



# The Development and Validation of the Appreciative Intelligence® Scale

Brian Whitaker<sup>a</sup>, Tojo Thatchenkery<sup>b</sup>, and Lindsey N. Godwin<sup>c</sup>

<sup>a</sup>Appalachian State University; <sup>b</sup>Schar School of Policy & Government, George Mason University; <sup>c</sup>Robert. P. Stiller School of Business, Champlain College

## ABSTRACT

While Appreciative Intelligence® – the capacity to reframe and see the potential in any situation and act on it with success – has generated a robust body of literature, scholarly advancement of this construct has been hampered by the lack of a validated instrument. Over two studies, we develop the Appreciative Intelligence® Scale (AIS), a 26-item survey organized into six factors. Study 1 explores the factor structure of the AIS using EFA. Study 2 uses hierarchical confirmatory factor analysis (HCFA) and hierarchical regression analyses to provide evidence for its convergent, discriminant, and criterion-related validity. The results support the priori six-factor structure of the AIS, indicating it is a valid measure of Appreciative Intelligence® useful in predicting proactive behavior at the individual, team, and organizational levels.

Over the past decade, a surge of research into the positive aspects of human life (e.g., Cameron, Dutton, & Quinn, 2003; Cameron, Mora, Leutscher, & Calarco, 2011; Cameron & Spreitzer, 2013; Dutton & Spreitzer, 2014; Lomas & Ivtzan, 2016; Seligman, 2018, 2011) has influenced scholarship within the social sciences. The field of positive organizational scholarship (POS) has emerged with “an emphasis on identifying individual and collective strengths (attributes and processes) and discovering how such strengths enable human flourishing (goodness, generativity, growth, and resilience)” (Roberts, 2006, p. 292).

Historically, clinical psychology has addressed human dysfunctions by focusing on deficits in behavior. For example, clinical scholars have noted the predominance of a discipline-wide “illness ideology” that dictates that the focus of intervention should be disordered, dysfunction, and disease rather than health (Maddux, 2008). Today the field of positive psychology (PP) explores “positive subjective experiences, positive individual traits, and positive institutions promised to improve the quality of life and prevent the pathologies that arise when life is barren and meaningless” (Seligman & Csikszentmihalyi, 2000, p. 5). In their summary, Sekerka, Comer, and Godwin (2014) state, “scholars across various organizational disciplines have begun to pose questions aimed explicitly at describing, explaining, and predicting what forms of thinking, feeling, and behavior are associated with the best of humankind [...] Work in these areas has sought to leverage and enhance effectiveness in a way that goes beyond promoting basic organizational survival, seeking instead to uncover what contributes to personal and collective thriving in the workplace” (2014, pp. 435–6).

Within the field of Organization Development, Appreciative Inquiry has become an effective framework for explicating the impact of positive psychology. Research and practice in Appreciative Inquiry suggest researchers cultivate an awareness of the negativity bias that pervades any investigations into

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**CONTACT** Tojo Thatchenkery  [thatchen@gmu.edu](mailto:thatchen@gmu.edu)  Schar School of Policy & Government, George Mason University, 3351 Fairfax Drive, Arlington, VA 22201

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organizational life and reframe that bias as positive possibilities that often go under-noticed in common human systems (Dey & Thatchenkery, 2017; Sardana & Thatchenkery, 2017; Stavros, Godwin, & Cooperrider, 2016). Appreciative Inquiry asserts that asking positive questions in organizational change processes leads to organizational stakeholders creating positive images of their future, and in turn, these positive images lead to positive, long-lasting actions (Cooperrider & Whitney, 1999). Recent empirical findings have shown that using an Appreciative Inquiry approach for organizational change processes can help effectively increase psychological capital (Daulon et al., 2017; Tuomas, Lehtimäki, & Thatchenkery, 2017; Verleyesen, Lambrechts, & Van Acker, 2015). Fredrickson's work effectively supports the argument that an appreciative affective stance in organizational change positively impacts the affective side of transformation because it creates upward spirals of positive emotions in organizations (Fredrickson, 2013, 2009). Specifically, the positive emotions of efficacy, hope, resilience, and optimism strengthen a person's ability to bring their positive images of the future into fruition – the positive emotions and correlative outcomes appreciative work generates (Fredrickson, 2009; Wolf, 2017).

Thatchenkery and Metzker (2006) proposed that individuals who act purposefully to transform situations into successful outcomes possess Appreciative Intelligence® – the ability to perceive positive inherent generative potential in a situation. Thatchenkery's research into the 1980s and 1990s success of foreign-born entrepreneurs in Silicon Valley found that successful venture capitalists were asking questions such as, "How can I make this work?" as opposed to "What are the chances this idea will fail?" (Thatchenkery, 1997, 2001). Their ability to see positive possibilities, even when others did not helped create a climate of opportunity recognition, resilience, and high anticipation of positive outcomes throughout the Silicon Valley region. Their lively, engaged, positive, and hopeful work ethic was contagious and became an organizing force and led to the phenomenal rise of the networked world in the Silicon Valley of the late twentieth and early twenty-first centuries (Coghlan & Brydon-Miller, 2015; Thatchenkery, 2001; Thatchenkery & Heineman-Pieper, 2011). If an individual takes an appreciative approach to organizational life which in turn leads to desired organizational outcomes, the question arises: What are the inherent and unique qualities of the individuals within organizations who apply appreciative tactics?

Thatchenkery and Metzker (2006) performed a thematic analysis of 960 stories of "Leaders and Success" from *Investor's Business Daily* over a ten-year period. Exploring the life stories of successful leaders, themes such as their emotional reaction to failure, capacity to reinterpret traumatic events into learning opportunities, ability to work from "rags to riches," capacity to see the positives in distressing situations, and childhood attitudes toward success emerged. Based on these findings, as stated earlier, Thatchenkery and Metzker (2006) conceptualized Appreciative Intelligence® as the ability to reframe and perceive the positive potential in a situation and to act mindfully to transform the potential of a situation to positive outcomes. Embedded in the theory of multiple intelligences proposed by Gardner (1983, 1999), which demonstrated that intelligence was not a single ability but a number of capacities, AI adds to the intrapersonal and interpersonal intelligences popularized by Goleman (1994) and Salovey and Mayer (1990).

Although the literature on AI fits within an emerging body of research that stresses the relevance of perceiving positive generative potential inherent in difficult situations (i.e., Seligman, 2002; Tugade & Fredrickson, 2004), to date it has not received much empirical research attention. Just over 25 peer reviewed articles on the theory of AI have been published to date, along with an encyclopedia entry (2015) on it, with most of these pieces basing their arguments on case studies or interview data.

Furthermore, if an individual takes an appreciative approach to organizational life which in turn leads to desired organizational outcomes, another question arises: What is that individual's level of Appreciative Intelligence? Existing research on Appreciative Intelligence has been limited by the absence of a reliable and valid measure of Appreciative Intelligence. As a result, the purpose of the present study is to describe the development and validation of the Appreciative Intelligence® Scale (AIS), a multidimensional measure of AI placed in a nomological network of individual differences, workplace perceptions, behavioral correlates, and important organizational outcomes.

Following Hinkin's (1995) recommended practices for scale development, we conducted two studies in order to create and validate the AIS. Study 1 describes the development and psychometric properties of the AIS. Study 2 provides evidence for the convergent, discriminant, and criterion-related validity of the AIS.

## Study 1

In accordance with Thatchenkery and Metzker (2006), AI is a higher-order latent variable indicated by six discrete dimensions within a person: positive affectivity, creativity, tolerance for uncertainty, self-efficacy, situational awareness, and resilience (see Figure 1).

### Positive affect

Individuals with high positive affect are likely to have high levels of Appreciative Intelligence. The concept of positive affect is defined as the tendency to experience positive emotional states (Watson & Naragon-Gainey, 2010). Research has shown that positive affect is a psychological trait that is at least partially predictive of diminished physiological reactivity to stress (Chida & Hamer, 2008) and may influence an individual's choice to focus more on the positive features of an encountered stressor (Hemenover, 2001). Research has shown positive affect is a factor in the production of unique cognitive associations (Isen, Johnson, Mertz, & Robinson, 1985) and a measurable increase in performance on standardized tests of creative thinking (Isen, Daubman, & Nowicki, 1987). Building on this research, Fredrickson's (2004) broaden-and-build theory suggests that positive affect broadens an individual's momentary thought-action repertoire and promotes the discovery of novel and creative actions, ideas, and social bonds.

### Creativity

Individuals who embody high levels of Appreciative Intelligence are thought to exhibit high levels of creativity. Creativity has a myriad of definitions as a complex construct or theory. Most definitions encompass two required attributes in a creative person. First, a "creative" person must generate novel, unique, or original ideas, and second, those ideas must be judged as valuable or useful by appropriate observers (Amabile, 1996; Csikszentmihalyi, 1996; Simonton, 1997). In a meta-analysis of variables associated with creativity, Ma (2009) defined creativity as "the ability to reorganize the available knowledge, information, cues, facts and/or skills in a person's reservoir to generate new ideas of useful

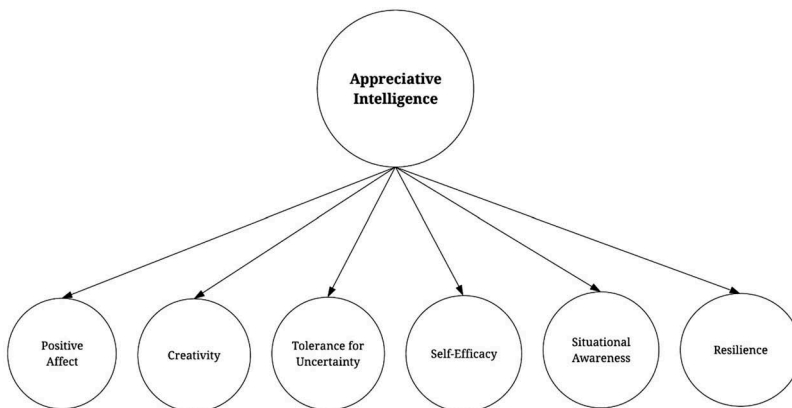


Figure 1. Hierarchical Factor Structure of the Appreciative Intelligence® Construct.

solutions” (p. 39). While there is debate regarding whether creativity is a cognitive ability to be demonstrated, or a personality trait that one has/does not have (i.e. Cattell, 1971; Halpin, Halpin, & Torrance, 1974), for purposes of this research, we herein employ the cognitive conceptualization of the construct or theory (Jauk, Benedek, & Neubauer, 2014; Runco & Acar, 2012), which underscores the importance of intellectual structures and cognitive processes that lead to useful insights and solutions (e.g., divergent thinking, analogies, metacognition, lateral thinking, and associative thinking). Research suggests that managerial creativity is an important factor in the creation of effective organizations (Mott, 1972; Scratchley & Hakstian, 2001) and solutions to complex interpersonal problems (Plucker & Renzulli, 1999). In the context of organizational decision-making, creativity allows the individual to more fully generate potential possibilities within a given situation.

### ***Tolerance for ambiguity***

Those with higher levels of Appreciative Intelligence should have a higher tolerance for ambiguity, the tendency to perceive ambiguous situations as desirable (Budner, 1962). Individuals with a low tolerance for ambiguity have adverse reactions to uncertain situations and perceive them as a stress or threat and thus something to avoid (Furnham & Marks, 2013), which in turn causes them to react prematurely and to avoid ambiguous stimuli (Furnham & Ribchester, 1995). Furthermore, individuals with low tolerance will cling to the familiar, or even superimpose distorting, simplified clichés upon stimuli (Furnham & Ribchester, 1995). Such reactions would prove to be obstacles to seeing positive possibility in ill-defined situations. Related to uncertainty avoidance and risk-taking propensity, individuals with a higher tolerance for ambiguity, however, are not discouraged by undefined situations. Instead, they find the risk and uncertainty of ambiguous situations challenging and interesting.

### ***Self-efficacy***

Those with higher levels of Appreciative Intelligence should also have higher levels of self-efficacy. Self-efficacy (Bandura, 1995) represents the belief that one has the capability to organize and execute the courses of action required to manage prospective situations. Past research suggests that higher self-efficacy predicts prosocial behavior (Caprara & Steca, 2005) and increased work-related performance (Stajkovic & Luthans, 1988). Likewise, self-efficacy describes an individual’s belief in his or her ability to be successful, which is related to the concept of self-fulfilling prophecies (Eden, 2003). Self-efficacy provides an individual with a positive future image of having effective outcomes and serves as an important cognitive prerequisite in approaching situations with a belief one will be successful.

### ***Situational awareness***

Based on our conceptualization, those with higher levels of situational awareness should demonstrate higher levels of Appreciative Intelligence. Defined originally as “the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future” (Endsley, 1988, p. 97), situational awareness has become a relevant construct across a variety of organizational contexts as an ability to understand the “big picture” (Vieweg, 2012). Endsley (1995) explains that situational awareness involves three specific levels of awareness/understanding: perceiving critical factors in the environment, understanding what those factors mean, especially in relationship to the individual’s goals, and understanding what will happen in the future with the system. Thus, individuals with higher situational awareness have a heightened awareness of their system and are also better able to make sense of the system and predict the future outcome of possible actions – even in the face of incomplete data. As a result, research suggests that individuals with keen situational awareness are better equipped to make tactical, strategic decisions (Harrald & Jefferson, 2007).

## Resilience

We expect individuals with high levels of Appreciative Intelligence to also demonstrate increased resilience. Conceptualized as the ability to adapt to stress and adversity and bounce back from difficult situations (Leadbeater, Dodgen, & Solarz, 2005; Luthar, Cicchetti, & Becker, 2000), resilience has gained traction in the literature in recent years. Resilience refers specifically to the “quality of not buckling under stress and returning to a state of strength despite weakening forces around” (Thatchenkery & Metzker, 2006, p. 30). Siebert (2005) argued that highly resilient individuals have an important advantage over non-resilient individuals as they “get through the distress, orient quickly to the new reality and cope with immediate challenges. They bounce back and often spiral upward, stronger than before.” Individuals who have high resilience are more capable of learning from the obstacles and problems they encounter and to use such knowledge to deal with future challenges (Salovey, Bedell, Detweiler, & Mayer, 2000). More easily adaptive to new experiences, resilient individuals are also insightful, which aids them in creating and acting on innovative solutions (Klohn, 1996).

In line with the literature, Appreciative Intelligence is operationally defined as a multidimensional construct comprised of positive affect, creativity, tolerance for uncertainty, self-efficacy, situational awareness, and resilience. To test this factorial structure, we conducted an empirical study in a sample of graduate students.

## Method

Even among top-tier management research outlets, content validation strategies are often insufficient to ensure content validity of the scale under development (Colquitt, Sabey, Rodell, & Hill, 2019). Thus, multiple strategies and samples were used for item-construct correspondence and item reduction over a multi-step content validation approach. In the interest of developing a parsimonious scale composed only of those items that best measure the six factors of Appreciative Intelligence, the research study began by writing a large item pool that deliberately oversampled the construct space (Little, Lindenberger, & Nesselrode, 1999) and could be reduced through subsequent analyses (Hinkin, 1995; Spector, 1992; Stanton, Sinar, Balzer, & Smith, 2002). For the study, we wrote 140 items set to a 5-point Likert scale that ranged from strongly disagree to strongly agree in order to capture the content domain of Appreciative Intelligence. These items were rationally written and consistent with the definition for each of the six content domains of Appreciative Intelligence (Hinkin, 1995; Schwab, 1980).

To start, we subjected the 140-item pool to a content analysis by asking a sample of 9 management PhD. students to rationally sort the items. The use of students for this initial step in scale validation is appropriate and common in the scale development literature (e.g., Colquitt et al., 2019). This procedure involved asking raters to use their deductive reasoning to categorize the randomized list of items on their *a priori* dimensions. High agreement between raters provides preliminary evidence of the content validity of an item pool (Hinkin, 1995). We provided the study’s raters with the dimension descriptions generated by Thatchenkery and Metzker (2006) and asked them to indicate with which subscale each item best fit, if any. Items were retained if 90% of the participants assigned the item to its appropriate AIS subscale (Hinkin, 1995). Fifty-nine of the original 140 items failed to meet this criterion. Consequently, the new 81-item pool was subsequently provided to participants in order to further refine the construct space via survey research.

## Sample

Participants were 209 employed graduate business students from two Northeast universities who were recruited from classes to complete an online survey. Once IRB approval was obtained, participants were emailed a link to an online survey. Four participants were removed based on incomplete data, leaving a sample of 205. Given that most of our items ultimately had moderate

communalities (MacCallum, Widaman, Zhang, & Hong, 1999) and that all of our factors were overdetermined (Velicer & Fava, 1998), this sample size is consistent with recommended estimates that allow a stable interpretation of the results (Fabrigar, Wegener, MacCallum, & Strahan, 1999; MacCallum et al., 1999; Thompson, 2004). The mean reported age for participants in this sample was 29.32 (SD = 9.22) with a mean tenure of 34.23 months (SD = 13.57). The sample was approximately 70% female and 67.1% Caucasian, 8.7% African American, 5.8% Latino or Hispanic, 4.8% Asian, 4.3% Middle Eastern, and 9.2% Pacific Islander, Indian, Native American, or Other.

## Results

### *Exploratory factor analysis*

To begin, we conducted a minimum average partial correlation analysis (MAP; Velicer, Eaton, & Fava, 2000) in order to determine the maximum number of factors that it should interpret, rather than relying on more subjective criteria, such as the Kaiser rule or a Scree plot analysis (Fabrigar et al., 1999). The results of the Velicer's MAP indicated that six factors should be retained for interpretation. We corroborated these results by conducting a parallel analysis (Hoyle & Duvall, 2004), which also indicated six factors for subsequent analysis.

Next, we performed an EFA using principal axis factoring and a direct oblimin rotation on the item pool and dropped items at this point on the basis of several criteria. Using Tabachnick and Fidell (2001) recommendation of .33 as a minimum cutoff for a factor loading, we then removed 14 items for insufficiently loading on any factor, and an additional 19 items for cross-loading on multiple factors. Lastly, we dropped 22 of the remaining items in the interest of parsimony; their item content was redundant due to overlap with other retained items that possessed stronger loadings (Little et al., 1999).

At the conclusion of this process, we retained 26 items: five representing positive affect, four representing creativity, seven representing self-efficacy, three representing tolerance for uncertainty, four representing situational awareness, and three representing resilience. For conceptual clarity, Table 1 shows the pattern coefficients from the EFA on the retained items. This set of 26 items demonstrated good reliability for the overall AIS ( $\alpha = .91$ ) and each subscale; positive affect ( $\alpha = .86$ ), creativity ( $\alpha = .81$ ), tolerance for uncertainty ( $\alpha = .80$ ), self-efficacy, ( $\alpha = .80$ ), situational awareness ( $\alpha = .82$ ), and resilience ( $\alpha = .79$ ).

## Discussion

The results of Study 1 indicate that consistent with our conceptualization, the AI domain is best represented by a six-factor structure. Next, we examine several hypotheses that we tested after establishing the factor structure of the AIS scale. These hypotheses are designed to provide initial evidence of the convergent, discriminant, and criterion-related validity of the AIS by placing it in a nomological network of individual differences, workplace perceptions, behavioral correlates, and important organizational outcomes. Because psychological constructs are generally not directly observable, establishing a construct's nomological network can provide indirect evidence of construct validity by demonstrating how well the measure correlates with established measures it should theoretically relate as well as established measures to which it should not be related.

## Study 2

In Study 2, we expected to find support for the convergent, discriminant, and criterion-related validity of the AIS. We outline below several specific hypotheses concerning the expected patterns of significant relationships between AI and other important individual differences, such as core self-evaluations, ingenuity, and psychological capital. We begin by demonstrating convergent validity,

**Table 1.** Exploratory factor analysis pattern coefficients on retained AIS items <sup>a</sup>.

| Item   | PA          | Creativity  | TU           | SE           | SA          | Resilience  |
|--|-------------|-------------|--------------|--------------|-------------|-------------|
| 1. I am able to look on the bright side of life.   | <b>0.87</b> | 0.01        | -0.01        | -0.04        | 0.01        | -0.08       |
| 2. I have a positive attitude.   | <b>0.85</b> | 0.00        | 0.00         | -0.01        | -0.02       | -0.07       |
| 3. It's easy for me to be happy.   | <b>0.79</b> | -0.06       | 0.06         | -0.05        | -0.03       | -0.04       |
| 4. I see positive possibilities embedded in everyday life.   | <b>0.61</b> | 0.02        | -0.06        | 0.14         | 0.01        | 0.06        |
| 5. I tend to see the glass half full instead of half empty.  | <b>0.55</b> | 0.02        | -0.09        | 0.11         | 0.09        | 0.12        |
| 6. My friends would describe me as having a vivid imagination.   | 0.12        | <b>0.63</b> | -0.04        | -0.11        | -0.17       | -0.01       |
| 7. I often think of possibilities that others do not.  | -0.02       | <b>0.79</b> | 0.05         | 0.06         | 0.00        | -0.06       |
| 8. I do well with assignments that require unconventional problem solving.                                   | 0.08        | <b>0.67</b> | -0.02        | 0.05         | 0.27        | -0.06       |
| 9. I come up with original ideas that others have not thought about before.                                  | -0.13       | <b>0.75</b> | -0.10        | 0.09         | 0.09        | -0.08       |
| 10. I feel stressed in situations where I am unsure what is going on.  | 0.09        | 0.00        | <b>-0.68</b> | -0.03        | 0.15        | -0.18       |
| 11. I don't mind taking reasonable risks.  | -0.02       | 0.06        | <b>0.55</b>  | 0.05         | 0.10        | 0.00        |
| 12. I feel more comfortable when there are rules and procedures to follow.                                   | -0.03       | 0.14        | <b>-0.64</b> | -0.07        | 0.05        | 0.09        |
| 13. I have faith in my capacity to overcome challenges.  | 0.18        | 0.16        | -0.03        | <b>0.57</b>  | -0.02       | 0.14        |
| 14. I know I can accomplish a task when I put my mind to it.   | 0.14        | 0.19        | -0.05        | <b>0.72</b>  | -0.10       | 0.10        |
| 15. If I try hard enough, I know I will achieve my goals.  | -0.01       | -0.01       | 0.03         | <b>0.47</b>  | -0.13       | -0.28       |
| 16. I am convinced that I can accomplish a task when I focus on it.  | 0.00        | 0.02        | -0.10        | <b>0.51</b>  | 0.18        | 0.05        |
| 17. I usually achieve the goals I set.   | 0.04        | 0.01        | -0.05        | <b>0.54</b>  | -0.03       | -0.25       |
| 18. When things are not working out, I give up easily.   | 0.02        | -0.12       | 0.00         | <b>-0.34</b> | 0.24        | -0.12       |
| 19. I have little difficulty achieving goals that I have set for myself.                                     | 0.02        | -0.04       | -0.07        | <b>0.57</b>  | -0.02       | -0.02       |
| 20. I understand how my decisions might impact other departments, the organization, and the local community. | 0.04        | 0.02        | 0.06         | 0.14         | <b>0.61</b> | -0.02       |
| 21. I anticipate how people in other positions in the organization may react to my decisions.                | -0.04       | 0.04        | 0.03         | -0.06        | <b>0.79</b> | -0.04       |
| 22. I can identify who are the most appropriate people to influence in order to achieve an objective.        | 0.06        | -0.01       | 0.08         | -0.05        | <b>0.73</b> | -0.03       |
| 23. I understand the wider implications of promoting a particular agenda in my organization.                 | -0.03       | -0.05       | 0.00         | 0.05         | <b>0.77</b> | 0.01        |
| 24. I cope very well with unexpected difficulties.   | 0.20        | 0.10        | -0.06        | 0.16         | 0.30        | <b>0.39</b> |
| 25. Obstacles energize me to work harder in order to attain an objective.                                    | 0.15        | 0.08        | -0.19        | 0.00         | 0.12        | <b>0.62</b> |
| 26. I tend to flourish when dealing with the pressure created by serious, unexpected problems.               | 0.03        | 0.22        | -0.09        | 0.02         | 0.03        | <b>0.65</b> |
| Post-rotation eigenvalues for retained items   | 7.19        | 2.50        | 2.26         | 1.73         | 1.46        | 1.15        |
| Percentage of variance explained for retained items (post-rotation)  | 27.68       | 9.62        | 8.70         | 6.68         | 5.52        | 4.42        |
| Final Cronbach alpha reliabilities for retained items  | .86         | .81         | .80          | .80          | .82         | .79         |
| Final Cronbach alpha reliability for overall AIS   | .91         |             |              |              |             |             |

Primary factor coefficients in bold. AIS – Appreciative Intelligence Scale®. Participant instructions read: You will be asked several sets of questions pertaining to your personality, workplace behaviors, and perceptions of your role. Your responses are completely confidential and will not be seen by anyone at your organization. Furthermore, no one other than the study investigators will see your responses, so please respond honestly. The survey should take 15–20 minutes to complete. Please click on the response that best reflects your answer and then when you've answered the questions on a page, hit NEXT PAGE to record your answers and to move to the next page. Use the BACK Button to move to a previous page. If you exit before completing and submitting the entire survey, just click on the original survey link that was sent to you to continue responding to questions from where you left off.

which is contingent on placing the AI construct in a nomological net that relates it to other similar or theoretically related constructs (Spector, 1992). Judge, Locke, and Durham (1997) introduced the concept of “core self-evaluations” as an integrating personality trait linked to job satisfaction. According to Judge et al. (1997), core self-evaluations (CSE) are the fundamental evaluations individuals hold of themselves and others, subconsciously influencing their appraisals of themselves and the world around them. The primary four traits that comprise CSE are: 1) *self-esteem*, which is an individual's appraisal of their own self-worth; 2) *generalized self-efficacy*, which is a general estimate of one's ability to perform and cope with in a variety of situations; 3) *emotional stability*, which categorizes one's tendency to remain calm and less reactive in situations; and 4) *locus of control*, which involves the belief one has about their capacity to impact their environment (Johnson, Rosen, & Levy, 2008). Because this paper proposes that self-efficacy is one-factor comprising Appreciative Intelligence®, one can expect to see a relationship between AIS and CSE.

Furthermore, subsequent research has also explored other traits that may be associated with CSE. To illustrate, evidence exists that *dispositional optimism* is another indicator of CSE (Judge, Locke, Durham, & Kluger, 1998). Given the alignment between dispositional optimism and the AI factor of positive affect, it is reasonable to anticipate a positive correlation between CSE and AI.

**Hypothesis 1:** AIS scores will relate positively to core self-evaluations

Related to the concept of creativity, organizational ingenuity has been conceptualized as “the ability to create innovative solutions within structural constraints using limited resources and imaginative problem solving” (Lampel, Benson, & Drori, 2014, p. 465). Going beyond the concept of merely idea generation, which is often associated with creativity, ingenuity involves applying ideas to solve social and technical problems (Homer-Dixon, 1995). To meet the challenges organizational actors face operating within constraints of their environment, some individuals are able to develop a set of “skills, social tactics, and mental orientation” that is expressed as ingenuity (Lampel et al., 2014). Our conceptualization of AI includes both creativity and resilience, which, we posit, are constructs related to ingenuity. In order to demonstrate ingenuity, one must be able to generate new ideas in a given situation. However, given that ingenuity happens when “actors refuse to abide by constraints, and instead search for solutions” in spite of constraints (Lampel et al., 2014, p. 2), ingenuity also relates to resiliency in that challenges are not experienced as crippling, but rather as a source for creating innovative solutions (Klohn, 1996).

**Hypothesis 2:** AIS scores will relate positively to ingenuity.

Psychological capital (PsyCap) is defined as “an individual’s positive psychological state of development characterized by: 1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at a challenging task; 2) making a positive attribution (optimism) about succeeding now and in the future, 3) persevering toward goals and, when necessary, redirecting paths (hope) in order to succeed, and 4) when beset by problems and adversity, sustaining, and bouncing back and even beyond (resiliency) to attain success” (Luthans, Youssef, & Avolio, 2007, p. 3). While these components conceptually overlap, research has shown that together they are synergistic in a way that makes them greater than the sum of their parts (Luthans, Avey, Avolio, Norman, & Combs, 2006) and predictive of job satisfaction and organization commitment (Larson & Luthans, 2006). As noted earlier, our conceptualization of AI includes characteristics of self-efficacy and resilience. Given the convergence of these two characteristics with two dimensions of PsyCap, this study expects to see AIS correlate positively with PsyCap.

**Hypothesis 3:** AIS scores will relate positively to psychological capital.

**Discriminant validity**

Demonstrating discriminant validity involves empirically and conceptually differentiating the Appreciative Intelligence® construct from theoretically unrelated constructs to which it might bear superficial similarity (Spector, 1992). The study identifies the agreeableness dimension of Big 5 and Emotional Intelligence as two measures that should not be related to Appreciative Intelligence® based on past research and our proposed conceptualization of the construct. To test for discriminant validity, we have selected one personality and one intelligence measure. In constructing and validating the STEM and STEU tests of Emotional Intelligence, MacCann and Roberts (2008) argue that tests of Emotional Intelligence should correlate with other intelligence measures in order to be measures of intelligence rather than personality. However, Gardner’s theory of multiple intelligences suggests that different kinds of intelligence can be relatively independent of each other, and that whereas some individuals may use a range of intelligences equally, others may “spotlight”



particular intelligences while overshadowing others (Gardner & Moran, 2006). Gardner and Moran (2006) also point out that Terman, one of the architects of I.Q. tests, conducted a 70-year longitudinal study which demonstrated that children with high I.Q.'s did not exhibit a remarkable success. Since AI is a decidedly real-world and practical form of intelligence, it would not be expected to have significant correlations with I.Q. Gardner's multiple intelligences model replaces the notion of a global construct or measure of intelligence with the recognition of distinct forms of intelligence.

Likewise, Emotional Intelligence (EI) is a distinct form of intelligence from Appreciative Intelligence<sup>®</sup>. The factors that, *prima facie* would seem most overlapping between the two constructs would be the AI factors of "positive affect" and "situational awareness" with the Emotional Intelligence dimensions of: "the integration of emotions into thought processes," "understanding the relations between, and transitions among, emotions and between emotions and circumstances," and, "the management of emotions to moderate negative, and enhance positive, emotions" (MacCann & Roberts, 2008, p. 540).

However, a closer look at the items contained in the Appreciative Intelligence<sup>®</sup> factors of "positive affect" and "situational awareness" reveal why these are not related to Emotional Intelligence. Positive affect is about the ability to access positive affect *regardless* of the situational inner or outer emotional backdrop – for example, as expressed by the phrases: "I am able to look on the bright side of life"; "It's easy for me to be happy"; "I see positive possibilities embedded in everyday life" – whereas Emotional Intelligence is about tuning into and responding to the operative emotional backdrop. The "situational awareness" factor in AI is focused on strategic rather than emotionally responsive understanding, and at the level of larger organizational or community realities versus direct interpersonal relationships – as shown in the phrases "I understand how my decisions might impact other departments, the organization, and the local community"; "I can identify who are the most appropriate people to influence in order to achieve an objective."

The personality dimension of "agreeableness" from the Big 5 could also superficially seem related to AI, but is in fact conceptually distinct. High scores on agreeableness can suggest a need to please, while low scores can reflect a selfish focus on one's goals. Items include: "Tends to find fault with others"; "Is considerate and kind to almost everyone"; "Is cold and aloof"; "Is generally trusting" (Chiorri, Marsh, Ubbiali, & Donati, 2016, p. 93). AI focuses on resilience and the capacity to see potential in and make the most of a situation, while maintaining *intrapersonal* optimism, whereas Agreeableness is focused on the quality of interpersonal relating.

Rather than posing null hypotheses that we cannot adequately test, Bagozzi, Yi, and Phillips (1991) suggested that discriminant validity hypotheses should be tested with nested models using structural equation modeling. Specifically, their technique involves comparing the difference in chi-square between two models, one in which the covariance between the two constructs is fixed to one (i.e., the constructs are treated as unitary), and the other in which the covariance is freely estimated (i.e., the constructs are treated as distinct). If the model with the freely estimated covariance yields significantly better fit to the data than the model in which the constructs are constrained to be unitary, the results indicate that the constructs are discriminant. Accordingly, our discriminant validity hypotheses are phrased in terms of differences in model fit that we expect based on utilizing Bagozzi et al.'s (1991) technique. This approach resulted in the following hypotheses:

**Hypothesis 4:** A model in which Appreciative Intelligence<sup>®</sup> and emotional intelligence are allowed to covary freely (e.g., their covariance is freely estimated) will display significantly better fit than a model in which Appreciative Intelligence<sup>®</sup> and emotional intelligence are fixed to be unitary (e.g., the covariance between the constructs is fixed to one).

**Hypothesis 5:** A model in which Appreciative Intelligence<sup>®</sup> and agreeableness are allowed to covary freely (e.g., covariance between the constructs is freely estimated) will display significantly

better fit than a model in which Appreciative Intelligence® and agreeableness are fixed to be unitary (covariance between the constructs is fixed to one).

### **Criterion-related validity**

Although we see a wide variety of outcomes potentially related to Appreciative Intelligence®, we use Griffin, Neal, and Parker (2007) measure of proactive work role behaviors to demonstrate the criterion-related validity of the AIS. By convention, work roles reflect performance requirements meant to influence the organization's overall effectiveness. The need for contemporary organizations to remain relevant depends, in large part, on how they react to the dynamic challenges and uncertainties faced by modern businesses. In response to changing conditions and demands, work roles, by necessity, must change as well (Katz & Kahn, 1978; Sonnentag & Frese, 2002). Motivation scholars argue that various forms of proactive behaviors (e.g., career planning, information seeking, and assuming control) all involve self-initiated and future-focused efforts by employees to catalyze change without requiring explicit direction from supervision (Frese & Fay, 2001; Parker, Williams, & Turner, 2006). As such, employee proactivity is conceived of as a process in which employees generate and implement, under their own instruction, a proactive goal to affect an alternative future (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012; Frese & Fay, 2001; Grant & Ashford, 2008).

As conceptualized, different forms of role behavior are required to perform most effectively in dynamic contexts. Proficiency describes the extent to which an individual meets the formal requirements of his or her role. Adaptivity describes the extent to which an individual adapts to changes in work systems or roles. Lastly, proactivity describes the extent to which an individual takes self-directed action to anticipate or initiate change in work systems or roles. Adaptivity and proactivity are important forms of behavior when there is uncertainty in inputs, processes, or outputs, because it is difficult to formalize the requirements of work roles under these circumstances.

Proactive behavior has been related to a variety of motivation-related variables including psychological empowerment (Hon, 2007), role breadth self-efficacy (Parker et al., 2006), and entrepreneurial orientation (e.g., Becherer & Maurer, 1999; Crant, 1996; Kickul & Zaper, 2000). More germane to the current study, proactive behaviors have been linked to flexible role orientation (Parker, Wall, & Jackson, 1997), one's concern with the breadth of one's experienced responsibility, or "how far one's 'psychological' role extends beyond achieving basic technical goals" (Parker et al., 2006, p. 639). Employees with a flexible role orientation broadly define their roles, feel ownership of goals which they view as part of their job (Parker et al., 1997), and are more likely to engage in proactive work behavior (Parker et al., 2006).

Griffin et al. (2007) differentiated proactive behavior based on the level in the organization to which an individual directs his/her proactive efforts. In brief, they specified the extent to which individuals engage in self-starting, future-oriented behavior relevant to: their individual work situations or roles (individual task proactivity); to a team's situation and processes (team member proactivity); and to their organization and/or the way the organization works (organization member proactivity). Although different types of proactivity have their own meanings, they are also positively and moderately related to each other, suggesting that different forms of proactive behavior share the same common base of proactivity, and supporting the conceptualization of proactive behavior as one overarching concept.

Parker et al. (2006) proposed three common motivational mechanisms in triggering proactive behavior. Prior to enacting proactive behavior, individuals will consider whether they a) feel capable of enacting change, b) whether they want to bring about a different future, and c) the extent to which they experience positive affect that fosters proactive actions. These mechanisms have been empirically supported in studies using different forms of proactive behavior (e.g., Bindl et al., 2012; Den Hartog & Belschak, 2007; Parker et al., 2006).

We expect Appreciative Intelligence® to occupy an important role in triggering proactive behavior because, according to a goal-regulatory perspective (see Parker et al., 2010), effective proactive

behavior derives from envisioning a different future and actively considering new pathways to a future-oriented goal. As noted by Frese and Fay (2001), proactive behavior is not the application of a standard procedure; rather it embodies activities that require effortful cognition in the generation of new ideas and envisioning a different future.

As conceptualized, those with high levels of AI characteristically seek out opportunities and show initiative in bringing about meaningful change. Appreciative Intelligence® compels not only proficiency in core task elements, but also a proclivity to monitor the workplace milieu for potential positive adaptations and initiate such changes in the name of increased organizational efficiency. Because AI is thought to foster a wider climate of positivity and resilience (Thatchenkery & Metzker, 2006), and because the various forms of proactive behavior share a broad common source for motivation (Griffin et al., 2007), we argue that change opportunity recognition likely occurs at all levels of proactive behavior, catalyzing changes within individuals' roles as well as at the team and organizational level. Thus, we hypothesize the following:

**Hypothesis 6:** AIS scores will relate positively to individual task proactivity.

**Hypothesis 7:** AIS scores will relate positively to team member proactivity.

**Hypothesis 8:** AIS scores will relate positively to organizational member proactivity.

## Method

Study 2 was conducted to confirm the factor structure found in Study 1 and to provide evidence for convergent, discriminant, and criterion-related validity. Participants completed the 26-item AIS in the context of a broader survey of self-report scales. Additionally, we gathered data on individual, team, and organizational task proactivity from a separate survey given to participants' supervisors.

## Sample

For Study 2, we gathered data from a separate sample of 256 employed graduate business students at three universities; two in the Northeast and one in the Southeast. The mean age of the subordinate participants was 30.14 (SD = 11.08) with an average tenure of approximately 36.31 months (SD = 14.22). The sample was 60.5% female and 64.1% Caucasian, 16% Asian, 5.9% African American, 4.7% Latino or Hispanic, and 9.3% Other (Middle Eastern, Native American, Pacific Islander, or other). The supervisor respondents had a mean age of 37.27 years (SD = 12.56), with a mean tenure of 51.72 (SD = 20.28). Further, the supervisor sample was 55.2% female and 69.5% Caucasian, 9.5% African American, 8.6% Asian American, 5.7% Hispanic, and 6.7% Other (Middle Eastern, Native America, Pacific Islander, or other).

In order to test the study's hypotheses while minimizing the effects of mono-source bias (artificial inflation in predictive validity due to over-reliance on one source of data; Podsakoff, 2003), participants' supervisors were contacted via e-mail and surveyed regarding the proactive performance of their subordinates. One hundred and five supervisors returned the survey, yielding a response rate of 41%. A series of subsequent one-way ANOVAs indicated no significant differences in any of the self-report variables when comparing the group of participants whose supervisors returned their survey to the group of participants whose supervisors did not respond.

## Measures

Unless otherwise noted, all responses were made on a 5-point Likert scale ranging from strongly disagree to strongly agree.

### ***Convergent validity measure***

The study measures Core Self-Evaluations with the Core Self-Evaluation Scale (CSES) developed by Judge, Erez, Bono, and Thoresen (2003). This 12-item measure ( $\alpha = .85$ ) assesses the four components of self-esteem, generalized self-efficacy, emotional stability, and locus of control. A sample item reads “I am confident I get the success I deserve.”

We used the nine-item Ingenuity subscale ( $\alpha = .92$ ) from the Openness to Experience scale (Woo et al., 2014) to assess Ingenuity. A sample item reads “I am confident I get the success I deserve.”

Psychological capital was measured with the 12-item version ( $\alpha = .86$ ) of the Psychological Capital Questionnaire (PCQ) (Luthans et al., 2007). The PCQ-12 assesses four components of confidence (originally adapted from Parker, 1998), hope (originally adapted from Snyder et al., 1996), perseverance (originally adapted from Wagnild & Young, 1993), and optimism (originally adapted from Scheier & Carver, 1985). A sample item from this scale reads: “I feel confident in representing my work ideas in meetings with management”

### ***Discriminant validity measures***

Emotional Intelligence was assessed with the Situational Test of Emotion Management (STEM) (MacCann & Roberts, 2008), an 18-item ( $\alpha = .71$ ) situational judgment test of emotional intelligence designed to assess three dimensions relevant to emotional intelligence: utilizing own emotion, sensing other’s emotion, and understanding emotional context. For the test, we asked participants to choose which of four response options would be the most effective course of action to take in emotionally charged situations. A sample item, along with its response options, reads: “Pete has specific skills that his workmates do not, and he feels that his workload is higher because of it. What action would be the most effective for Pete? (a) Speak to his boss about this, (b) Start looking for a new job, (c) Be very proud of his unique skills, or (d) Speak to his workmates about this.”

We measured Agreeableness using the agreeableness subscale of the Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003; Hofmans, Kuppens, & Allik, 2008), a two-item measure ( $\alpha = .72$ ) that asks participants to rate the extent to which agreeable tendencies (e.g., being warm and sympathetic) applies to them.

### ***Criterion-related validity measures***

We assessed individual, team, and organizational proactivity using Griffin et al.’s (2007) measure of positive work role behaviors. Supervisor participants were asked to describe how often in the past 6-months focal subordinates had actively initiated a change to core job responsibilities. Each construct was measured using three items and responses ranged from one (*very little*) to five (*a great deal*). A sample item from the individual task proactivity subscale ( $\alpha = .82$ ) reads “Initiated better ways of doing his/her core tasks”; a sample item from the team task proactivity ( $\alpha = .80$ ) subscale reads: “Developed new and improved methods to help his/her work unit perform better.” a sample item from the organizational task proactivity subscale reads “Involved him/herself in changes that are helping to improve the overall effectiveness of the organization.”

## **Results**

### ***Hierarchical confirmatory factor analysis***

A hierarchical CFA was conducted to cross-validate the six-factor structure that emerged from Study 1. As shown in Figure 1, AI is conceptualized as a higher-order latent variable that shapes these characteristics. Consistent with the criteria established by MacKenzie, Podsakoff, and Jarvis (2005), we have treated this dimensional structure as a latent variable model with effects indicators (i.e., with arrows flowing from the construct to the indicators) rather than an aggregate or manifest variable model (i.e., with arrows flowing from the indicators to the construct). Specifically, because these

dimensions are seen as manifestations of AI that are likely to be highly correlated and share similar relationships with antecedents and consequences, a latent variable structure fits better with our theoretical approach, rather than an aggregate variable model.

Mplus version 7.4 (Muthén & Muthén, 2015) was employed to validate the hypothesized model. We compared the fit of the *a priori* theoretical model to several alternative models to provide further evidence of discriminant validity (Lance & Vandenberg, 2002). Specifically, we tested three models; a common factor model, in which all items loaded on a single latent construct; a six-factor model, in which the *a priori* AI latent constructs were allowed to freely covary; and the study's *a priori* hierarchical model, in which the superordinate AI construct affects the six-dimension constructs. The hierarchical model was specified to freely estimate the loadings of all six dimensions, which necessitated setting the variance of the second-order AI latent variable to one to identify the model (Kline, 2005).

The results of these analyses are shown in Table 2. The six-factor model and the *a priori* hierarchical model displayed a significantly better fit to the data than the common factor model. A chi-square difference test indicates that the six-factor model and the hierarchical model fit equally well ( $\Delta\chi^2(2) = 4.63, p > .05$ ), with no appreciable changes in any other fit indices. Psychometricians advocate that when researchers have a strong theoretical reason to expect a hierarchical structure, the appropriate model for the data interpretation should be the model that requires estimating fewer parameters (e.g., Mulaik, 1998). Because the hierarchical model is more parsimonious with fewer degrees of freedom, and based on our conceptualization of AI as embodying a hierarchical structure, we argue that our results are supportive of the *a priori* hierarchical model. Consistent with Kline (2005), the fit indices indicate a good fit to the data ( $\chi^2(241) = 251.24, p < .01$ ; GFI = .93; CFI = .93; RMSEA = .07; SRMR = .07). Figure 2 shows the results of this model with all path coefficients.

### Convergent validity hypotheses

Table 3 presents the internal consistency and correlations for all study variables, and Table 4 shows the results of our hierarchical regression analyses pertaining to convergent validity hypotheses. For all analyses, we first entered sex, ethnicity, and age, as control variables at Step 1 based on research indicating that these demographic variables may influence the expression of one or more of the AIS subfacets. For example, differences in creativity, situational awareness, tolerance for ambiguity, have been observed across sexes, ethnicities, and age (i.e. Abraham, 2016; Cabello, Sorrel, Fernández-Pinto, Extremera, & Fernández-Berrocal, 2016; Thompson, 2016; Van Den Bos & Hertwig, 2017; Yong, Mannucci, & Lander, 2020). As such, we first controlled for the effects of these demographic variables prior to regressing the dependent variable on AI for all analyses (Table 4).

Hypothesis 1 states that the AIS should relate to core self-evaluations. This hypothesis was supported ( $\beta = .36, p < .01$ ) explaining an additional 19% of the variance in core self-evaluations over and above the demographic control variables. Similarly, Hypothesis 2 states that AI would be positively related to ingenuity. As indicated in Table 4, the relationship between AI and ingenuity was significant and positive ( $\beta = .23, p < .01$ ). Lastly, we also found support for Hypothesis 3, which stated that psychological capital would relate positively with AI ( $\beta = .39, p < .01$ ).

### Discriminant validity hypotheses

We choose to demonstrate discriminant validity using Bagozzi et al. (1991) method of comparing nested models. Hypothesis 4 states that AI would be discriminant from emotional intelligence. Inspection of Table 5 supports this hypothesis as the model with a freely estimated covariance between AI and emotional intelligence fits significantly better than the model wherein this covariance was fixed to one ( $\chi^2(1) = 13.06, p < .001$ ). To supplement these analyses, we calculated the average variance extracted (AVE) for both AI and emotional intelligence. Evidence of discriminant validity is present when the AVE of both constructs is greater than the shared variance (i.e., the

squared correlation) between constructs (Fornell & Larcker, 1981). AVE values were .52 for AI and .33 for emotional intelligence, whereas the squared correlation between AI and emotional intelligence was .02, thereby providing strong evidence of distinctiveness of these two scales.

Similarly, Hypothesis 5 states that the AIS would be discriminant from agreeableness. In accordance with our expectations, the model with a free covariance fit significantly better ( $\chi^2(1) = 10.27, p < .001$ ). Further, the squared inter-correlation between AIS and agreeableness was .07, lower than AVE values for either dimension (.52 and .45, respectively), supporting Hypothesis 5. Thus, both discriminant validity hypotheses were supported, indicating that Appreciative Intelligence® is distinct from emotional intelligence and agreeableness, respectively. Additionally, as noted in the initial HCFA, the priori model displayed better fit than a null model and a common factor model, providing further support for discriminant validity (Lance & Vandenberg, 2002).

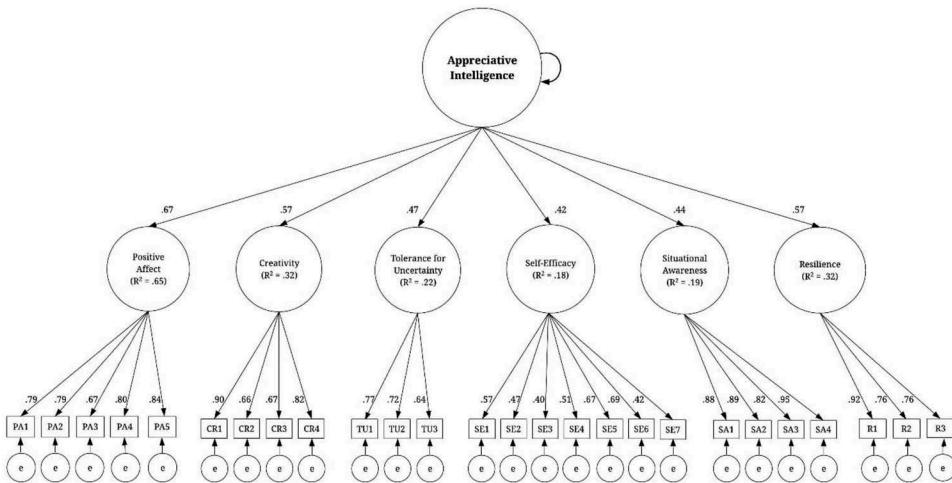
**Criterion-related validity hypotheses**

Table 6 shows the results of the study’s tests of criterion-related validity. Hypothesis 6 predicts that the AIS total score would be positively related to supervisor reports of individual task proactivity. Table 6 indicates that Hypothesis 6 was supported ( $\beta = .58, p < .01$ ). Hypothesis 7 states that the AIS total score would be positively related to supervisor reports of team member proactivity. As shown in Table 6, the relationship between AI and team member proactivity attained statistical significance ( $\beta = .52, p < .01$ ). Hypothesis 8 predicts that the AIS score would positively relate to supervisor reports of organizational member proactivity. This relationship is supported ( $\beta = .44, p < .01$ ), explaining an additional 7% of the variance over the demographic control variables.

**Table 2.** Fit Indices for Tests of Discriminant Validity.

| Model               | $\chi^2$ | df  | SRMR | RMSEA | GFI | CFI | $\Delta\chi^2$ | $\Delta df$ |
|---------------------|----------|-----|------|-------|-----|-----|----------------|-------------|
| Common Factor Model | 901.31** | 252 | .19  | .24   | .47 | .51 | 1020.22**      | -           |
| Six-Factor Model    | 289.57** | 243 | .07  | .08   | .94 | .93 | 611.74**       | 9           |
| Hierarchical Model  | 284.94** | 241 | .07  | .07   | .93 | .93 | 4.63           | 2           |

SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation; CFI = comparative fit index; GFI = goodness-of-fit index \*\* $p < .01$ .



**Figure 2.** Results of Hierarchical Confirmatory Factor Analysis of Appreciative Intelligence® scale items.

**Table 3.** Means, Standard Deviations, and Correlations of all Variables.

| Study Variables               | Mean | SD   | 1      | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     |
|-------------------------------|------|------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. Appreciative Intelligence® | 3.57 | 0.51 | (.91)  |       |       |       |       |       |       |       |       |
| 2. Core Self-Evaluations      | 3.06 | 0.40 | .48**  | (.85) |       |       |       |       |       |       |       |
| 3. Ingenuity                  | 3.10 | 0.51 | .22**  | .45** | (.92) |       |       |       |       |       |       |
| 4. Psychological Capital      | 3.40 | 0.65 | .30**  | .26** | .24** | (.86) |       |       |       |       |       |
| 5. Emotional Intelligence     | 0.64 | 0.11 | .11    | .12   | -.12  | .09   | (.71) |       |       |       |       |
| 6. Agreeableness              | 2.96 | 0.86 | -.26** | .00   | .08   | .01   | -.06  | (.72) |       |       |       |
| 7. Individual Proactivity     | 4.41 | 0.87 | .36**  | .14   | .08   | -.03  | .28*  | -.06  | (.82) |       |       |
| 8. Team Proactivity           | 4.50 | 0.87 | .34**  | .08   | -.09  | .13   | .15   | .12   | .43** | (.80) |       |
| 9. Organizational Proactivity | 4.40 | 0.97 | .25**  | .35*  | -.09  | .30*  | .19   | .14   | .33*  | .46** | (.83) |

Reliabilities reported in parentheses. \*  $p < .05$ , \*\*  $p < .01$ . All tests are two-tailed.

**Table 4.** Results of Hierarchical Regression Analysis for Convergent Validity.

|              |                 | Dependent Variable |         |                       |              |
|--------------|-----------------|--------------------|---------|-----------------------|--------------|
| Hypothesis 1 | Step<br>Block 1 | Variable           | $\beta$ | Core Self-Evaluations |              |
|              |                 | Sex                | .04     | $R^2$                 | $\Delta R^2$ |
|              | Block 2         | Ethnicity          | .01*    | .06                   | .19          |
|              |                 | Age                | .01     |                       |              |
|              |                 | AI                 | .36**   |                       |              |
|              |                 |                    |         |                       |              |
| Hypothesis 2 | Step<br>Block 1 | Variable           | $\beta$ | Ingenuity             |              |
|              |                 | Sex                | -.01    | $R^2$                 | $\Delta R^2$ |
|              | Block 2         | Ethnicity          | .01     | .00                   | .05          |
|              |                 | Age                | .00     |                       |              |
|              |                 | AI                 | .23**   |                       |              |
|              |                 |                    |         |                       |              |
| Hypothesis 3 | Step<br>Block 1 | Variable           | $\beta$ | Psychological Capital |              |
|              |                 | Sex                | .09     | $R^2$                 | $\Delta R^2$ |
|              | Block 2         | Ethnicity          | -.01    | .03                   | .08          |
|              |                 | Age                | .01     |                       |              |
|              |                 | AI                 | .39**   |                       |              |
|              |                 |                    |         |                       |              |

\*  $p < .05$ , \*\*  $p < .01$ .

## Study two discussion

In summary, Study Two supports the AIS as a reliable and valid six-factor multidimensional construct measured by 26 items scored along a 5-point Likert scale. Additionally, its validation results demonstrate that the AIS is similar to, yet distinct from, related constructs including core self-evaluations, ingenuity, and psychological capital – and is also different from conceptually distinct discriminant variables including agreeableness and emotional intelligence. Our findings are noteworthy in that the scale was validated against a robust combination of self-report measures and supervisor ratings. As such, the AIS shows considerable promise for use in both research and applied settings.

The tests of criterion-related validity in Table 6 indicate that the AIS explained between 7% and 14% of the variance in the criteria over and above the demographic control variables. Although the magnitude of these variances is not large, these findings are practically meaningful to organizations. For example, research with service employees has shown that higher levels of engagement correlate with higher daily financial returns by the respective employee (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Furthermore, studies have also shown that proactivity is predictive of employees' career success, being positively associated with both objective (salary and promotion) measures, as well as subjective (career satisfaction) measures (Seibert, Crant, & Kraimer, 1999). Thus, providing organizations with the means to predict even small percentages of the variance in these criteria yields important financial and employee-related results.

**Table 5.** Fit Indices for Tests of Discriminant Validity.

| Hypothesis   | Model        | $\chi^2$ | <i>df</i> | SRMSR | RMSEA | CFI | $\Delta\chi^2$ | $\Delta df$ |
|--------------|--------------|----------|-----------|-------|-------|-----|----------------|-------------|
| Hypothesis 4 | Unitary      | 384.61   | 237       | .14   | .11   | .81 |                |             |
|              | Discriminant | 371.55   | 236       | .09   | .11   | .87 | 13.06***       | 1           |
| Hypothesis 5 | Unitary      | 183.28   | 237       | .18   | .14   | .77 |                |             |
|              | Discriminant | 173.01   | 236       | .10   | .13   | .80 | 10.27***       | 1           |

\*\*\**p* <.001.

## General discussion

The purpose of this paper is to advocate for the importance of Appreciative Intelligence for management research, and to develop and validate a new measure of Appreciative Intelligence, the Appreciative Intelligence Scale (AIS), in order to facilitate future research. Results from two empirical correlational design studies demonstrate the reliability and validity of the AIS. Our results indicate that AI, as measured by the AIS, is an important construct in applied work settings. Perhaps the study's most compelling finding was that AI predicted proactive behaviors aimed at improving organizational processes and outcomes. Organizational member proactivity includes behaviors meant to increase efficiency and effectiveness across units and levels, for example, suggesting modifications to administrative activities. Overall, proactive behaviors are likely to translate into increased individual and organizational performance, positive individual employee-related career-related outcomes, sales, and overall organizational success (Fay & Frese, 2001; Parker et al., 2006; Raabe, Frese, & Beehr, 2007). Furthermore, in today's increasingly dynamic work environment, where the organizational landscape is ever-changing, as acutely illustrated by the COVID-19 global crisis, employees need to adapt more readily and willingly in order to approach challenges in a proactive manner – rather than to fulfill their job descriptions with passivity (Swan & Fox, 2009). In summary, AIS has the potential to help identify employees especially likely to take actions that will benefit the employees and the overall organization with positive financial and social benefits in the workplace.

The research also indicates that those with high levels of AI are likely to display higher levels of core self-evaluations and psychological capital. These relationships may have a variety of implications for practitioners, particularly as core self-evaluations have been associated with better job performance, increased job satisfaction, lower stress and conflict, the ability to overcome setbacks and capitalize on opportunities (Judge, 2009). Psychological capital has also been identified as an

**Table 6.** Results of Hierarchical Regression Analysis for Criterion-Related Validity.

| Hypothesis   | Step    | Variable  | $\beta$ | Dependent Variable                |       | $\Delta R^2$ |
|--------------|---------|-----------|---------|-----------------------------------|-------|--------------|
|              |         |           |         | $R^2$                             |       |              |
| Hypothesis 6 | Block 1 | Sex       | .16     | Individual Task Proactivity       | $R^2$ | $\Delta R^2$ |
|              |         | Ethnicity | -.03    |                                   |       |              |
|              | Block 2 | Age       | .02     |                                   |       |              |
|              |         | AI        | .58**   |                                   |       |              |
|              |         |           |         |                                   |       |              |
| Hypothesis 7 | Block 1 | Sex       | -.04    | Team Member Proactivity           | $R^2$ | $\Delta R^2$ |
|              |         | Ethnicity | .00     |                                   |       |              |
|              | Block 2 | Age       | .01     |                                   |       |              |
|              |         | AI        | .52**   |                                   |       |              |
|              |         |           |         |                                   |       |              |
| Hypothesis 8 | Block 1 | Sex       | .09     | Organizational Member Proactivity | $R^2$ | $\Delta R^2$ |
|              |         | Ethnicity | -.05    |                                   |       |              |
|              | Block 2 | Age       | .01     |                                   |       |              |
|              |         | AI        | .44**   |                                   |       |              |
|              |         |           |         |                                   |       |              |

\* *p* <.05, \*\* *p* <.01.



antecedent in models of job satisfaction and performance (Newman, Ucbasaran, Zhu, & Hirst, 2014). Applied to the workplace, our results indicate that those with high levels of Appreciative Intelligence® tend to be higher in core self-evaluations and psychological capital, and suggests that these persons may be especially prone to be more effective employees who are more satisfied and productive at work.

## Limitations

We see the potential for new research on Appreciative Intelligence using the AIS contributing to the literature in a wide variety of settings, such as organizational development and change, including sectors with historically protracted structural challenges such as health care and patient/doctor restructuring, industrial, and technology corridor development expansion, public education reform and improvements and prison reform and prisoner recidivism. The findings articulated in this paper suggest that the AIS is a useful tool for future research. However, this study does have some specific limitations. One limitation is the use of a student sample, which may limit generalizability. However, as noted earlier, the construct development and validation samples were composed of older student employees with significant work experience; the mean age of the subordinates over Studies 1 and 2 was 29.32 and 30.14 years, respectively, with an average tenure of approximately 34.23 and 36.31 months, respectively. The profile suggests the sample is more akin to the working population, rather than a typical student sample.

Second, internal consistency reliabilities for several of the constructs under study demonstrated reliability estimates below the recommendations for applied research (Lance, Butts, & Michels, 2006; Nunnally, 1978). Thus, we recommend that other researchers reexamine these relationships in future studies to confirm its results. Relatedly, the absence of long-term test-retest reliability data is a limitation that should be addressed. Appreciative Intelligence is conceptualized as a relatively stable, enduring trait (Thatchenkery, 2015) which should be minimally sensitive to situational fluctuations on different measurement occasions. As such, the AIS is thought to exhibit high immediate and longer-term consistency/stability coefficients. Because time and resource constraints prevented repeated same-sample AIS administration; however, future research should assess the temporal stability of this instrument.

A final limitation of this study is our failure to establish discriminant validity between the newly-constructed AIS and measures of general mental ability. As previously noted, Appreciative Intelligence is rooted in the theory of multiple intelligences, within the positive manifold of cognitive abilities that constitute the broader general intelligence domain (Gardner, 1983, 1999). Contemporary interest in the Appreciative Intelligence construct reflects scholarly attempts to define those intra/interpersonal intelligences thought to be critical in today's interdependent workplaces (Goleman, 1994; Salovey & Mayer, 1990). In order to ensure that the Appreciative Intelligence construct is distinct from general mental ability, future research should incorporate into its design and analysis measures of cognitive ability to rule out concept redundancy.

## Summary and conclusions

Appreciative Intelligence® is a unique and underrepresented construct in the literature of positive psychology. We contribute to the advancement in the corpus of literature about AI by developing a valid and useful scale for its measurement. Our examination of AI's role as an important antecedent to organizational outcomes helps practitioners and researchers predict proactive behaviors and employee performance, while also encouraging additional theoretical research supported by a validated scale.

Several research questions can be identified to guide future inquiry. For example, we see value in exploring the interactive effects of Emotional Intelligence (EI) and Appreciative Intelligence (AI) on various outcomes. Both EI and AI are embedded in the multiple intelligence model. One of the

components of EI is self-awareness while AI explores situational awareness. They are different yet both imply a form of mindfulness (i.e. paying attention to the present). As Chia (2005) observed, “managing is firstly and fundamentally the task of becoming aware, attending to, sorting out, and prioritizing an inherently messy, fluxing, chaotic world of competing demands that are placed on a manager’s attention ... Active perceptual organization and the astute allocation of attention is a central feature of the managerial task” (p. 1092). He appears to be referring both to self-awareness and situational awareness while distilling the managerial process. An interactive effect between EI and AI is therefore plausible and worth future explorations.

We also see the immediate practical utility in the use of the AIS specifically among expatriate employees. Expatriate scholars have recently noted the dearth of research exploring the discrete psychological processes of adjustment and withdrawal (Firth, Chen, Kirkman, & Kim, 2014; Kumar, Budhwar, Patel, & Varma, 2019). As organizations globalize their value chains, cross-cultural adjustment of expatriates has become a central concern as poor adjustment has been linked to lower quality host-nation stakeholder relationships (Nadeem and Mumtaz, 2018; Tao et al., 2018), resulting in cross-industry early assignment termination rates approaching 40% (Trompeter et al., 2016). Expatriate scholars postulate that a substantial portion of assignment failures are due to the stress one experiences when host-culture behavioral demands are incongruent with expatriate values and behavioral norms (Maertz, et al. 2009). In these situations, behavioral reactions to such stress, which can range from a simple outright rejection to the wholesale adoption of host-culture norms, are thought to be bounded by one’s motivation to embrace change, value intellectual curiosity and change activities, and have more positive attributes accessible in self-knowledge. In short, better expatriate outcomes are expected from those who endorse a “change is good” mind-set. Because higher levels of Appreciative Intelligence translate to elevated capacity and motivation to find the inherent positives in a given situation, future research should examine the extent to which Appreciative Intelligence may a) provide a buffer against the intense feelings of distress experienced in cross-cultural situations, b) influence the frequency with which healthy, adaptive stress-reducing behavioral strategies are selected, and c) positively affect downstream outcomes such as expatriate burnout, performance, and withdrawal. This is one of many practical applications we anticipate AIS being a tool to support increased organizational effectiveness in the future.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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