The generative role of curiosity in soft skills development for contemporary VUCA environments

Alison Horstmeyer

*University of Southern California Annenberg Center for Third Space Thinking,
Los Angeles, California, USA*

Abstract

Purpose – This paper examines the role of curiosity in volatile, uncertain, complex and ambiguous (VUCA) work contexts.

Design/methodology/approach – This conceptual article relied upon an examination of literature about curiosity, VUCA and soft skills.

Findings – Curiosity, when encouraged and supported within the workforce, may aid organizations in closing soft skill gaps and better navigating ambiguity, perpetually changing business landscapes, and rapidly advancing technology.

Research limitations/implications – Empirical research is needed to validate, confirm and further explicate the specific mechanisms and value of curiosity within VUCA environments.

Practical implications – Organizations need to move beyond espousing a value of curiosity to deliberately and effectively cultivating and supporting it within their employees.

Originality/value – Although ample research and literature has examined curiosity, soft skills and VUCA environments independently, the body of literature on the specific role of curiosity in such environments is limited.

Keywords Leadership, Soft skills, VUCA, Curiosity, Stress tolerance

Paper type General review

Introduction

Soft skills are typically defined as non-technical skills related to a series of interpersonal or intrapersonal qualities critical to the success of both individuals and businesses (Deloitte Access Economics, 2017). However, a soft skills talent gap has continued to plague organizations wherein abilities such as creativity, persuasion, collaboration and adaptability are reportedly among the most in-demand but also the most elusive (Lewis, 2019). In parallel, the USC Annenberg Center for Third Space Thinking continues to advance an evidence-based soft skills developmental model that identifies intellectual curiosity as an essential attribute of an operational soft skills repertoire.

Curiosity, specifically, has been empirically associated with beneficial workplace outcomes such as employee engagement and agility (Gino, 2018), increased creativity (Hagtvedt *et al.*, 2019) and enhanced organizational performance (Mussel, 2013). In short, organizations need individuals who can conceive and germinate novel ideas and revolutionize solutions to evolve their businesses into sustainable entities over the long run. Accordingly, companies have increasingly endorsed curiosity as a core organizational value. Yet, a curiosity contradiction exists: Even as senior leaders extol the virtue of curiosity, employees report that its expression (e.g. asking questions or bringing new ideas) is regularly met with resistance or is even discouraged (Harrison *et al.*, 2018; Merck KGaA-EMD Group, 2016). Part of the problem is the lack of a universally adopted, empirical definition of curiosity due to the multifaceted composition of the construct and the evolving theoretical models of

curiosity in the extant literature. Lacking a clear definition undermines our ability to sufficiently understand curiosity or proactively adopt and efficiently cultivate it in our organizations.

Although this gap in literature and practice is an impediment, it is not an excuse to continue the same course. Discouraging curiosity can mean guaranteed stagnation for an organization in today's VUCA environment marked by volatility, uncertainty, complexity, ambiguity (Raghuramapatruni and rao Kosuri, 2017) [1] Moreover, the components of VUCA frequently exist in some combination. For instance, an emerging product market might be both ambiguous and volatile, or expansion into a foreign territory in the midst of sweeping governmental change may be both uncertain and complex. Today's business environment continues to morph into new operational paradigms fueled by accelerating technological disruption and increasing global complexity. Successfully navigating such environments demands well-developed soft skills including patience, sense making, adept engagement with uncertainty, and perhaps foremost, curiosity.

While this paper presents an in-depth examination of curiosity and the corresponding business implications for organizations, this article is, in effect, an urgent call for corporate stakeholders to swiftly address the curiosity contradiction within their own organizations or risk lackluster performance and unsustainability in the VUCA environment. The remainder of this paper outlines the demand for and development of soft skills and a robust review of the curiosity construct. The role curiosity plays in developing soft skills is then considered and implications for organizations are presented.

Demand and development of soft skills

Focus on soft skills in business has gained momentum in recent years, primarily for two reasons. First, soft skills have been shown to directly correlate with higher organizational performance (Adhvaryu *et al.*, 2018). A 2014 Korn Ferry study indicated, for example, that highly agile learners, characterized as these workers "who learn from past experiences and subsequently apply those learnings to new situations, recurrently acquire new skills, face new challenges, and perform well under changing conditions and ambiguity" (Korn Ferry, 2014, para. 2) also produce 25% higher margins than their non-agile peer group. Second, hard skills (i.e. technical skills, quantifiable skill sets) have short-lived relevancy in the current VUCA environment – roughly amounting to a shelf life of only five years (LinkedIn Workplace Learning Report, 2017). Researchers at Deloitte and McKinsey predicted that increases in workplace automation will shorten this shelf life further while accelerating the demand for soft skills (e.g. sophisticated social, emotional and cognitive competencies). Specifically, Deloitte researchers predict that by 2030, soft skill intensive occupations will make up almost two-thirds of the workforce (Deloitte Access Economics, 2017).

Meanwhile, development of employees' soft skills has not kept pace. For example, a 2012 survey of 1,500 companies worldwide reported that 92% of the executives interviewed identified a skills gap in the American workforce, with approximately 44% of participants attributing this to a lack of soft skills (Association of Talent Development, 2012). Similarly, in the *Wall Street Journal's* 2016 survey of 900 executives, 92% reported that soft skills such as curiosity, communication and critical thinking were equally or more important than technical skills (Davidson, 2016). Eighty-nine percent of those same executives reported difficulty finding hires with soft skills, further underscoring the soft skills shortage in today's workforce.

In 2014, the USC Annenberg Center for Third Space Thinking (TST) completed an exhaustive multi-year analysis of the problematic soft skills talent gap in the United States. The Center for TST concluded that a consistent set of five communication-oriented competencies were necessary for success in VUCA environments: adaptability, cultural

competency, empathy, intellectual curiosity and 360-degree thinking. These five foundational competencies form the basis of Third Space Thinking (TST).

TST faculty then studied the application of the five TST competencies within an American undergraduate collegiate population and a multicultural executive-level professional sample over a consecutive three-year period. The results of this work was the creation and validation of an evidence-based, communication-centered model for soft skills development they called ACE-IT. Although ACE-IT subsequently was implemented, for example, by Google, IBM, United Airlines, and other organizations, corporations continue to grapple with effective, scalable talent development interventions focused on soft skills development. Fortunately, encouraging employees' curiosity may be an effective and efficient way to develop their soft skills. A first step in doing so is reviewing the extant research to evolve our understanding of curiosity.

The construct of curiosity
Curiosity is a trait frequently associated with explorative pursuits of ambiguous, challenging, or complex situations along with seeking and exploring behaviors that, in turn, generate certain actions and states (e.g. learning, autonomy, task absorption). The consensus among scholars is that curiosity is a durable individual difference or personality trait that prescribes individuals' typical exploratory responses occurring as part of dynamic states (Harrison, 2012). This means that individuals with higher baseline levels of curiosity are likely to experience states of curiosity more frequently and more intensely, generally leading to certain mental, emotional and pragmatic benefits.

Models
While curiosity research dates back as early as 1890, a resurgence in the research was ignited by British and Canadian psychologist and philosopher Daniel Berlyne from the late 1950s through the 1970s. Berlyne (1954, 1960) conceptualized curiosity as four drive states (e.g. diversive, specific, epistemic, perceptual) triggered by exposure to collative variables, defined as novel, complex, uncertain or ambiguous stimuli. In effect, curiosity was a drive state elicited by cognitive dissonance and conceptual ambiguity, which created a sense of disequilibrium (Ntim, 2017). For example, a drive state may be triggered by a desire to reduce boredom or resolve a perceived incongruency by seeking information.

In the early 1990s, George Loewenstein of Carnegie Mellon University proposed the information gap theory, wherein curiosity was a state of deprivation elicited by a perceived gap in knowledge that prompted an individual to seek knowledge in order to resolve a finite uncertainty. Loewenstein (1994) thus argued that the seeking of information was not principally a pleasure-seeking state but a pain-avoiding state. In other words, the individual's metacognitive judgment motivated him or her to seek information to remove the tension associated with being uncertain or confused about stimuli within known or distinguishable contexts (Litman, 2018).

From these germinal theories sprang two primary and distinct models that have heavily influenced the trajectory of scholarly curiosity research, largely due to the prolific work of researchers Dr. Jordan Litman, Associate Professor of Psychology at the University of Maine at Machias, and Dr. Todd Kashdan, senior scientist at George Mason University. These researchers and their work are demarcated by how they define and measure the curiosity construct. Whereas Litman defines curiosity as "the desire to know, to see, or to experience that motivates exploratory behavior directed towards the acquisition of new information" (Litman, 2005, p. 793), underscoring its epistemic manifestations, Kashdan defines curiosity generally as "the recognition, pursuit, and desire to explore novel, uncertain, complex, and ambiguous events" (Kashdan *et al.*, 2018b, p. 130), thus underscoring and investigating the cognitive, emotional and motivational aspects of curiosity.

Litman's work centers on the I-D model of curiosity, originally proposed by Litman and Jimerson (2004) and further advanced by Litman (2005, 2008, 2010). The I-D model combined the traditional models of internal motivation (induction) and drive (reduction) orientations. As such, curiosity involves two principal facets: (1) curiosity as a feeling of interest or I-type curiosity and (2) curiosity as a feeling of deprivation or D-type curiosity. Interest is curiosity motivated by a desire to seek information for its own sake, whereas deprivation is curiosity motivated by a desire to reduce the uncertainty and frustration caused by knowledge gaps. According to Litman (2018), the term *type* is "meant to describe two relatively distinct subsets of emotional-motivational experiences and behavioral expressions that are found to diverge into meaningfully different, but not orthogonal categories" (p. 421). The I-D model spawned subsequent domestic and international studies for over a decade and continues to inform the underlying framework for studies focused on measuring epistemic curiosity or intellect.

Kashdan *et al.* (2009) developed the two-dimensional model of curiosity and, later, the five-dimensional (5D) model (Kashdan *et al.*, 2018b). Creation of the 5D model stemmed from the recognition that disparate bodies of curiosity research had created a need for a clearer demarcation of the central features of curiosity. Based on a population of nearly 4,000 US adults, this model describes curiosity as (1) joyous exploration akin to interest (I-type curiosity), (2) deprivation sensitivity similar to curiosity stemming from lacking information (D-type curiosity), (3) social curiosity analogous to interpersonal curiosity (see Litman and Pezzo, 2007), (4) stress tolerance defined as a willingness to accept and harness the anxiety associated with novelty (Kashdan *et al.*, 2018b) and (5) thrill seeking.

The I-D model and the 5D model of curiosity have occupied the leading contemporary views of curiosity. While different in composition, both models fundamentally underscored the emotional-motivational constitution of curiosity which informed the inherent complexity and polarity (e.g. curiosity can be both pleasurable and frustrating) and variances in measuring individual trait curiosity. The components and characteristics of curiosity lead to certain behavioral implications that impact individual and organizational performance.

Behavioral implications

Curiosity is inherently generative and action oriented. The individual variances outlined by both the 5D model and the I-D model correspond with differences in the need for cognition and epistemic curiosity. Individuals high in I-type curiosity are believed to have a high tolerance for and tendency to seek out collative variables (Lauriola *et al.*, 2015; Litman, 2010; Litman and Mussel, 2013). In contrast, individuals high in D-type curiosity are motivated to resolve ambiguities and to reduce knowledge gaps rather than to seek them (Lauriola *et al.*, 2015; Litman, 2010; Litman and Mussel, 2013). Similarly, individuals scoring high on deprivation sensitivity become intellectually engaged when thinking about abstract or complex ideas, solving problems and seeking necessary information to eliminate knowledge gaps (Kashdan *et al.*, 2018b).

However, individuals with D-type curiosity or those high in deprivation sensitivity demonstrate "the weakest link with the ability to cope with the stress of confronting the new" (Kashdan *et al.*, 2018b, p. 144). This element of managing stress or disruption mark an important shift in how curiosity is viewed, because curiosity had traditionally been considered a metacognitive process as originally argued by Loewenstein. Both Litman (2018) and (Kashdan *et al.*, 2018b) argued that the nature of curiosity is a cognitive-affective process, characterized by similar appraisal mechanisms of interest derived from the work of Silvia (2008). Silvia posited that the appraisal facets of curiosity consisted of an individual (1) viewing an event as having the potential for complexity, novelty, unfamiliarity or uncertainty and, thus, warranting focused attention and (2) making an assessment that she or he would be able to sufficiently cope or manage the negative emotions involved with exploring uncertain,

new, or unchartered terrain. This meant that the appraisal process involved in curiosity, which manifest as a tolerance for collative variables, not only induce a state of curiosity but also account for individual differences in trait curiosity (Lauriola *et al.*, 2015; Noseworthy *et al.*, 2014).

Even though the influence of and relationships with collative variables can be relatively contradictory in nature between I-type and D-type curiosity, both types exhibit an action orientation either evoked by appetitive striving (approach motivation) or by aversion motivation to reduce or avoid frustration. Lauriola *et al.* (2015) indicated that neither types "correlated significantly with behavioral inhibition" (p. 202) wherein the I-type demonstrates optimistic approaches to higher risk taking and learning while the D-type exhibits "greater caution, thoughtfulness regarding knowledge search" (p. 202). The latter was also supported by (Kashdan *et al.*, 2018b) in that scoring high on deprivation sensitivity can "lead to exploration and aid in the development of insights and knowledge" (p. 144).

Therefore, motivation induced by curiosity can lead individuals to seek out and immerse themselves in new situations, which will tend to result in increased knowledge, skill building, relationship quality and creative ability (Mussel, 2013). For example, a recent field study conducted by Hagtvedt *et al.* (2019) showed that a single-unit increase in curiosity (e.g. a one-point score increase on a seven-point Likert scale) was associated with 34% greater creativity.

Curiosity is generally considered to be a potent ingredient influencing productive cognitive and emotional subjective and intersubjective processes (Silvia, 2012), as well as in achievements and socialization (Mussel, 2013). Furthermore, individuals who are curious are reported to possess enhanced or elevated adaptive attributes (Kashdan *et al.*, 2013a, 2013b) such as a robust intellectual capacity; enjoyment of abstract, complex, unconventional and nonconformist thought; and a propensity to refrain from judging, criticizing, or blaming others (Kashdan *et al.*, 2009). In addition, individuals who are curious are reported to be less anxious and concerned about uncertainty (Kashdan *et al.*, 2013a). Curiosity also is associated with less aggressive reactions to provocation (Kashdan *et al.*, 2013b).

In effect, curious individuals tend to exhibit a higher degree of mental and emotional dexterity, which in turn can promote positive self-regulating behaviors such as creativity (Karwowski, 2012), thoughtful evaluation (Lauriola *et al.*, 2015; Maner and Gerend, 2007), ideational fluency and sophisticated problem-solving (Celik *et al.*, 2016; Hardy *et al.*, 2017), and mindfulness (Carson and Langer, 2006). These behaviors, in turn, increase the possibilities for achievement, workplace engagement and job satisfaction. In related research, global executive search firm Egon Zehndeaving concluded based on an analysis of executives' performance over a 30-year period that curiosity was the only one of four traits (the others being insight, engagement and determination) to be correlated with all eight leadership competencies the firm deemed critical to a leader's success (Fernández-Aráoz *et al.*, 2017). Despite the growing empirical research illuminating the possible positive outcomes associated with curiosity, an organizational paradigm exists that can stymie the cultivation of curiosity on a wide-scale basis.

The organizational curiosity contradiction
Data have shown that organizations claim they value curiosity yet discourage its expression among employees, pointing to a problematic curiosity contradiction. For example, in a cross-industry survey of more than 23,000 employees and C-suite leaders, researchers from INSEAD and SurveyMonkey found that 83% of senior executives said curiosity was encouraged "a great deal" or "a good amount" at their company, while only 52% of responding individual contributors concurred (Harrison *et al.*, 2018, p. 5). While approximately half (49%) of the C-level believed curiosity was rewarded by salary growth,

only 16% of individual contributors agreed (p. 5). Eighty-one percent of individual contributors were convinced that curiosity made no measurable difference in their compensation (p. 5).

Similar results were found in Merck KGaA's two-year survey study of 3,000 workers across 16 industries in the United States, Germany and China: 65% of employees reported that curiosity was essential to discover new ideas, while an equivalent percentage felt unable to ask questions on the job and 60% reported encountering barriers to curiosity in the workplace (Merck KGaA-EMD Group, 2016). This curiosity contradiction can undermine curiosity in organizations, in turn, compromising these firms' health and sustainability, especially in the current VUCA environment.

Because confusion and lack of understanding about curiosity among corporate stakeholders may exacerbate this contradiction, it is valuable to reiterate empirically supported conceptualizations of curiosity to gain insights about what exactly curiosity is and how it may be developed.
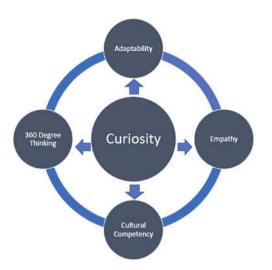
Specifically, curiosity derived from wanting to know for the sake of knowing and fascination with new information and experiences may result in the approach behaviors associated with intrinsic motivation (Schutte and Malouff, 2019). Additionally, it is critical to observe that individuals do not exist on a scale from being incurious to extremely curious. A modern-day conceptualization of curiosity is one that considers curiosity as a multifaceted trait that informs *how* an individual is curious (Kashdan *et al.*, 2018b). Organizations need to adopt this view of curiosity if they are to capitalize on curiosity to ignite positive workplace outcomes. Namely, if organizations understand *how* their employees are curious, important insights can be gained about how that curiosity can be cultivated to manifest imperative workplace soft skills, which have been empirically associated with curiosity such as emotional intelligence (Leonard and Harvey, 2007), empathy (Halpern, 2007), situational and cultural adaptability (Harrison *et al.*, 2010; Van der Zee and Van Oudenhoven, 2000) and proactive coping (Seaton and Beaumont, 2008). The way curiosity acts as a bridge (mediates) the development of soft skills is further discussed in the next section.

The mediating role of curiosity in soft skills development

Research with executives across various industries conducted by USC Annenberg Center for Third Space Thinking revealed that curiosity may play a mediating role in developing the soft skills outlined in the ACE-IT model (see Figure 1). Significant correlations were found between intellectual curiosity and the following cognitive and behavioral attributes: (1) cognitive adaptability, (2) multidimensional decision processing (characteristic of 360-degree thinking), (3) multicultural sensitivity (akin to cultural competency) and (4) social perceptivity (generally referred to as empathy). These findings were supported by earlier analyses conducted by a third-party research firm during the development of the TST assessment, in which the data showed a strong correlation (0.01 significance; no influence of secondary factors) between curiosity and similar attributes and was not replicated by the other attributes. This function of curiosity within the ACE-IT model may be due to four components of curiosity persistently documented in the curiosity literature: (1) openness to experience (e.g. the willingness to try new activities), (2) exploratory behavior, (3) desire or need for knowledge and (4) disruption tolerance (Horstmeyer, 2018).

Openness to experience

Openness to experience has been positively correlated with all curiosity measures (e.g. I-type and D-type) (Hunter *et al.*, 2016). In addition, openness to experience has been more highly correlated with total creative achievement than other factors historically correlated with

Figure 1.
Theoretical model of
the mediating function
of curiosity

creative achievement (e.g. IQ, divergent thinking, personality traits; Kaufman, 2013). Moreover, openness to experience not only consisted of a willingness to try novel activities, but also to an awareness and receptivity of felt emotions. Individuals higher in trait curiosity displayed less aggression to provocation across different social interactions and exhibited the tendency toward positive affect and lower negative affect throughout social interactions (Kashdan *et al.*, 2013a, 2013b).

These findings highlighted a functional utility of curiosity in reducing combative debate. For example, individuals with higher trait curiosity were reported to be more inclined to consider another's perspective and the meaning behind another's emotion (Main *et al.*, 2017). This, in turn, inhibited destructive behavior and promoted empathetic or prosocial behaviors during interpersonal conflict (Gino, 2018; Halpern, 2007); thereby, demonstrating a relationship between intellectual curiosity and empathy. This relationship can be found, for instance, within the *T*-shaped professional globally indoctrinated at companies such as IDEO, IBM and Cisco. The vertical stroke of the "*T*" is a depth of skill that allows individuals to contribute to the creative process derived from any number of different fields (e.g. engineering, architecture, business, science). Practitioners of the model have purported that the horizontal stroke of the "*T*" represents a disposition for collaboration across disciplines – predominantly attributed to empathetic curiosity. Empathy allowed people to imagine the problem from another perspective while curiosity facilitated enthusiasm and interest about other people's disciplines, even to the extent that they would visibly practice them. Sociology researchers at United Kingdom-based Cardiff University empirically demonstrated that the *T*-shaped professional possessed the breadth of knowledge and experience with others which enabled expedient adaptation to role changes, and sophisticated communication skills for teamwork in multidisciplinary, multifunctional, or multicultural contexts (Collins and Evans, 2002).

Exploratory behavior
The exploratory aspect of curiosity similarly can mobilize constructive behavior. The curiosity literature review of 39 peer-reviewed articles (2003–2013) conducted by Grossnickle (2016) revealed 64% of the studies discussed curiosity as a motivator behind exploration or the pursuit of knowledge or information. In addition, Hardy *et al.* (2017) concluded that

creative problem-solving was "an effect that was fully mediated by information seeking behavior" (p. 230). Furthermore, even though the I-D facets of curiosity elicited different problem resolution orientations respectively (Lauriola *et al.*, 2015), the need to bridge the gap between cognition and cognitive dissonance triggered exploratory behavior to find answers (Ntim, 2017).

Exploratory behavior was associated not only with higher levels of problem solving but also with positive reframing that encouraged adaptability (Harrison *et al.*, 2011). When confronted with novel situations, positive reframing enabled an individual to perceive change as less stressful and more likely to adapt more effectively (Włodarczyk, 2017). This could be one of the contributing factors to why epistemic curiosity has been reported to be uncorrelated with anger and depression (Litman and Jimerson, 2004).

Desire for knowledge

The need or desire for information to reduce ambiguity and uncertainty has been well-documented, as previously described. The need for information facilitates learning new skills (Mussel, 2013). Accordingly, such individuals were more likely to be equipped to adapt to changes in their environment including organizational restructuring and expatriate acculturation (Pulakos *et al.*, 2000; Van der Zee and Van Oudenhoven, 2000).

Disruption tolerance

The adaptability to situational variations relates to the novelty-complexity appraisal mechanism within curiosity and the corresponding stress tolerance modulations. On the one hand, a high tolerance for ambiguity and novelty encourages pleasurable exploration and positive affect typically associated with new discoveries and innovation (Lauriola *et al.*, 2015). On the other hand, a low tolerance for ambiguity, uncertainty, or unsolved problems provokes hard work and persistence in the form of intellectual engagement (Litman and Mussel, 2013) and intellectual inquisitiveness (Powell *et al.*, 2016).

Employers can increase employees' stress tolerance by creating a workplace culture wherein risk and failure are encouraged in the pursuit of new ideas and innovation. For example, Intuit supports disruption tolerance through its annual awards. In addition to innovation awards for employee explorations leading to valuable new products or processes, failure awards (along with failure celebrations) are given for employee explorations leading to important learnings for the team (absent new products; Gino, 2018). Research suggests, however, that advocacy of and support for such employee ideation and experimentation is absent among contemporary leadership. In a 2017 survey of 4,300 business executives, managers and analysts across 123 countries and 28 industries conducted by *MIT Sloan Management Review*, two of the three top requisite leadership traits respondents identified as gaps in present-day leadership were creating conditions that enable people to experiment and having the ability to execute by empowering people to think differently (Kane *et al.*, 2018). The ways that curiosity may catalyze these critical leadership traits and the development of soft skills lead to several implications for organizations, which are discussed in the next section.

Implications for organizations

While an overview of the curiosity research helps to illuminate the inherent complexity of curiosity and the relationship between curiosity and soft skills, the need remains to translate curiosity research into business implications. Three principal considerations are offered to organizations as they contemplate whether to deliberately cultivate curiosity within their workforce. First, curiosity plays a role in deeper work engagement, ideational fluency and exchange of ideas with others. In the 23,000-person survey described earlier, when feeling

curious at work, 73% of individual contributors reported "sharing ideas more" and "generating new ideas for their organizations" (Harrison *et al.*, 2018, para 13). This was illustrated, for example, by managers at Procter and Gamble Brazil, who in the mid-2000s, challenged strategic and organizational traditions by internally self-organizing to ensure closer cross-functional teamwork and leveraging relationships with customers to develop low-cost, high-quality alternatives to premium products (Kanter, 2011). That is, they autonomously undertook this risky initiative and self-organized to uphold tighter cross-functional teamwork and safeguard customer partnerships.

Second, curiosity has been linked to behaviors characteristic of a growth mindset, such as translating failures into learning opportunities and choosing activities that stretch and develop skills. In effect, a growth mindset can promote a broadening and building of abilities stemming from continuous learning and improvement. Organizations that embrace a growth mindset and stretch assignments and foster a failure-tolerant environment reportedly enjoy bottom-line benefits. For instance, organizations with a healthy learning culture have shown to be (1) 92% more likely to develop novel products and processes, (2) 52% more productive and (3) 17% more profitable compared to organizations that do not emphasize a learning culture (Agarwal *et al.*, 2018). This means that professionals across disciplines and roles who develop a growth mindset may be better equipped to adapt to VUCA environment markers such as industry consolidation, technological, regulatory and geopolitical disruption and fickle consumer preferences.

Third, while certain industries may demonstrate a stronger proclivity to supporting curiosity generally, the facet of stress tolerance inherent within curiosity remains low in every industry sector (Merck KGaA-EMD Group, 2016). When stress tolerance is low, employees are less likely to explore a new idea for fear of negative consequences. This was illustrated by barriers to curiosity common across industries, which included top-down decision-making approaches, limited time for creative thinking, preferences for the status quo (e.g. safe ideas) and fear of being isolated for counter-group thinking. These barriers also have been contributing to the curiosity contradiction discussed earlier in this paper. Given the multifaceted nature of curiosity, curiosity's role in soft skill development and the consequent implications for organizations, several takeaways should be considered by those understanding and responding to the urgent need to address their organization's curiosity contradiction.

Key takeaways

Five central take-aways are relevant for organizations. First, the evolution of the multifaceted theoretical models of curiosity underscore the intrinsic complexity of curiosity. As a result, theoretical models have been constructed to capture and to measure the individual differences that constitute the multiple facets of trait curiosity. Curiosity has been conceptualized as an emotional-motivational approach orientation due to the autocatalytic nature of curiosity of seeking and exploring stimulated by collative variables (Kashdan *et al.*, 2018b; Litman, 2018; Silvia, 2012). In addition, innate within curiosity are properties that reinforce information-seeking behavior and promote, for example, learning and memory (Gruber *et al.*, 2014; Marvin and Shohamy, 2016), intellectual engagement (Litman and Mussel, 2013), intellectual inquisitiveness (Powell *et al.*, 2016) and innovation (Celik *et al.*, 2016). Furthermore, curiosity also shares aspects of the proactive personality which facilitate adapting to and proactively managing and coping with unfamiliar situations (Crant, 2000).

Second, organizations are significantly challenged by ambiguity and constant change (Kane *et al.*, 2018). The facets of curiosity such as openness to experience, exploratory behavior and desire for knowledge are aspects that can be exploited to help organizations better manage market uncertainty and volatility. In addition, the *2018 Deloitte Global Human*

Capital Trends report showed that more than 50% of respondents expected to see an increase in demand for cognitive abilities (55%), social skills (52%) and process skills (54%) while 63% believed complex problem solving would be a critical skill in the future (Agarwal *et al.*, 2018). Navigating ambiguity and persistent change, therefore, requires advanced social skills and cognitive skills, such as creativity, critical thinking and complex information processing – all of which have been empirically associated with curiosity. At the same time, in the age of automation, soft skills such as adaptability supersede technical fluency. Moreover, as previously discussed, the research supports that a viable path to adaptability can be achieved through curiosity.

Third, while technological advancements such as artificial intelligence (AI) and virtual reality are already transforming the workplace, the optimal benefits of these technologies will be realized in collaboration with human capital (Agarwal *et al.*, 2018). Bughin *et al.* (2018) predicted that AI would not replace but would accelerate the demand for higher social and cognitive skills. Between 2016 and 2030, demand for social and emotional skills is expected to grow across all industries by 26% in the United States and by 22% in Europe. Because of its multifaceted, generative quality, fostering curiosity could help companies address soft skills gaps through the application of communication-based soft skills development models such as ACE-IT. Within ACE-IT, curiosity potentially acts as a catalytic intermediary by bringing other essential soft skills forward. Models such as ACE-IT can help individuals to learn to efficaciously cope with exploration of the uncertain, unknown and unfamiliar which in turn can enable them to proficiently harness empathy, multicultural inclusivity and multidimensional thinking aptitude to advance the agenda of the organization forward. Developmental models that do not involve curiosity may not be able to produce a fully operational soft skills repertoire and, therefore, may not be as effective in reducing the talent soft skills gap relative to developmental models that promote curiosity.

Fourth, the curiosity contradiction must be addressed if organizations are to thrive in a world of increasing technological disruption and global complexity. In the 3,000-employee survey conducted by Gino (2018), 92% attributed curious people with bringing new ideas into teams and organizations and viewed curiosity as a catalyst for job satisfaction, motivation, innovation and high performance. In addition, curious employees were reported to demonstrate greater adeptness for peer conflict resolution, social support galvanization and team connection and trust. Yet, only 24% of employees reported being curious in their jobs on a consistent basis (Gino, 2018).

Finally, curiosity also has been linked to growth-oriented behaviors (e.g. learning, reframing, autonomy). Thus, by perpetuating the curiosity contradiction, organizations ultimately restrict employees' performance potential and resiliency. The 2018 LinkedIn survey showed that developing employees growth mindset was identified by business leaders as the second highest priority in talent development (Harrison *et al.*, 2011). Organizations, therefore, must promote experimentation and innovation, support informed risk-taking, allow for iteration and improvement and codify and share learnings from failures to enhance employee stress tolerance. According to Kashdan *et al.* (2018a), "Without the ability to tolerate stress, employees are less likely to seek challenges and resources and to voice dissent and are more likely to feel enervated and to disengage" (p. 14).

Conclusion

The inherent quality of curiosity to catalyze exploration, openness to experience, creative problem-solving, ambiguity tolerance, collaboration and learning have important implications for organizations in their need to develop employees' essential soft skills such as social empathy, situational and interpersonal adaptability, cross-cultural sensitivity and inferential and multidimensional thinking. While further research is needed, the preliminary

data suggest that soft skills development models that do not support curiosity may develop a more limited set of soft skills. Such development, as a result, may have a narrow effect on reducing the workforce soft skills shortage.

Supporting curiosity means dismantling legacy systems and structures that espouse authority over inquiry and advocate routine over resourcefulness. Organizations that do not support experimentation are, in effect, perpetuating the curiosity contradiction because they are creating environments in which stress tolerance, openness to experience and growth mindset are being stifled. Cultivating curiosity means reframing experimentation as an efficient pathway to creativity and agility, because when curiosity is nurtured, based on empirical research, individuals are more likely to be empathetic, adaptable, inclusive and collaborative. They also are more likely to think divergently. This means that creativity and innovation have a higher probability of occurring and potentially occurring more frequently (e.g. more efficiently). Therefore, cultivating and allowing for curiosity both at an individual level and at organizational level could be a potent mechanism to activate the organizational dexterity needed to adeptly transform, for example, business challenges into meaningful business opportunities.

Leaders and corporate stakeholders play a critical role in stimulating states of curiosity among their employees As Shin and Zhou (2003) observed in their study of 290 employees and their supervisors across 46 Korean companies, when leaders intellectually stimulate followers, followers "are encouraged to reformulate issues and problems, to pursue and satisfy their intellectual curiosity, to use their imaginations, and to be playful with ideas and solutions" (p. 704). Simply stated, leaders can mobilize and develop the competencies needed to equip their organization for the marketplace of tomorrow by legitimizing and upholding curiosity within their organizations today.

Note

1. The VUCA term was originally incepted by the U.S. Army War College to describe the seemingly unrecognizable multilateral world that resulted from the end of the Cold War.

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About the author

Alison Horstmeyer, MS, MBA, PhD is a former Fortune 500 corporate executive turned talent development consultant, certified executive coach, and humanistic researcher. She is the inaugural Research Fellow appointed to the USC Annenberg Center for Third Space Thinking. Her doctoral research focuses on work-related curiosity and the associated mental, emotional and motivational attributes. Alison Horstmeyer is the corresponding author and can be contacted at: alison@intrinsicuriosity.com