay greater attention to the evidentiary basis of their beliefs and spend more time thinking about beliefs about which others disagree. This pattern may reflect the fact that people who recognize that their views are fallible are naturally more motivated to think about the accuracy of their beliefs than people who assume that they are right about most things.

Not surprisingly, IH is associated in predictable ways with other manifestations of open- and closed-mindedness. For example, scores on measures of IH correlate with measures of dogmatism (Altemeyer, 2002; Rokeach, 1960), a system of beliefs that includes intolerance toward other beliefs and the people who hold them. IH is also related to the general tendency to be open to new ideas and experiences (Krumrei-Mancuso & Rouse, 2016; Leary et al., 2017; McElroy et al., 2014; Meagher et al., 2015).

An intriguing question is whether intellectually humble people have more valid beliefs and justified opinions than do less intellectually humble people. Being more attentive to the accuracy of one’s views and more open to new information and alternative viewpoints should increase the likelihood that people’s beliefs will be based on stronger, more balanced, and more nuanced evidence. They should also be more open to new evidence as it arises, thereby weeding out incorrect beliefs. Evidence on this question is both sparse and mixed (Meagher et al., 2015).

Research does show that high IH is associated with a more accurate sense of being wrong. Participants who were higher in IH were less confident in their incorrect answers (but not correct answers) than participants low in IH were (Deffler et al., 2015). In the same study, participants rated their familiarity with each of 64 topics, 40 of which were real (the Boston Tea Party) and 24 of which were bogus (Hamrick’s Rebellion). Participants who were higher in IH more accurately discriminated between

real and bogus topics than participants who scored low, suggesting that their beliefs about their own knowledge were more accurate.

However, chronically thinking about one's beliefs on an ongoing basis could also lower IH over time. Research suggests that thinking more about an issue increases the degree to which people believe they are correct, whether they are or not (Barden & Petty, 2008). Although this paradoxical effect might occur on specific issues to which people have devoted considerable thought, people who are high in IH may remain generally cognizant that their beliefs are fallible.

Motivational Features

The belief that one's beliefs are fallible is associated with motives that reflect a proactive, inquisitive approach to knowledge. People who are high in IH score higher in epistemic curiosity, the motivation to pursue new ideas and address holes in one's knowledge (Leary et al., 2017; Porter & Schumann, 2017; Litman & Spielberger, 2003). Their higher curiosity seems to be motivated both by the intrinsic enjoyment of learning new information (see also Haggard et al., 2018) and by their distress when they feel that they lack information or do not understand something.

High IH is also associated with higher need for cognition, the degree to which people enjoy thinking, mulling over issues, and solving intellectual problems (Cacioppo et al., 1984; Leary et al., 2017; Porter & Schumann, 2017). Put simply, people higher in IH are more motivated to think than lows are.

The data do not allow us to determine whether characteristics such as epistemic curiosity and need for cognition predispose people to be more intellectually humble or whether they are motivational consequences of being high in IH. In either case, research suggests that high IH reflects epistemic motives that involve curiosity, thinking, and pursuing knowledge.

Other motives are related to low IH. For example, people who are high in need for cognitive closure—those who want definitive answers to questions and decisions as opposed to uncertainty or ambiguity (Kruglanski & Webster, 1996)—score lower in IH in some studies (Leary et al., 2017; but see Porter & Schumann, 2018). People who are high in need for closure are motivated to make decisions quickly, sometimes before gathering sufficient information, and they resist revisiting decisions they have made. Yet, despite obtaining less information and spending less time making decisions, they tend to be more confident that they are correct. The motivation to reach quick, confident decisions may push people toward being low in IH.

Some researchers have attributed low IH to egotism—the motive to enhance the positivity of one's self-views, specifically self-views about one's knowledge, expertise, or discernment.² The evidence

² Some writers confuse three similar terms—egoism, egotism, and egoicism. Egoism (adjective: egoistic) refers to the tendency to be motivated by self-interest. Egotism (adjective: egotistical) is the tendency to perceive oneself in excessively

regarding this hypothesis is mixed. For example, narcissism does not consistently correlate with IH (Leary et al., 2017; Porter & Schumann, 2017). IH appears to be negatively related to inflated views of one's beliefs but not necessarily to inflated views of oneself. However, other evidence hints that high IH may be associated with self-enhancement (Meagher et al., 2015).

Emotional Features

People who are lower in IH have stronger emotional reactions to information that is contrary to their beliefs and to people who disagree with them (Hopkin et al., 2014; Leary et al., 2017; Porter & Schumann, 2018; Van Tongeren et al., 2016). Some theorists interpret this reaction as a response to the epistemic threat that occurs when one's beliefs are contradicted, some view it as an ego-defensive reaction to a threat to one's self-image of competence, and others regard it as an interpersonal response aimed toward influencing or conveying an image to other people.

Importantly, people who are high in IH sometimes find being wrong troubling as well, although for reasons that differ from low IH people. In fact, high IH people's efforts to evaluate evidence, keep an open mind, consider alternative viewpoints, and be vigilant for incorrect beliefs may be motivated, in part, by a strong aversion to being wrong. So, people high in IH sometimes find their fallibility, ignorance, and intellectual limitations "appropriately" discomfiting (Haggard et al., 2018). They might, however, have weaker emotional reactions to disagreements with other people because they recognize that disagreements are often a means of correcting wrong beliefs.

Behavioral Features

Although IH reflects private assessments of one's beliefs, it often manifests in behavior. Two major categories of behaviors have been studied.

The first involves behaviors that are associated with obtaining and processing information. As described already, participants higher in IH tend to spend more time seeking and considering information as they form beliefs and make decisions.

Second, IH often manifests in people's interpersonal behavior. Indeed, some theorists have suggested that IH is fundamentally relational in nature (McElroy et al., 2014), and some have included interpersonal considerations in their conceptualizations and measures of IH (Krumrei-Mascuso & Rouse, 2016; Porter & Schumann, 2018).

Most notably, people high in IH display greater openness to other people's views and less rigidity and conceit regarding their beliefs and opinions (Krumrei-Mascuso & Rouse, 2016; Hopkin et al., 2014;

favorable ways. Egoicism (adjective: egoic) refers to the degree to which a person is self-centered in the sense of being self-absorbed, egocentric, and preoccupied with his or her concerns.

Porter & Schumann, 2017). IH is also associated with greater empathy (Krumrei-Mancuso, 2017) and more respectful and benevolent attributions for why people disagree with them (Porter & Schumann, 2017). In contrast, low IH sometimes involves an insistence that one's own beliefs are correct and a disregard of people who hold different views (Leary et al., 2017; Hook et al., 2017; Porter & Schumann, 2018; Van Tongeren et al., 2016). Strong reactions to differences of opinion and an unwillingness to negotiate or compromise can generate and escalate conflicts with other people (Van Tongeren et al., 2016). Conversely, people who are open to alternative views may lead others to contribute more ideas to discussions. For this reason, group leaders who are high in IH may encourage fuller discussions (McElroy et al., 2014).

Some researchers have proposed that humility necessarily involves a prosocial orientation toward other people (Davis et al., 2013; McElroy et al., 2014; Van Tongeren et al., 2014). In the context of IH, the idea seems to be that people who are less egoically focused on their own beliefs and opinions will naturally respond more positively toward other people. Although IH scores do correlate with prosocial values and reactions (Krumrei-Mancuso, 2017; Porter & Schumann, 2018), the relationship is not strong or straightforward enough to conclude that prosociality is an inherent aspect of high IH.

Certainly, people who recognize the fallibility of their own beliefs take other people's perspectives and knowledge more seriously, acknowledge the merits of divergent opinions, are less inclined to derogate people with different viewpoints, and occasionally cede to others' views. Perhaps this is why IH correlates with the trait of agreeableness, which involves the degree to which people are friendly, warm, forgiving, compliant, and sympathetic (Leary et al., 2017; Meagher, Leman, Bias, Latendresse, & Rowatt, 2015; Porter & Schumann, 2017).

Yet, there is not a necessary conceptual or psychological connection between recognizing one's own intellectual fallibility and being positively oriented toward others more generally. The degree to which people are self-focused is not strongly related to the degree to which they focus on others' well-being (Gerbası & Prentice, 2013), and the correlations between IH and positive interpersonal behaviors are generally small to moderate. People can consistently recognize the fallibility of their beliefs without necessarily being generally concerned with other people's well-being, treating others well, or behaving in prosocial ways.

Still, the link between IH and positive social behaviors deserves additional attention. One possible explanation is that high IH people may display positive interpersonal behaviors not because IH causes prosociality but rather because both IH and a positive interpersonal orientation reflect a hypo-egoic orientation that involves a lower-than-average level of self-preoccupation, egocentrism, and egotism (Leary, Brown, & Diebels, 2016). People who are, for whatever reason, more hypo-egoic may also tend to be more intellectually humble as well as less self-centered in their dealings with other people (McElroy et al., 2014), accounting for the link between IH and prosocial orientations (Krumrei-Mancuso, 2017). Viewed in this way, IH and a positive orientation toward others may be co-effects of an underlying hypo-egoic orientation.

V. FACTORS THAT MAY INFLUENCE INTELLECTUAL HUMILITY

Little research has addressed either the situations that affect state IH in particular contexts or the psychological factors that lead some people to be more intellectually humble than others. Even so, research on related topics allows some speculations that should be addressed in future research.

Genetics

Given that virtually every personal characteristic has at least a weak genetic basis, it would be surprising if IH was not partly heritable. As noted, IH correlates moderately with the trait of openness (Krumrei-Mancuso & Rouse, 2016; Leary et al., 2017; McElroy et al., 2014; Meagher et al., 2015), which has a sizable heritability, and overconfidence in one's cognitive ability also shows signs of genetic influences (Cesarini, Johannesson, Lichtenstein, & Wallace, 2009). Given that being open to ideas and having a reasonably accurate view of one's ability is associated with high IH, IH almost certainly has genetic underpinnings.

Importantly, the fact that people are genetically predisposed to respond in certain ways does not indicate either that their reactions are out of their control or that their general tendency to be low or high in IH cannot be changed. Although most psychological characteristics are influenced by the effects of genes on the brain, they are also affected strongly by people's experiences, including how they are raised, their interactions with other people, what they learn, and the other things that happen to them throughout life.

Parenting

Social learning probably plays a role in IH as children observe how parents, teachers, and others express certainty and uncertainty about their beliefs, manage disagreements with other people, and change (or do not change) their minds when evidence warrants. Some parents may also encourage their children to explain and justify their beliefs, attitudes, and decisions, thereby teaching the importance of basing one's views on evidence. Parents also differ in the degree to which they socialize their children to be open to new ideas and experiences, which may contribute to IH.

Culture

Cultures vary in the degree to which they value openness and flexibility and tolerate uncertainty and ambiguity (Hofstede, 1991). People who live in cultures characterized by high "uncertainty avoidance" learn to experience anxiety and distrust in situations that are uncertain, ambiguous, or unpredictable. Such societies emphasize strict rules and laws, shared beliefs, and fixed ways of behaving that render the world stable and predictable. Such cultures probably discourage IH because uncertainty is

threatening and people are encouraged to adopt a common set of beliefs. (Of the 67 countries for which data exist, the United States ranks in the bottom 20% in uncertainty avoidance.)

Even within countries that are not generally high in uncertainty avoidance, certain belief systems may discourage IH. For example, many religions teach that they alone have the truth, thereby discouraging IH (Gregg & Mahadadevan, 2014; Hopkin et al., 2014). IH is negatively associated with religious fundamentalism, as well as other indicators of religious belief and participation (Krumrei-Mascuso, 2018). Of course, people may be arrogantly nonreligious as easily as arrogantly religious; atheists are often as convinced that their views are correct as religious fundamentalists are (Leary et al., 2017). One interesting question regards the direction of influence: Do certain belief systems, whether religious and nonreligious, discourage IH, do people who are low in IH gravitate to beliefs that seem absolute and unassailable, or do both patterns occur?

Education

Education (and especially higher education) may have opposing effects on IH. On one hand, the more people learn, the more they see how much they do not know and the more complicated, nuanced, and endless knowledge becomes. On the other hand, the more people learn, the more justifiably confident they become in their knowledge, particularly in areas in which they develop deep expertise. An expert in an area *should* be more confident of his or her beliefs in that area than a nonexpert. Although no evidence exists, education may increase IH overall, while lowering IH in the domains of one's expertise.

To complicate matters, more education may lead people to develop more complete, refined, and nuanced beliefs than they held previously. As a result, education may lower IH because it leads people to conclude, perhaps justifiably, that their current views are better than they were previously and likely better than those of people who have not undergone extensive study. So, the picture is mixed.

Perhaps the primary effect of education is to improve the degree to which one's IH is calibrated with respect to one's knowledge. As people learn more—and particularly as they learn more about the evidentiary basis of their knowledge—they may develop a clearer idea of what they do and do not know, leading them to track the epistemic status of their beliefs more accurately than they otherwise might (Church & Barrett, 2017).

Threat

Research shows that people become more entrenched in their views when they feel under existential threat, whether the threat involves economic downturns, war, terrorism, rising immigration, thoughts about one's mortality, or simply making a list of past instances of threatening experiences from one's own life. In all instances, increased threat is associated with greater closed-mindedness (for examples, see Thórisdóttir & Jost, 2011). Thus, people who experience a greater ongoing sense of threat in life

may be inclined to be lower in trait IH, and episodes of threat may decrease state IH for most people. Research is needed to test these hypotheses.

Ideological Moderation

Neither religiosity (the degree to which people believe in and practice a religion) nor political affiliation is consistently correlated with IH (Leary et al., 2017; Meagher et al., 2018). However, people with more extreme religious and political views—in whatever direction—tend to be lower in IH than people with moderate views. Across a number of beliefs, IH is curvilinearly related to belief extremity such that people with moderate beliefs tend to be higher in IH than people who hold extreme beliefs (Hopkin et al., 2014; Leary et al., 2017; Toner et al., 2013). To say it differently, people with more extreme views—for example, those whose political views are further toward the left or right—tend to be lower in IH and, thus, hold their beliefs more strongly than people who hold moderate beliefs. (Interestingly, however, Krumrei-Mancuso [2018] found that IH was slightly higher among people at the low and high extremes of religious belief than those in the middle.)

Although the relationship between belief extremity and certainty may seem straightforward and commonsensical, people could, in fact, be intellectually arrogant about the superiority of moderate views over extreme ones. (Benjamin Franklin reputedly referred to himself as an “extreme moderate.”) However, the general pattern is for people with more extreme views to be less intellectually humble. This pattern may occur because moderate views often acknowledge the complexity, nuance, and equivocal nature of the issue at hand.

Can a Person’s Level of Intellectual Humility Change?

Although no research has directly tested efforts to change IH, there is every reason to assume that IH can change. Research reveals that, although IH scores show a certain degree of stability (i.e., test-retest reliability is moderately high), they can and do change over time. Furthermore, to the extent that IH is fundamentally a belief about the fallibility of one’s views, a great deal of psychological research shows that beliefs change. IH can change both through a personal decision to be more intellectually humble and through outside intervention. In both cases, two considerations may help to promote IH.

First, people rarely change their views or behavior unless they perceive a benefit in doing so. So, people must believe that approaching the world in a more intellectually humble fashion is beneficial and desirable. As will be discussed, IH can be beneficial in a number of ways—in improving the quality of one’s decisions (because people are open to a greater variety of information and perspectives), fostering more positive interactions and relationships (because people are more open to others’ views, less defensive, and more likely to admit when they are wrong), and promoting progress in organizations and society (because people high in IH are more inclined to compromise). In addition to perceiving possible benefits, people also need to believe that being higher in IH does not have notable downsides—such as being perceived by other people as uncertain, unintelligent, or wishy-washy.

Second, people must accept the fact that their beliefs and attitudes are fallible and that what they believe to be true may be unfounded. Of course, none of us thinks that our beliefs and attitudes are incorrect; if we did, we wouldn't hold those beliefs and attitudes. Yet, despite the subjective sense that they are correct, people must accept that their views are sometimes wrong. To change people's general level of IH, this recognition cannot be a one-time affair. Because being intellectually humble goes against the strong tendency to maintain and defend one's views of the world, people must learn to be vigilant for instances in which they hold their views with unfounded confidence.

VI. POTENTIAL BENEFITS AND LIABILITIES

Most researchers have assumed that IH has benefits for individuals, relationships, and society, but the possibility that it could also create problems has received less attention. Few psychological characteristics are beneficial in all instances, so we should consider both the possible benefits and liabilities of IH.

Personal Implications

Implications for knowledge and decision-making. Having accurate knowledge requires that people consider the evidence on which their beliefs are based, remain vigilant to the possibility of being incorrect, solicit and consider the perspectives of other informed people (especially those whose viewpoints differ from theirs), and revise their views when evidence warrants. As noted, people high in IH are more curious, distinguish strong from weak arguments more clearly, are more accurate in recalling whether they have been exposed to certain information, and think more about information that contradicts their views. But no research has directly examined whether these intellectual proclivities result in having a more accurate storehouse of knowledge or in making better decisions, although it seems likely.

One possible liability of IH may be lower efficiency when processing information and making decisions. People who are high in IH may consult more sources of information (including other people), consider information more carefully, and weigh more alternatives than people low in IH. As in many areas of life, there is a trade-off between efficiency and effectiveness (in this case, speed and accuracy) in information processing (Heitz, 2014).

Implications for well-being. Some theorists have suggested that IH may have benefits for psychological well-being. However, this hypothesis is based mostly on an extrapolation from research on general humility which, as noted, is rather different from IH. Research on this question is needed.

If research confirms that IH is positively correlated with adjustment and well-being, the question arises whether these psychological outcomes are a consequence of being high in IH. It is just as plausible that psychological adjustment promotes the development of IH or that well-being and IH are co-effects of

some common process. Psychologically, one could argue for all three causal explanations, which are exceptionally difficult to tease apart except through a controlled experiment in which people are trained to become more intellectually humble and the consequences assessed.

Even if research shows that IH is associated with higher well-being overall, downsides are possible. For example, people with a low tolerance for ambiguity and uncertainty may find that trying to keep an open mind increases their stress and anxiety. Yet, whether the certainty that arises from intellectually arrogant closed-mindedness constitutes greater well-being than intellectually humble uncertainty is an open question.

Interpersonal Implications

IH has clear interpersonal benefits. As noted, people high in IH are more tolerant of views that differ from their own and are less likely to derogate people who disagree with them (Leary et al., 2017; Porter & Schumann, 2018). IH also correlates with a range of beneficial interpersonal responses—including gratitude, forgiveness, altruism, and empathy—and with values that reflect concern for other people’s well-being (Krumrei-Mancuso, 2017; Zhang, Farrell, Hook, Davis, Van Tongeren, & Johnson, 2015). High IH is also associated with more satisfying relationships. A study of heterosexual couples showed that men who were high in IH were more satisfied with their partners and relationships than men low in IH and, perhaps more importantly, their female partners were more satisfied as well (Leary, 2018). For reasons that are not clear, women’s IH scores were less strongly related to their and their partners’ ratings of the relationship than men’s scores were.

Given their open, agreeable, and less contentious nature, people high in IH are liked better than those low in IH. Even after only 30 minutes of contact, people rate those who are high in IH more positively than those who are low (Meagher et al., 2015). People also seem to forgive people whom they view as intellectually humble more easily (Hook et al., 2015).

Whether high IH also has negative interpersonal effects is not clear. Certainly, some people do not like others who seem wishy-washy or overly conciliatory, so IH may not always be perceived positively. More research on possible negative implications is needed.

Societal Benefits

Many conflicts in society stem from disagreements about values, politics, religion, cultural practices, and other topics. These conflicts become intractable when people are unable or unwilling to consider the possibility that their personal views might be, if not incorrect, at least no better overall than other perspectives. All evidence suggests that IH should be associated with lower acrimony that is based on differences in beliefs and ideology (Hook et al., 2017; Krumrei-Mancuso, 2017; Leary et al., 2017; Porter & Schumann, 2017). For example, pastors who are high in IH with respect to their religious views display greater tolerance of other people’s religious beliefs than those who are low in religious IH (Hook et al., 2017).

IH should also pave the way toward greater negotiation and compromise, which are difficult when all parties are convinced that they are wholly correct. In increasingly heterogeneous societies, higher IH should promote compromise solutions for the good of all.

VII. CONCLUSIONS

For many years, psychologists avoided studying characteristics that, in everyday life, are regarded as virtues or character strengths, partly from a concern with appearing to endorse particular ethical or moral positions. However, this hesitation has waned in the past 15 years. Just as psychologists regularly study problematic characteristics, they are now interested in particularly desirable, beneficial ones as well. The emerging study of intellectual humility reflects this growing interest in the positive side of human behavior.

VIII. REFERENCES

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